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August 28, 2025

Addendum No. 04

File Reference Number: RFP 2025 059

Title: North Bay Wheelhouse Interior Upgrade

RE: Clarifications/Questions

Please refer to the following information/clarification:

Item 1: Site Access and Plant Operations

a. ONTC advises that the Contractor is responsible for determining their preferred means of site access for removals and all new work (e.g., via existing doorways, temporary openings through existing windows, etc.) and shall carry all costs associated with such measures.

b. ONTC advises that access methods must minimize disruption to daily plant operations and must not adversely affect typical plant operations. Site-specific requirements related to operations are to be discussed with the Plant Manager at the start of the project.

Item 2: Ground Floor Construction Plan vs Room Finish Schedule

- Please confirm whether all wall surfaces in Storage Room(s) 107 and/or 108 are to be constructed using 5/8" plywood substrate in lieu of gypsum board, and whether the finish schedule remains valid (e.g., I.PNT.01 over plywood vs. over GYP. BD.)

  Answer: ONTC advises that 5/8” plywood substrate is desired in the areas noted for durability, FRP finish applied to 96” AFF and paint above where the ceiling height is taller than 96”.

- Please confirm that plywood walls in storage rooms are not required to be part of fire-rated partitions, or provide fire treatment requirements for 5/8" plywood if used in lieu of gypsum board

  Answer: ONTC advises that there are no fire-rated partitions.

Item 3: Window Film Men’s Washroom

- Please confirm the exact 3M product to be used for privacy film on Window W-02 in the Men’s Washroom, including whether it is to be mirror, frosted, or opaque. Also

confirm if the application is interior or exterior, and whether any specific performance or fire rating is required

Answer: ONTC advises that the following films would be acceptable:
3M FASARA Glass Finishes, SH2MACR-I, matte crystal; or
3M FASARA Glass Finishes SH2EMOS, Frost/Matte, Oslo, White.

Item 4: Contractor-supplied appliances

- Please confirm the specific make/model or dimensional and performance requirements for the Fridge (Q.FRG.01), Stove (Q.STV.01), and Microwave/Hood Combo shown in the breakroom elevation. If the contractor is to provide generic appliances for review, please confirm minimum dimensions and finish preferences (e.g., white, stainless)

  Answer: ONTC confirms that generic appliances are acceptable in a stainless steel finish. Please refer to Addendum 2 updates - ONTC Wheelhouse Improvements, for Appliance widths. Please update Part 3 - Schedule 3-A-2 - Technical Specifications with the revised technical specifications, attached at Appendix "A" of this Addendum.

Item 5: Fire Separation Requirements

- Even if ONTC doesn't require a municipal permit (since it's a Crown corporation), both NBC (National Building Code of Canada) and OBC (Ontario Building Code) act as reference standards

- Industrial occupancies (like wheel shops) generally do not require compartmentalized fire separations across the shop floor. Fire separations *are* normally required for support rooms:

  - Electrical rooms
  - Mechanical rooms
  - Washrooms and staff spaces (if adjacent to hazardous shop areas)
  - Storage rooms containing combustibles or hazardous materials
  - **Firestopping** is always required where services (conduits, pipes, ducts) penetrate fire-rated assemblies.

  Answer: ONTC advises that due to the size and occupant load of this group, F-2 medium hazard industrial building fire separations were not applicable. As it relates to hazardous material storage areas, the storage areas adjacent to new construction are planned for storage of machined parts.

Item 6: Can you confirm whether fire separations and firestopping are required for support rooms (electrical, mechanical, washrooms, and storage) in the wheelhouse, even though they are not shown on the drawings and ONTC does not require a municipal building permit?

Answer: See Response to Items #5 and #12.

Item 7: Please confirm that plywood walls in storage rooms are not required to be part of fire-rated partitions, or provide fire treatment requirements for 5/8" plywood if used in lieu of gypsum board.

Answer: See Response to Item #2.

Item 8: Door Hardware

- The tender documents and drawings do not identify any door hardware schedule or specifications. Can you please confirm whether specific hardware requirements (fire-rated hardware, panic hardware, closers, etc.) are intended for this project, or should we carry standard heavy-duty commercial-grade hardware consistent with OBC/NBC requirements?

- The tender documents do not include a door and hardware schedule, nor do they reference AODA/OBC requirements for barrier-free washrooms. Can you confirm the required door hardware, including lever sets, D-pulls, emergency release features, and power door operators for universal washrooms, so we can align with ONTC's accessibility expectations

  Answer: Please refer to the additional hardware information provided on the updated door schedule. Please update Part 3 - Schedule 3-A-3 - Issue for Tender Drawings A102 and A300 (Centreline Architecture) with the revised Drawings located at Appendix "B" of this Addendum.

Item 9: Could you please provide a product specification for the acoustical ceiling tile and grid?

Answer: ONTC advises that the revised Architectural Specifications are included in Addendum 2 - ONTC Wheelhouse Improvements. Please refer to Addendum 2 updates - ONTC Wheelhouse Improvements, for Appliance widths. Please update Part 3 - Schedule 3-A-2 - Technical Specifications with the revised technical specifications, attached at Appendix "A" of this Addendum.

Item 10: Could you please provide a product specification for the shower stall partitions?

Answer: ONTC advises that the shower/washroom partitions shall be headrail braced solid phenolic panels mounts 9" AFF. Additional Information is included in Material specifications, which are attached to this Addendum at Appendix "C".

Item 11: Could you please provide an assembly description for the gypsum board ceilings and bulkheads and confirm gypsum board type and thickness required?

Answer: ONTC advises that 5/8" Moisture resistant gypsum board on suspended light gauge steel framing is required.

Item 12: Could you please provide a fire separation plan or confirm if there are any fire separations in the area of work?

Answer: ONTC advises that there are no fire separations in the area of work.

Item 13: Could you please confirm FRP.01 in Hallway and Storage Room are to height of underside of windowsill as per Finish Notes on drawing A103?

Answer: ONTC advises that I.FRP.01 (height is to underside of sill) is noted in the Hallway, Break Room & Men's shower area and the Storage Room notes as I.FRP.03 (height to 96" AFF).

Item 14: Could you please confirm if a Class A Fire Rated or a Class C Fire Rated panel is required for the FRP?

Answer: ONTC advises that Class C rated panels will be acceptable in this application.

Item 15: Would ONTC consider revising Proposal Form 1-A - Schedule of Prices to have one (1) General Condition Section?

Answer: Yes, please see revised Proposal Form 1-A - Schedule of Prices.

The RFP Documents have been revised and sections affected are noted below. The revised RFP sections supersede all previous RFP Document versions for the said documents.

Part 4 - Form of Proposal

Delete Document:	**Replace with Revised Document:**
Proposal Form 1-A - Schedule of Prices	Proposal Form 1-A - Schedule of Prices (Addendum No. 04)

Regards,

Nicole Laplante
Procurement Contracts Specialist
nicole.laplante@ontarionorthland.ca

Appendix “A”

CA JOB NO. 2025-013

PROJECT SPECIFICATIONS
1 OF 1

ONTC WHEELHOUSE INTERIOR IMPROVEMENTS

555 Oak Street East, North Bay, Ontario

ADDENDUM 2

August 27, 2025

PREPARED BY:

CENTRELINE
ARCHITECTURE

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SECTION 00 01 00
SEALS PAGE

ARCHITECTURAL SEAL

Centreline Architecture have prepared the following specification except where noted.

00 00 00	01 50 00	09 29 00
00 01 00	01 51 00	09 30 00
00 01 10	01 61 00	09 51 00
00 11 00	01 70 00	09 65 00
	01 73 30	09 90 00
01 25 00	01 74 00	10 28 00
01 35 17	01 77 19	
01 35 23	01 78 00	
	01 78 10	
	01 78 40	
01 45 00	01 79 00	
	02 00 00	
	02 40 00	
	03 30 00	
	03 35 00	
	05 50 00	
	06 10 00	
	06 20 00	
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****END OF SECTION****

1. PART 1 | GENERAL REQUIREMENTS

2. Contract Documents

2.1. The specifications specify work and coordination that is the direct responsibility of the Contractor. They shall not be interpreted to define absolutely the limits of responsibility that must be established between the Contractor and their Subcontractors by their separate agreements.

2.2. Ensure that all Subcontractors understand that the General Conditions of the Contract, and Division 1 General Requirements, apply to Sections of the Specification governing their work.

2.3. Ensure that the work includes all labour, equipment and products required, necessary or normally recognized as necessary for the proper and complete execution of the work of each trade.

2.4. Work in this Specification is divided into descriptive Sections which are not intended to identify absolute contractual limits between Subcontractor, nor between the General Contractor and his Subcontractors. The Contractor shall organize division of labour and supply of materials essential to complete the Project in all its parts and provide a total enclosure and protection from weather of interior spaces, as established in the General Conditions of the Contract.

2.5. As a result, the Consultant shall not be required to decide on questions arising with regard to agreements or contracts between the Contractor and Subcontractors or Suppliers, nor to the extent of the parts of the Work assigned thereto. Division of the work among the subcontractors and suppliers is solely the Contractor’s responsibility. The Architect and Owner assume no responsibility to act as an arbiter to establish subcontract limits between sections or Division of the work.

2.6. Further, no extra will be allowed as a result of the failure to coordinate and allocate the Work such that the Work is provided in accordance with the Contract Documents.

2.7. Wherever the word "building" occurs in the Contract Documents it shall be taken to mean all the buildings included in the Contract, if applicable.

2.8. Wherever in the Contract Documents the words "approval", "approved", "direction", "directed", "selection", "selected", "request", "requested", "report", and similar words are used, such approvals, directions, selections, requests and reports shall be given by the Consultant in writing unless specifically stated otherwise.

2.9. Wherever in the Contract Documents the word "supply" is used in any form, it shall mean that the work specified to be supplied includes delivery to site and unloading at location directed.

2.10. Wherever in the Contract Documents the word "installed" issued in any form, it shall mean that the Work specified for installation includes uncrating, unpacking, etc; moving from stored location to place of installation; and installing to meet specified requirements.

2.11. Wherever in this Specification it is specified that work is to proceed or to meet approval, direction, selection or request of authorities having jurisdiction or others, such approval, direction, selection or request shall be in writing.

2.12. Wherever in this Specification or as directed by the Consultant it is specified that work shall be repaired, made good or replaced, it shall be performed without any additional cost to the

Owner.

2.13. Whenever in the Specifications the term "and/or" is used, the Consultant shall decide which of the possible meanings, to be derived at from the sentence where this term occurs shall govern.

3. General Requirements

3.1. The provisions of all Sections of Division 01 shall apply to each Section of this Specification.

4. Standards and Codes

4.1. Contract forms, codes, specifications, standards, manuals and installation, application and maintenance instructions referred to in these specifications, unless otherwise specified, amended or date suffixed, shall be latest published editions at Contract date.

4.2. Minimum Standard: Unless reference is made in the Contract Documents to other standards, work to conform to or exceed the minimum applicable standards of The Ontario Building Code, and/or the governing Jurisdictional Authorities

5. Abbreviations and Acronyms

5.1. Many words or expressions that are repeated frequently on the drawings are abbreviated to reduce the amount of wording that might obscure the detailing. In some instance and to avoid misinterpretation, these abbreviations are listed, with their full meaning, on a tables / legends located on the drawings or near schedules where the abbreviations are used.

6. LAWS, NOTICES, PERMITS AND FEES

6.1. Comply with codes, by-laws, and regulations of authorities having jurisdiction over the Place of the Work. Codes and regulations form an integral part of the Contract Documents.

6.2. Permits:

6.2.1. The Owner shall apply for, obtain and pay for the building permit

6.2.2. The Contractor shall obtain and pay for all other permits, licenses, deposits and certificates of inspection as part of the Work, including permits for road closures

6.2.3. The Owner has initiated the permit application process for the following, but responsibility for closing the permit, including all associated costs and responsibilities, rests with the Contractor and is included as part of the Work.

6.2.4. Obtain permits required to execute work on municipal rights of way. Obtain damage deposits for sidewalks, roads and services, unless otherwise indicated.

6.3. Arrange for inspection, testing and acceptance of the Work required by the authorities having jurisdiction. Be responsible for necessary preparations, provisions and pay costs.

6.4. It is the responsibility of the Contractor to schedule notifications and inspections required by authorities having jurisdiction such that notifications can be properly received and that inspections can be properly undertaken without causing a delay in the Work. The Contractor, at no additional cost to the Owner, shall be solely responsible for any delay in the Work caused by failure to properly schedule required notifications and inspections

7. Work Performed Under Separate Contracts

7.1. Work not to be included in the Contract, as noted "NIC" on the Drawings.

8. Work By Owner

8.1. Permit the Owner and/or their contractors to inspect the work at any reasonable time, and to perform such work and install such equipment or items as the Owner may require.

9. Construction Progress Schedule

9.1. Meet with Owner and Consultant within five (5) working days of Contract award, to discuss proposed approach for undertaking the Work, inclusive of methodology, sequencing, Construction Equipment, and labour resources to be utilized.

9.2. Submit a preliminary as-planned schedule as indicated in Section 01 32 Construction Progress Documents, within fifteen (15) working days after Contract award.

9.3. Once preliminary as-planned schedule is approved and the final as-planned schedule is created, record "progress to date" on a copy of schedule to be available at the Site. Inspect Work with the Owner and the Consultant at least bi-weekly to establish progress on each current activity.

9.4. The Contractor’s schedule is to be updated and resubmitted to the Consultant as a progress schedule at least once per month, on a date to be mutually agreed by the Contractor and the Consultant.

10. Site Progress Records

10.1. With copies provided when requested. Include in record each day:

10.1.1. Attendance of Contractor's and Subcontractor's work forces at Project and a record of the work they perform.

10.1.2. Dates, status and particulars of submissions, i.e. shop drawings, samples, mock-ups and the like dates.

10.1.3. Visits to site by Owner, Consultant, authorities having jurisdiction, testing companies, Contractor, Subcontractors, and suppliers.

10.1.4. Maintain a progress chart in approved format. Show on chart proposed work schedule and progress of work by Contractor and Subcontractor. The status of delivery items, i.e. shop drawings status, manufacture dates - delivery and installation dates.

11. Documents At The Place Of The Work

11.1. Maintain at the Place of the Work, one copy of each of following:

11.1.1. Contract Documents including ‘Issued for Construction’ drawings, specifications, addenda, and other modifications to the Contract, including copies of standards and codes referenced in the Contract Documents.

11.1.2. Reviewed' or 'Reviewed as Modified' shop drawings. Refer to Section 01 33 00 for details of schedules required.

11.1.3. Construction, inspection and testing, and submittal schedules.

11.1.4. Supplemental Instructions, proposed Change Orders, Change Orders, and Change Directives.

11.1.5. Field Test Reports.

11.1.6. Consultant's field review reports and deficiency reports.

11.1.7. Reports by authorities having jurisdiction.

11.1.8. Building and other applicable permits, and related permit documents entailing a complete full sized colour approved stamped Building Permit Documents which are not to have any notation nor are to be used except for reference by the Building Inspector, construction progress schedule, meeting minutes manufacturer's certifications, installation and application instructions.

11.1.9. Material safety data sheets (MSDS) for all controlled products.

11.1.10. Ontario Building Code and Guide to the Ontario Building Code, 2012 edition.

11.1.11. Daily log of the Work.

11.1.12. As-built drawings recording as-built conditions, instructions, changes, and the like, as called for in Section 01 33 00 Submittal Procedures, prior to being concealed.

11.1.13. Make above material available to Consultant upon request.

12. Trademark And Labels

12.1. Trademarks and labels, including applied labels, shall not be visible in finished work in finished areas, unless otherwise accepted or indicated by Consultant.

13. Examination

13.1. Examine site, and ensure that each Section performing work related to site conditions has examined it, so that all are fully informed on all particulars which affect the Project Work (thereon and at the place of the building, and in order that construction proceeds competently and expeditiously).

13.2. Ensure by examination that all physical features at the work, and working restrictions and limitations which exist are known, so that the Owner is not restricted in his use of the premises for their needs.

13.3. Previously Completed Work:

13.3.1. Where dimensions are required for proper fabrication, verify dimensions of completed work in place before fabrication and installation of work to be incorporated with it.

13.3.2. Verify that previously executed work and surfaces are satisfactory for installation or application, or both, and that performance of subsequent work will not be adversely affected.

13.3.3. Ensure that work installed in an unsatisfactory manner is rectified by those responsible for its installation before further work proceeds.

13.3.4. Commencement of work will constitute acceptance of site conditions and previously executed work as satisfactory.

13.3.5. Defective work resulting from application to, or installation on, or incorporation with, unsatisfactory previous work will be considered the responsibility of those performing the later work.

13.4. Construction Measurements:

13.4.1. Take site dimensions of completed work before installation of work to be incorporated commences.

13.4.2. Before commencing installation of work, verify that its layout is accurately in accordance with intent of Drawings, and that positions, levels, and clearances to adjacent work are maintained. Provide setting out drawings as part of the submittal process with verification by an Ontario Land Surveyor or field engineer.

13.4.3. Before commencing work, verify that all clearances required by authorities having jurisdiction can be maintained.

13.4.4. If work is installed in wrong location, rectify it before construction continues.

13.4.5. Where dimensions are not available before fabrication commences, the dimensions required shall be agreed upon between the trades concerned.

13.4.6. All measurements shall be Metrics.

14. Existing Conditions

14.1. Make good surfaces and finishes damaged or disturbed due to Work of this Contract to match existing. Ensure that material used to repair damage is compatible with existing work. Term "make good" to mean repairing or filling operations performed on existing floors, walls, ceiling or any other exposed surfaces. Perform cutting and patching where applicable as specified herein. It is intended that finished surfaces match and line with existing adjoining surfaces. Restore Site to condition equal to or, if specified elsewhere, to condition better than existing conditions. Restore lands outside of limits of Work which are disturbed due to Work to original condition in addition to complying with requirements of General Conditions of the Contract.

15. Protection Of Work, Property And Persons

15.1. Include in work necessary methods, materials, and construction to ensure that no damage or harm to work, materials, property and persons results from the work of this Contract. Temporary facilities relating to protection are specified in Section 01 50 00 Temporary Facilities and Controls.

15.2. Comply with all instructions and/or orders issued by authorities having jurisdiction.

15.3. Ensure that compulsory wearing of hard hats, safety glasses, safety vests, safety boots and other safety clothing is observed by all persons employed on the work. Provide spare hard hats for visitors, refuse admission to the premises to any not complying to safety clothing and equipment requirements.

15.4. Keep excavations, and pits free of rainwater, ground water, backing up of drains and sewers, and all other water. Pump dry as required.

15.5. Protect adjacent private and public property from damage and, if damaged, make good immediately. Make good private property to match in all details its original condition in material and finishes as approved, and public property in accordance with requirements specified and/or instructed by its Owner or as directed by the Consultant.

15.6. Keep surfaces, on which finish materials will be applied, free from grease, oil, and other contamination which would be detrimental in any way to the application of finish materials.

15.7. Protect surfaces of completed work exposed to view from staining, disfigurement and all

other damage by restriction of access or by use of physical means suitable to the material and surface location. Establish with each Subcontractor the suitability of such protection in each case.

15.8. Brace and shore masonry walls until their designed lateral support is incorporated at both top and bottom, in accordance with safe construction practices.

15.9. Enforce fire prevention methods at site for new work maintain existing in accordance with local authorities having jurisdiction. Do not permit bonfires, open flame heating devices or accumulation of debris. Use flammable materials only if proper safety precautions are taken, both in use and storage.

15.10. Do not store flammable materials in the building. Take all necessary measures to prevent spontaneous combustion. Place cloths and other disposable materials that are a fire hazard in closed metal containers and remove them from the building every night.

15.11. Where flammable materials are being applied, ensure that adequate ventilation is provided, spark-proof equipment is used, and smoking and open flames are prohibited.

15.12. Ensure that volatile fluid wastes are not disposed of in storm or sanitary sewers or in open drain courses.

15.13. Ensure that precautions are taken to prevent leakage and spillage from plumbing and mechanical work that may damage surfaces and materials finished or unfinished.

15.14. Prevent spread of dust beyond the construction site by wetting, or by other approved means, as required or as directed by the Consultant and/or authorities having jurisdiction

16. Sleeving

16.1. Assess requirements for sleeving the structural elements for passing of pipes, conduits and other mechanical or electrical components, and include work required for approved interfacing between the structure, mechanical and electrical work, and other components of the work. Confirm and coordinate sleeving locations with mechanical and electrical trades as required during the construction of the work.

17. Concealing Of Mechanical And Electrical Components

17.1. Include work required to modify indicated location of pipes, ducts, conduits, and other mechanical or electrical components to fully conceal such components from view in finished spaces, except where indicated otherwise.

18. Inserts, Anchors And Fastenings

18.1. Include in the work of each Section necessary fastenings, anchors, inserts, attachment accessories, and adhesives. Where installation of devices is in work of other Sections, deliver devices in ample time for installation, locate devices for other Sections and co-operate with other Sections as they require.

18.2. Do not install wood plugs or blocking for fastenings in masonry, concrete, or metal construction, unless specified or indicated on the drawings.

18.3. Do not use fastenings which cause spalling or cracking of materials in which they are installed. Do not use powder actuated fastening devices unless specified or prior written approval is given by the Consultant for each specific use.

18.4. Use only approved driven fasteners.

18.5. Install metal-to-metal fastenings fabricated of the same metal or of a metal which will not set up electrolytic action causing damage to fastenings or components, or both. Use non-corrosive or galvanized steel fastenings for exterior work, and where attached to, or contained within, exterior walls and slabs. Leave steel anchors bare where cast in concrete.

18.6. Install work with fastenings or adhesives in sufficient quantity to ensure permanent secure anchorage of materials, components, and equipment. Space anchors within limits of load-bearing or shear capacity.

18.7. Space exposed fastenings evenly and in an organized pattern. Keep number to a minimum. Provide exposed metal fastenings of same material, texture, colour and finish as metal on which they occur.

18.8. At fastenings that penetrate metal roof deck, ensure that penetrations are sealed airtight with approved sealant.

18.9. Galvanize steel anchors in masonry and at exterior of building, unless otherwise specified elsewhere. Leave steel anchors bare where cast in concrete.

19. Drainage

19.1. Ensure that positive drainage is provided to roof, floor, site drains and catch basins, as set in their final positions, and at other locations to prevent water infiltration into the building. Provide constant slopes for drained surfaces to drains and drainage courses.

19.2. Verify the extent of each area served by a drain, or drainage course, to eliminate possible undrained surfaces. Co- ordinate the work of involved Subcontractors before each of their work proceeds.

19.3. If water is found to be ponding on roof areas due to improperly placed drains, install additional drains to alleviate water ponding at no cost to the Owner. If extra drains are required co-ordinate the location of rainwater leaders with the Consultant.

20. Cutting And Patching

20.1. Do not cut, drill or sleeve load-bearing members without obtaining Consultant’s written approval for each condition.

20.2. Schedule and coordinate Work to minimize cutting and patching. Cut and patch as required to make work fit. Use workers qualified in work being cut and patched to ensure that it is correctly done.

20.3. Cut, patch and make good to accommodate Work and to leave Work in finished condition. Cutting in this sense to mean actual cutting of components to allow new components to pass through or to provide new openings. Cutting to not mean mere drilling of holes to accommodate screws, anchors, bolts or other fasteners as such. Such drilling is part of Section's installation function.

20.4. Use workers qualified in work being cut and patched to ensure that it is correctly done.

20.5. Make cuts with clean, true, smooth edges to tolerances required and in conformance with industry practice for applicable class of work. Make patches undetectable in finished work.

21. Labels And Nameplates

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

22. Work Of Other Consultants

22.1. Refer also to the work of other consultants included in this package and / or retained by the Owner. Coordinate requirements defined by others as required.

23. Air Leakage And Expansion Control

23.1. Recognizing that wall and roof materials are not dimensionally stable, and that they move differentially from the structural frame, the location of cracks should be anticipated and an airtight barrier and tapes shall be used incorporated to maintain air-tightness of the building.

23.2. The manner of installation of pipes, ducts, conduits, and electrical outlets to be thoroughly coordinated to prevent the occurrence of air leaks and thermal breaks: When pipes or conduits run adjacent to exterior walls and are to be furred in, not only to the exterior wall be airtight, but it to be adequately insulated to prevent cold spots on which condensation could occur in the cold space. Provide a continuous air seal between the airtight part of a wall or ceiling and the frames of openings such as windows, doors, hatches, ducts, grilles, louvres, or any other penetration.

23.3. In addition to the specific requirements in each technical section of the Specification, make allowance for expansion control throughout the construction. Ensure that poured paving and slabs, exterior to the building structure, together with applied materials are not tight to building face, and that expansion control joints are left to accommodate movement.

24. Cleaning

24.1. Ensure that spatters, droppings, soil, labels, and debris are removed from surfaces to finishes before they set up. Leave work and adjacent finished work in new condition.

24.2. Use only cleaning materials which are recommended for the intended purpose by both the manufacturer of the surface to be cleaned and by the cleaning material supplier.

24.3. Maintain areas "broom clean" at all times during the work. Vacuum clean interior areas immediately before finish painting commences.

24.4. Do not burn or bury waste material at site. Remove as often as required to avoid accumulation.

24.5. Do not allow waste material and debris to accumulate in an unsightly or hazardous manner. Spray dusty accumulations with water or other approved materials during removal of same.

24.6. Control lowering of materials. Use as few handlings as possible. Do not drop or throw materials from storeys above grade.

24.7. Ensure that cleaning operations are scheduled to avoid deposit of dust or other foreign matter or surfaces during finishing work and until wet or tacky surfaces are cured.

24.8. Each Section shall supply the Contractor with instructions for final cleaning of his work, and for inclusion in Project Data Book as specified in each trade Section and in Section 01 33 00 Submittal Procedures.

24.9. Final cleaning is to be performed one (1) week prior to opening the project to the public and

shall include cleaning of all work as required by each trade. Co-ordinate final cleaning with Owner's maintenance staff.

25. Adjusting

25.1. Ensure that all parts of work fit snugly, accurately and in true planes, and that moving parts operate positively and freely, without binding and scraping.

25.2. Verify that work functions properly, and adjust it accordingly to ensure satisfactory operation.

25.3. Lubricate products as recommended by the supplier.

26. Salvage

26.1. Unless otherwise specified, surplus material resulting from construction, and construction debris shall become the property of Contractor, who shall dispose of it away from site.

26.2. Treasure, such as coins, bills, papers of value, and articles of antiquity, discovered during digging, demolition and cutting at the site shall remain property of Owner, and shall be delivered immediately into their custody.

PART 2 | PRODUCTS - NOT USED

PART 3| EXECUTION - NOT USED

****END OF SECTION****

SECTION 01 25 00
PRODUCT SUBSTITUTION PROCEDURES

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. This section describes requirements applicable to all Sections within Divisions 02 to 49.

2. Approved Alternates And Approved Equals

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

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

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

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

3. Substitutions

3.1. Submission of substitutions:

3.1.1. Proposals for substitutions of Products and materials must be submitted in accordance with procedures specified in this section.

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

3.1.3. Alternates will only be considered if in the judgement of the Consultant there is a legitimate ‘çause’ for the substitution.

.1 Substitution(s) for ‘Cause” not ‘Convenience’:

.2 The Contractor (and all sub-contractors) must demonstrate, by way of their submissions that any/all products and/or substitutions are made as substitutions for ‘cause’ and meet the intent of the contract documents. Substitutions deemed as substitutions for ‘convenience’ will not be considered or allowed.

.3 The distinction made regarding substitution for ‘cause’ or ‘convenience’ identified for substitution is intended to allow the contractor to access the marketplace for legitimate options and it is intended to discourage frivolous, inadequately researched or untimely substitutions.

.4 Should the ‘çause‘ be that the specified item is not available. Proof of lack of availability must be provided in writing including order date validation.

.5 Requests for alternates for ‘convenience’ will not be considered.

.6 The difference in value will be credited to the Contract Value.

.7 Consultant time to review substitution requests and time required to modify the

Contract Documents to accommodate the substitution will be charged against the Contract Value on a per diem basis.

3.1.4. During bidding, the Consultant will consider written requests from prime bidders for substitutions, received at least seven (7) working days prior to bid closing date; requests received after that time will not be considered. Refer to form in section 01 25 01

3.1.5. All considerations/requests for product options and /or, for substitution be it during bidding or at construction stage shall include complete data substantiating compliance with the Contract Documents. The onus and responsibility resides with the contractor to demonstrate product compliance.

3.1.6. Submission requirements for ‘çause‘ shall demonstrate rational/reason for substitution and/or Product Option proposed. Submit in writing.

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

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

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

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

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

.6 Compliance with the intent of the Contract Documents.

.7 Effect on Contract Time

.8 Reasons for the request.

.9 For Products, submission shall include

.10 Product identification, including manufacturer's name and address.

.11 Manufacturer's literature / project data sheets:

.12 Product description.

.13 Performance test data.

.14 Reference standards.

.15 Samples.

.16 Name and address of similar projects on which product was used, and date of installation, where possible.

.17 Any ‘Exceptions’ status acceptance documentation.

.18 For Construction Methods:

.19 Detailed description of proposed method.

.20 Drawings illustrating methods.

.21 Itemized comparison of proposed substitution with product or method specified.

.22 For Construction Schedule: Support documentation vis a vis any impact on project schedule.

.23 For Cost Consideration (s): Indicate whether Product Option or a proposed substitution is cost saving, cost neutral or a cost increase. Submit cost back-up. Provide additional information as requested by consultant.

.24 Relation to (any) separate contracts.

3.1.7. In making request for substitution and/or Product Options, the Contractor represents:

.1 That the substitution is for 'Cause'

.2 They has thoroughly investigated proposed product or method, and determined that it is equal or superior in all respects to that specified.

.3 They will provide the substitution with the same guarantee as that for product or method specified.

.4 They will coordinate installation of accepted substitution into work, making such changes as may be required for work to be complete in all respects.

.5 Requests for substitutions during construction shall state what cost difference if any, will be made in the Contract Price for each substitution, should it be accepted.

3.1.8. Substitutions and/or Product Options will not be considered if:

.1 Substitution for 'Cause' is not demonstrated, whereupon the consultant will reject the proposed substitution

.2 They are indicated or implied on shop drawings or project data submittals without formal request.

.3 Acceptance will require revision to Contract Documents.

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

.5 Consultant's decision concerning acceptance or rejection of proposed substitutions is final.

.6 Should it appear to the Consultant that the value of services required to evaluate the substitution exceeds the potential reduction, the Consultant will advise the Owner that the substitution does not merit consideration before proceeding with a full evaluation. If the substitution will produce a reduction commensurate with or exceeding the value of the Consultant's services to evaluate the substitution, the Consultant will request the Owner's direction to proceed with evaluation.

PART 2 | PRODUCTS - NOT USED

PART 3 | EXECUTION - NOT USED

****END OF SECTION****

SECTION 01 35 17
FIRE SAFETY REQUIREMENTS

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. Section 01 14 00 – Work Restrictions.

1.2. Section 01 31 00 - Project Management.

1.3. Section 01 33 00 - Submittal Procedures.

1.4. Section 01 35 23 – Health and Safety

1.5. This section describes requirements applicable to all Sections within Divisions 02 to 27.

2. Fire Safety Plan

2.1. Contractors and their personnel will be familiar with this section and its requirements.

2.2. The contractor must take all necessary precautions during the carrying out of the work to prevent the possibility of fire occurring.

3. Fire Protection

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

3.2. The contractor will, at all times, when welding, brazing and performing any operation with an open flame, combustible adhesives or flammable solvents keep a portable, operable fire extinguisher within 3 meters of the operation.

4. Hot Work

4.1. Take all precautions to Work safely and to provide the necessary protection to persons and property from Hot Work. This includes, but is not limited to Brazing, Cutting, Grinding, Soldering, Thawing Pipe, Torch Applied Roofing and Welding. With all such activity these steps are to be followed:

4.1.1. Whenever possible, complete Hot Work in a welding shop or out of doors at the .

4.1.2. Flammable liquids, dust lint and oily deposits to be removed from within 50-ft (15m) of Work. Remove other combustibles where possible. Otherwise protect with fire-resistive tarpaulins or metal shields.

4.1.3. Explosive atmosphere in area eliminated. Floors swept clean. Combustible floors wet down, covered with damp sand or fire-resistive tarpaulins.

4.1.4. All wall and floor openings covered. Fire-resistive tarpaulins suspended beneath Work.

4.1.5. For on-site Work (indoor and out of doors), advise the Head Custodian, Principal, Consultant (if assigned) and Project Coordinator prior to Work being performed, and of related dangers.

4.1.6. Where the Fire Alarm system is required to be set to stand-by to discourage false alarms from smoke detectors provide a firewatch throughout the building or structure being worked on. NEVER put the fire alarm system in stand-by mode when the building is occupied by staff or students.

4.1.7. In the event of a fire as a result of the Hot Work, notify the fire department immediately. Report incident to the head custodian, the Consultant, if assigned, and Project

Coordinator immediately, whether extinguished or not. Provide a fire incident report to the Owner.

4.1.8. Barriers must be set up to protect staff and students (i.e. pylons, shields, and caution tape) from exposure to arc flash and smoke migration.

4.1.9. Have all necessary doors, windows and/or drapes closed. Confer with the Head Custodian to shut down all fan systems in the area to reduce or eliminate smoke distribution.

4.1.10. Provide and keep fire extinguishers handy and in good Working condition. Temporarily cover all smoke detectors in area during time of Work.

4.1.11. Provide a fire watch/spot check for several hours after Work is completed. Uncover smoke detectors.

4.1.12. On new construction, the requirements of the Hot Wok permit may be waived, until such time as either Substantial Completion or Occupancy is granted, whichever comes first.

4.1.13. On additions to existing buildings, the requirements for Hot Work permits shall remain in place.

5. Fire Protection Systems

5.1. Any Modifications to Fire Alarm system and its devices including service, additions and changes in device location must be performed only by a Certified Fire Alarm Technician as per the Ontario Fire Code section 1.1, subsection 1.1.5.

5.2. The Contractor will receive from the Owner's contact a contact number for the monitoring service and a system number.

5.3. Bidders are cautioned that the Owner will be reimbursed for the cost of false alarms. Refer to Section 01 14 00 Work Restrictions, Para. 1.4.4.

5.4. An approved inspection firm shall verify all new fire alarm devices, in accordance to CSA regulations. Certificate of Verification is required before occupancy.

6. Fire Alarm Shut-Down Procedure

6.1. Do not shut the system down unless necessary. Plan the operation required to reduce system down time to the least amount possible.

6.2. Wherever possible, shut down only the zone needing Work and schedule this down time in unoccupied hours. Allow for this in your bid pricing.

6.3. Discuss the possible down time with the head custodian and principal prior to any partial or whole system shut down.

6.4. The or building administration shall advise all staff of fire alarm system shut down. This will include instructions to call 911 if they see a fire and when system is back on line.

6.4.1. The Contractor shall provide full detail to the monitoring company as requested including building number and name (as identified on the fire alarm monitoring panel), contact name, company name, length of time system is down. Call shall be placed just prior to any shut down.

6.5. A fire patrol will need to be established and will include the following at the Contractor's

expense:

6.5.1. Patrol all halls and high-risk areas affected.

6.5.2. Fire patrol shall have access to a phone and call 911 if they see a fire.

6.5.3. Report all other problems they encounter.

6.5.4. Remain on patrol until system is back on.

6.6. An activated system must not be reset until authorized by the Fire Department and the cause of the alarm has been investigated.

7. Fire Protection Equipment Impairment

7.1. Fire Protection Equipment referred to in this section includes sprinkler systems, special fire suppression systems, and kitchen hood suppression systems.

7.2. The Contractor will take all precautions including restrict all Hot Work operations and shut down hazardous processes during all Fire protection equipment impairment.

7.3. Do not shut the Fire protection equipment down unless necessary Plan the operation required to reduce system impairment time to the least amount possible.

7.4. Wherever possible, shut down only the Fire protection equipment needing Work and schedule this impairment time for unoccupied hours. Allow for this in your bid pricing.

7.5. Discuss the possible down time with the head custodian and principal prior to any partial or whole system impairment.

7.6. The administration shall advise all staff of Fire protection equipment shut down. This will include instructions to call 911 if they see a fire and when system is back on line

7.7. The Contractor will plan to use temporary protection such as extra extinguishers, charged hose lines and temporary sprinkler protection during all Fire protection equipment impairment.

7.8. If the sprinkler system is restorable, either in whole or in part, the Contractor or sub-Contractor shall assign someone to restore the system promptly in the event of a fire. A fire patrol may need to be established and will include the following at the Contractor's expense:

7.8.1. Patrol all halls and high-risk areas affected.

7.8.2. Fire patrol shall have access to a phone and call 911 if they see a fire.

7.8.3. Report all other problems they encounter.

7.8.4. Remain on patrol until system is back on.

7.9. The Contractor shall inform all sub trades that the Owner has a Red Tag Permit System and it shall be used for all Fire protection equipment impairment.

7.10. For ease of use, a Factory Mutual hanging wall kit has been place at all Owner Fire protection equipment locations. Supplies of Red Tag Permits are provided there.

8. Fire Department Access

8.1. Designated fire routes must be maintained. Fire Department must be advised of any work that would impede fire apparatus response.

9. Smoking Precautions

9.1. Smoking is not permitted anywhere on Owner properties. Workers who wish to smoke must leave the property, and not within sight of students. Any worker found to be in contravention of the Ontario Smoke Free Act will be subject to legislated fines.

10. Flammable Liquids

10.1. The handling and storage on site of flammable liquids are to be governed by the current National Fire Code of Canada.

10.2. Flammable liquids such as gasoline, kerosene and naphtha may be kept for ready use in quantities not exceeding 10 imperial gallons provided they are stored in approved safety cans bearing the Underwriter's Laboratory of Canada or Factory Mutual seal of approval.

10.3. Transfer of flammable liquids is prohibited within buildings.

10.4. Transfer of flammable liquids must not be carried out in the vicinity of open flame or any type of heat producing devices.

10.5. Flammable liquids having a flash point below 100° F (37.7°C) such as naphtha or gasoline must not be used as solvents or cleaning agents.

10.6. Flammable waste liquids, for disposal, must be stored in approved containers located in a safe ventilated area. Quantities are to be kept to a minimum.

PART 2 | PRODUCTS - NOT USED

PART 3 | EXECUTION - NOT USED

****END OF SECTION****

SECTION 01 35 23
HEALTH AND SAFETY

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. This section describes requirements applicable to all Sections within Divisions 02 to 27.

2. References

2.1. Province of Ontario, including requirements for a "Prime Contractor" as defined by the Act.

3. Safety Plan

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

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

3.3. Be governed by pertinent safety requirements of Federal or Provincial Governments and of municipal bodies having authority, particularly the Ontario Construction Safety Act, The Occupational Health and Safety Act for Ontario, and regulations of Ontario Ministry of Labour, and work in conjunction with proper safety associations operating under the authority of Ontario Workers' Compensation Act. Protect Owner, Owner's employees, the public and those employed on the Work from bodily injury and to protect adjacent public and private property and Owner's property from damage.

3.4. Furnish and maintain protection, such as warning signs, tarpaulins, guard rails, barriers, guard lights, night lights, railings around shafts, pits and stairwells, etc. as required. Remove temporary protective measures when no longer required.

4. Temporary Work

4.1. Temporary work requiring engineering proficiency for the design, erection, operation maintenance and removal shall be designed and bear stamp of the registered professional Engineer or Architect. Detail drawings will be submitted to the Consultant for review prior to commencing any work.

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

5. Responsibility

5.1. The "Prime Contractor" according applicable local jurisdiction, is responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

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

5.3. Should any unforeseen or peculiar safety-related factor, hazard, or condition become evident during performance of Work, and follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Health and Safety Act having jurisdiction. Advise the Board and the Consultant verbally and in writing.

5.4. The Contractor shall make their own arrangements for emergency treatment of accidents.

Any accidents shall be reported immediately to the Board contact.

5.5. The Contractor agrees to hold the Board harmless of any and all liability of every nature and description, which may be suffered through bodily injuries, involving deaths of any persons, by reasons of negligence of the Contractor, his agents, employees, or his sub-Contractors.

6. Submittals

6.1. Make submittals in accordance with Section 01 33 00.

6.2. Submit site-specific Health and Safety Plan: Within ten (10) days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:

6.2.1. Results of site specific safety hazard assessment.

6.2.2. Results of safety and health risk or hazard analysis for site tasks and operation

6.3. Submit one (1) copy of Contractor's authorized representative's work site health and safety inspection reports to Consultant and Owner.

6.4. Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.

6.5. Submit copies of incident and accident reports.

6.6. Submit Material Safety Data Sheets (MSDS) to Consultant.

6.7. Consultant's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

6.8. Medical Surveillance: Where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Consultant.

6.9. On-site Contingency and Emergency Response Plan: Address standard operating procedures to be implemented during emergency situations.

6.10. File Notice of Project with the Ministry of Labour prior to commencement of Work.

7. Safety Activities

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

7.2. Schedule and administer Health and Safety meeting with Consultant prior to commencement of Work.

7.3. Perform Work in accordance with Authorities Having Jurisdiction.

8. Health And Safety Coordinator

8.1. Employ and assign to Work, competent and authorized representative as Health and Safety Coordinator. Health and Safety Coordinator must:

8.1.1. have previous experience as a Health & Safety coordinator,

8.1.2. have working knowledge of occupational safety and health regulations,

8.1.3. be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted

to enter site to perform Work,

8.1.4. be responsible for implementing, enforcing daily and monitoring site- specific Contractor's Health and Safety Plan, and

8.1.5. be on site during execution of Work.

9. Posting Of Documents

9.1. Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Health and Safety Act having jurisdiction, and in consultation with Consultant.

10. Correction Of Non-Compliance

10.1. Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Consultant or by the Board.

10.2. Provide Consultant and/or Board with written report of action taken to correct non-compliance of health and safety issues identified.

10.3. Consultant and or the Board may stop Work if non-compliance of health and safety regulations is not corrected.

11. Hazardous Work

11.1. Blasting or other use of explosives is not permitted at the place of work.

12. Work Stoppage

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

13. Lockout Procedures

13.1. All Work to be done on electrical systems or machinery, where the unexpected switching on of the system or machinery could result in personal injury to a student, staff, employee, or the Contractor’s employee, must be done in accordance with the Contractor’s standard lockout procedure.

13.2. The Contractor shall provide his/her own locks for the above procedure.

13.3. The lock shall include contact information for the person(s) locking out such device.

14. Overhead Lifting

14.1. Under no circumstances will a crane or lifting device be used over a occupied space.

14.2. When working adjacent to occupied spaces, ensure a clearance of one (empty) classroom, or a minimum of 10m between any occupied space and the furthest possible reach of the crane.

15. Warning Signs And Notices

15.1. Notices shall be posted advising of the hazard but will not be considered a substitute for providing approved protection, separation, and space from the hazard.

16. Fire Protection

16.1. Provide and maintain temporary fire protection equipment during performance of Work

required by the governing codes, regulations and bylaws.

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

16.3. Maintain placed or installed Fire Protection to protect the portions of the Work during construction.

17. Scent-Free Environment

17.1. The Board requires that, where advised, a building may be deemed scent- free and as such, the wearing of scented products is prohibited.

17.2. Any methods or materials that are found to create negative responses in staff or students shall cease and be removed under advisement of the Consultant and or the Board, until alternate methods can be determined.

PART 2 | PRODUCTS - NOT USED

PART 3 | EXECUTION - NOT USED

****END OF SECTION****

SECTION 01 45 00
QUALITY CONTROL

PART 1 | GENERAL REQUIREMENTS

1.1. Related Sections

1.1.1. Section 01 78 10 – Closeout Submittals and Requirements

1.1.2. Section 01 79 00 – Demonstration and Training

1.1.3. This section describes requirements applicable to all Sections within Divisions 02 to 27.

1.2. References

1.2.1. ISO/IEC 17025-2005 - General Requirements for the Competence of Testing and Calibration Laboratories.

1.2.2. SCC (Standards Council of Canada).

2. Inspection By Authority

2.1. Allow Authorities Having Jurisdiction access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

2.2. Give timely notice requesting inspection whenever portions of the Work are designated for special tests, inspections or approvals, either when described in the Contract Documents or when required by law in the Place of the Work.

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

3. Review By Consultant

3.1. Consultant may order any part of the Work to be reviewed or inspected if Work is suspected to be not in accordance with Contract Documents.

3.2. If, upon review such work is found not in accordance with Contract Documents, correct such Work and pay cost of additional review and correction.

3.3. If such Work is found in accordance with Contract Documents, The owner will pay cost of review and replacement.

4. Independent Inspection Agencies

4.1. Independent Inspection and Testing Agencies will be engaged by Contractor for purpose of inspecting and testing portions of Work.

4.2. The Client may, at their discretion, request that the Consultant direct the Contractor to engage independent inspecting and or testing agencies to review or test the Work.

4.3. Allocate Costs for inspections and testing.

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

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

4.6. If defects are revealed during inspection and/or testing, the appointed agency will request additional inspection and testing to ascertain full degree of defect. Correct defect and irregularities as advised by Consultant at no cost to Owner. Contractor shall pay costs

directly to the inspection agency for retesting and re-inspection.

5. Access To Work

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

5.2. Cooperate to provide reasonable access and facilities for such access.

6. Contractor Responsibilities

6.1. Notify appropriate agency minimum 48 hours in advance of requirement for tests, in order that attendance arrangements can be made.

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

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

7. Duties & Authority Of Testing Agency

7.1. Testing agency is expected to do the following:

7.1.1. Act in a professional and unprejudiced basis and carry out inspection and testing functions to establish compliance with requirements of Contract Documents.

7.1.2. Check work as it progresses and prepare reports stating results of tests and conditions of work and state in each report whether specimens tested conform to requirements of Contract Documents, specifically noting deviations.

7.1.3. Distribute reports as follows:

.1 Consultant

.2 Owner

.3 Contractor

7.2. Testing agency is not authorized to amend or release any requirements of Contract Documents, nor to approve or accept any portion of work.

8. Rejected Work

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

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

8.3. If, it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, the Owner may choose to accept the condition. The difference in value between Work performed and that called for by Contract Documents shall be deducted from the Contract value via Change Order. The amount of this change shall be determined by Consultant. The Contractor shall warrant the work performed for the time period specified as if it were performed in accordance with the Contract Documents.

9. Inspection Of Structural Steel

9.1. Ensure all steel has mill test reports that comply with the Specification prior to purchase.

9.2. Inspect fabrication of steel in plant.

9.3. Inspect erection work at site including fit-up, placing, plumbing, levelling, temporary bracing, field cutting and alterations.

9.4. Shop and field inspect welded and bolted connections and painting.

9.5. High strength bolts - the installation and testing of bolts shall conform to the requirements of CSA S16-1969. Check one representative connection in ten by torque testing every bolt, and check each bolt in every connection with a tap of hammer for soundness. Enforce requirements of connection type.

9.6. Examine visually all welded joints for inclusions, porosity, lack of fusion penetration or even contour, undercuts and cracks. Root passes shall be checked for penetration and cracks from the back of the joint. Any suspect welds shall be checked ultrasonically.

10. Tests And Mix Designs

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

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

11. Mock-Up

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

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

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

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

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

11.6. Repair any damage and clean-up at place of mock-up.

11.7. Approved mock-up may remain as part of Work.

12. Equipment And Systems

12.1. Submit adjustment and balancing reports for mechanical and electrical systems to the consultant.

12.2. Refer to Sections 01 78 10 and 01 79 00 for definitive requirements.

PART 2 | PRODUCTS - NOT USED

PART 3 | EXECUTION - NOT USED

****END OF SECTION****

SECTION 01 50 00
TEMPORARY FACILITIES & CONTROLS

PART 1 | GENERAL REQUIREMENTS

1. Temporary Facilities & Controls

1.1. The Contractor shall be responsible to ensure that activities are in compliance with applicable legislation.

1.2. The Contractor shall be responsible for the provision of, and removal of, temporary provisions and controls for the project including but not limited to the following;

1.2.1. Identification and enclosure of materials / spaces required to develop an appropriate 'field of operations / staging / storage areas' to permit the execution of the project. Coordinate the extent of the site available to the Contractor with the Owner to define for the 'field of operations' located on the existing site of the school.

1.2.2. The provision of parking areas for the Contractors / Trade Contractors personnel. Limited onsite parking is available and limited to the Contractor's 'field of operations'. Coordinate location with the Owner.

1.2.3. The provision of hoisting, scaffolding, roads, walkways and other construction aids as required.

1.2.4. The provision of temporary lighting and power systems. Maintain not less than 160 LUX level. Temporary power distribution wiring to comply with the Ontario Hydro Electrical Safety Code. Obtain inspection certificates and approvals for temporary electrical work.

1.2.5. Temporary washroom facilities for use by the Contractor and Subcontractors will be available in adjacent building on Laurentian campus.

1.2.6. The provision of protection of completed construction where ongoing work or exposure to weather may cause damage.

1.2.7. Dust Nuisance, Mud, Snow and Ice Removal; 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 Owner.

1.2.8. The provision of dust / air tight and protective partitions to protect occupants, existing equipment, maintain exits and keep existing area free of construction contaminants in accordance with the following;

.1 Provide dust tight screens or partitions to localize dust generating activities, and for the protection of workers, areas scheduled to remain occupied during construction, finished areas of work and the public. Maintain and relocate, as required, to suit construction sequencing and until such work is complete.

.2 Maintain existing exits and accesses to exits and vehicle access points serving portions of the building scheduled to remain in use by the Owner, including corridors and doorways (man doors and overhead doors), free of impediments and obstructions.

.3 Where an exit or access to exit is unavoidably blocked provide an acceptable alternate exit and/or access route, clearly defined and protected so that it is separated from the construction area by a smoke and dust tight partition

equivalent to a 45 minute fire separation. Proposed alternate exits to be to the satisfaction of authorities having jurisdiction.

.4 At existing occupied floor areas exposed to new construction, provide a temporary dust tight partition equivalent to a 45 minute fire separation. Proposed partition to be to the satisfaction of authorities having jurisdiction.

1.2.9. The provision of safeguards; In addition to the requirements of the Occupational Health and Safety Act provide temporary safeguards and protection adequate to maintain standard safety practices and to protect against:

.1 Accident or injury to any workman and other persons on the site, adjacent work and property, roads and walks.

.2 Damage to any part of the work and to any adjoining or adjacent structure, property, pavement, walks, services and other similar items by frost, weather, overloading, and any other cause resulting from the execution of the work.

.3 Particular attention to be paid to the prevention of fire and elimination of fire hazards which would endanger the work or adjacent buildings and premises.

.4 Particular attention to be paid to the prevention of spills or releases of asbestos, PCB's or mercury which would endanger the work at the site and at adjacent buildings and premises.

.5 Should any part of the work or any buildings, pavements, trees, poles, hydrants, cultivated or grassed areas, etc., on or surrounding the site and adjacent to any road leading thereto, become damaged or disfigured due to lack of failure of such protection, make good with material identical with existing and adjoining surfaces, or compensate the Owner for value of same.

.6 Provide necessary temporary enclosures, hoardings, fences, gates, guardrails, hoists, stairs, ladders, scaffolding, staging, runways, night-lights, and barriers as necessary for the work. Conform to such requirements of the Labour Laws and other Provincial or local labour safety laws, applicable thereto. Be responsible for scaffolding, formwork, or other temporary supports used during the work. Where such structures are of a complicated nature, employ the services of a Registered Professional Engineer to design such scaffolding, framework, or other temporary supports. Support scaffolding independently of the building's finished surfaces. Arrange to avoid when not in use to permit work to proceed unimpeded, and promptly remove when no longer required.

PART 2 | PRODUCTS - NOT USED

PART 3 | EXECUTION - NOT USED

****END OF SECTION****

SECTION 01 51 00
TEMPORARY UTILITIES

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. This section describes requirements applicable to all Sections within Divisions 02 to 27.

2. Installation And Removal

2.1. Provide temporary utilities controls in order to execute work expeditiously.

2.2. Location of temporary facilities shall be subject to Consultant's approval.

2.3. Salvage and assist in recycling products for potential reuse wherever possible.

2.4. Remove temporary facilities from site when directed by consultant.

3. Dewatering

3.1. temporary drainage and pumping facilities to keep excavations and site free from standing water. Provide necessary pumps (including spare pumps) and temporary drainage for keeping the Work free of water throughout construction period. Locate sumps away from foundation elements. Control grading around excavation to prevent surface water from draining into excavation and from damaging adjoining property.

4. Water Supply

4.1. Provide continuous supply of potable water for construction use until such time as permanent municipal water supply is available.

4.2. Hose extensions to be provided by subcontractors requiring them.

4.3. For New Builds arrange for connection with appropriate utility company and pay all costs for installation, maintenance, removal and usage costs until occupancy has been achieved.

4.4. For Additions and renovations the contractor can use existing Client service unless noted otherwise.

5. Temporary Heating And Ventilation

5.1. Provide temporary heating required during construction period, including unit rental costs, maintenance.

5.2. Provide temporary heating fuel, if not already available on site, until such time as a permanent natural gas line is installed, and thereafter fuel costs shall be borne by the Client. The Contractor shall provide all connections and piping between the permanent fuel source and the heating appliance(s).

5.3. Provide temporary heat and ventilation in enclosed areas as required to:

5.3.1. Facilitate progress of Work.

5.3.2. Protect Work and products against dampness and cold.

5.3.3. Prevent moisture condensation on surfaces.

5.3.4. Provide ambienttemperatures and humidity levels for storage, installation and curing of materials.

5.3.5. Provide adequate ventilation to meet health regulations for safe working environment.

5.4. Maintain temperatures of minimum:

5.4.1. 10 degrees C in areas where construction is in progress, until takeover by Client. Contractor to ensure temporary enclosures remain sealed and penetrations are repaired or closed in a timely fashion.

5.4.2. 16 degrees C in areas where finishes are in progress.

5.4.3. 16 degrees C in building once it is enclosed.

5.4.4. Refer to other Sections for intermittent heating requirements up to 21 degrees C. Provide insulated tarp enclosures for openings as required to enclose the building after completion of main building shell components and roof.

5.4.5. If the Contractor fails to ensure the temporary enclosures remained sealed (including temp doors when not in use) the Consultant and or the Client shall require the contractor to pay 40% of that months usage charge

5.5. Use forced hot air heaters. Open-flame type heaters or salamanders are not permitted. Ventilate direct fired heating units to the outside.

5.6. Uniformly distribute heat to avoid hot and cold areas and to prevent excessive drying.

5.7. Early heating of the building shell will be required to expedite interior finishing to meet the project schedule.

5.8. Ventilating:

5.8.1. Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.

5.8.2. Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

5.8.3. Dispose of exhaust materials in manner that will not result in harmful exposure to persons.

5.8.4. Ventilate storage spaces containing hazardous or volatile materials.

5.8.5. Ventilate temporary sanitary facilities.

5.8.6. Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

5.8.7. Provide minimum 1 air change per hour for enclosed areas receiving architectural finishes.

5.8.8. Do not allow excessive build-up of moisture inside building.

5.9. The permanent mechanical systems for the new building, when installed in safe operating conditions, may be used for temporary heating or cooling if approved in writing by the Consultant, without penalty to the warranty.

5.10. Follow the requirements of "Temporary Use of New Permanent Services and Equipment" if the permanent heating system installed under the contract is intended to be used for temporary heating during the construction.

5.11. Provide competent persons to operate and maintain permanent systems for duration of

temporary use period.

5.12. Perform required repairs and maintenance immediately after each inspection. Pay for operating costs. Upon termination of temporary use period, services and equipment shall be inspected, tested, adjusted, fitters replaced, balanced, cleaned and lubricated.

5.13. Permanent services and equipment shall be turned over to Owner in new and perfect operating condition.

5.14. Use of permanent systems and equipment as temporary facilities shall not affect the guarantee conditions and guarantee period for such systems and equipment. Make due allowance to ensure Owner will receive full benefits of equipment manufacturer's warranty from the date of Substantial Performance.

5.15. Ensure date of Substantial Performance of the Work and Warranties for heating system do not commence until entire system is in as near original condition as possible and is certified by Consultant.

5.16. Maintain strict supervision of operation of temporary heating and ventilating equipment to:

5.16.1. Conform with applicable codes and standards.

5.16.2. Enforce safe practices.

5.16.3. Prevent abuse of services.

5.16.4. Prevent damage to finishes.

5.16.5. Vent direct-fired combustion units to outside.

5.17. Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

6. Temporary Power And Light

6.1. Provide temporary electrical service and system including lighting and power system for use by all Sections.

6.2. Contractor will provide a source for, and pay the costs of temporary power during construction for temporary lighting and operating of power tools until such time as permanent source is available.

6.3. Contractor to ensure that the use of power from a source provided by the Client shall not exceed the capacity of the current use required for the operation of any existing facility.

6.4. Install and maintain temporary electrical service and systems in accordance with Construction Safety Association's "Temporary Wiring Standards on Construction Sites", the Ontario Electrical Code and other authorities having jurisdiction.

6.5. Provide at least one temporary panel on each floor with service capacity suitable for construction requirements and to authorities and utilities approval.

6.6. Provide temporary wiring with lighting to all areas of each floor to provide adequate lighting.

6.6.1. Lighting levels must be maintained at a minimum of 10 foot candles, or to suit the particular location or operation, whichever is greater.

6.6.2. Do not use materials of the temporary service in permanent installation.

6.6.3. Increase lighting levels equivalent to the final requirements when finishing operations are underway.

6.7. Extension cords, lights, etc., required by various subcontractors and run from above outlet positions will be supplied and maintained by the party or parties requiring same.

6.8. Follow requirements of "Temporary Use of New Permanent Services and Equipment" if electrical power and lighting systems installed under the contract are intended to be used for temporary electricity and lighting during the construction.

6.9. Electrical power and lighting systems installed under this contract can be used for construction provided damages are made good and all lamps that have been used for more than two months are replaced with new lamps.

6.10. For New Builds arrange for connection with appropriate utility company and pay all costs for installation, maintenance, removal and usage costs until occupancy has been achieved.

6.11. For Additions and renovations the contractor can use existing Client service unless noted otherwise.

6.12. Provide and pay for temporary power for electric cranes and other equipment requiring temporary power in excess of above noted requirements.

7. Temporary Communication Facilities

7.1. Contractor to provide and pay for temporary Phone, e-mail and printer hook up, for the duration of contract until completion for use by the contractor.

7.2. The site superintendent is to have e-mail access and a printer on site.

PART 2 | PRODUCTS - NOT USED

PART 3 | EXECUTION - NOT USED

****END OF SECTION****

SECTION 01 61 00
PRODUCT REQUIREMENTS

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. Section 01 31 00 – Project Management.

1.2. This section describes requirements applicable to all Sections within Divisions 02 to 49.

2. Terminology

2.1. New: Produced from new materials.

2.2. Renewed: Produced or rejuvenated from an existing material to like-new condition to serve a new or existing service.

2.3. Defective: A condition determined exclusively by the Consultant.

3. Product Quality

3.1. The term 'new' in the following paragraph does not exclude re-manufactured products that have some or all of the materials recycled from other sources. Preference in recycling is for post-consumer recycled materials.

3.2. Products, materials, equipment, parts or assemblies (referred to as Products) incorporated in Work:

3.2.1. New Product, not damaged or defective, of best quality (compatible with specification requirements) for purpose intended. If requested, provide evidence as to type, source and quality of Products provided.

3.2.2. Defective Products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective Products at own expense and be responsible for delays and expenses caused by rejection.

3.3. Should any dispute arise as to quality or fitness of Products, decision rests strictly with Consultant.

3.4. Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

4. Availability

4.1. Immediately upon receipt of Clients Purchase Order, review Product delivery requirements and anticipate foreseeable supply delays for any items.

4.2. Immediately upon receipt of Clients Purchase Order the Contractor shall issue Purchase Orders and or Contracts to all Sub-trades. Provide proof to the Consultant and the Client within 3 days. The Sub-Contractors shall identify in writing any delivery issues within 14 days of receiving the Contractors purchase order or contract. The Schedule noted in 01-31 00

4.3. If delays in supply of Products are foreseeable, notify Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

4.4. In event of failure to notify Consultant at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Consultant reserves right to substitute more readily available Products of similar character, at no increase in Contract Price or

Contract Time.

5. Storage And Protection

5.1. Store and protect Products in accordance with manufacturers' written instructions.

5.2. Store with seals and labels intact and legible.

5.3. Store sensitive Products in weather tight, climate controlled, enclosures in an environment favourable to Product.

5.4. For exterior storage of fabricated Products, place on sloped supports above ground.

5.5. Cover Products subject to deterioration with impervious sheet covering.

5.6. Provide ventilation to prevent condensation and degradation of Products.

5.7. Store loose granular materials on solid flat surfaces in a well-drained area.

5.8. Prevent mixing with foreign matter.

5.9. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

5.10. Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

6. Transportation And Handling

6.1. Transport and handle Products in accordance with manufacturer's written instructions.

6.2. Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.

6.3. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

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

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

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

8. Existing Utilities

8.1. When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to the owner.

8.2. Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

9. Manufacturer's Written Instructions

9.1. Unless otherwise indicated in specifications, install or erect Products to manufacturer's written instructions. Do not rely on labels or enclosures provided with Products. Obtain written instructions directly from manufacturers.

9.2. Notify Consultant in writing, of conflicts between specifications and manufacturer's instructions, so that Consultant may establish course of action.

9.3. Improper installation or erection of Products, due to failure in complying with these requirements, authorizes Consultant to require removal and re- installation at no increase in Contract Price or Contract Time.

10. Quality Of Work

10.1. Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Consultant if required Work is such as to make it impractical to produce required results.

10.2. Do not employ anyone unskilled in their required duties. Consultant and or Client reserves right to require dismissal from site any workers deemed incompetent or careless.

10.3. Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Consultant, whose decision is final.

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

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

11. Coordination

11.1. Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.

11.2. Be responsible for coordination and placement of openings, sleeves and accessories.

11.3. Contractor is responsible to ensure suppliers or distributors of materials specified or alternatives accepted, which he intends to use, have materials with original schedule, and similarly it shall be the responsibility of all subcontractors and suppliers to so inform the Contractor.

11.4. Contractor shall contact Consultant immediately upon receipt of information indicating materials or items, will not be available on time, in accordance with the latest approved schedule, and similarly it shall be the responsibility of all subcontractors and suppliers to so inform the Contractor.

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

12. Concealment

12.1. In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

12.2. Before installation, inform Consultant if there is interference. Install as directed by

Consultant at no additional cost to the Client.

13. Remedial Work

13.1. Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.

13.2. Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

14. Location Of Fixtures

14.1. Inform Consultant of conflicting installation. Install as directed.

15. Fastenings - Equipment

15.1. Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

15.2. Use heavy hexagon heads, semi-finished unless otherwise specified. Use Type 304 or 316 stainless steel for exterior areas.

15.3. Bolts may not project more than one diameter beyond nuts.

15.4. Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

15.5. Protection Of Work In Progress

15.6. Prevent overloading of any part of the Project.

15.7. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated, without written approval of Consultant.

PART 2 | PRODUCTS - NOT USED

PART 3 | EXECUTION - NOT USED

****END OF SECTION****

SECTION 01 70 00
EXAMINATION & PREPARATION

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. This section describes requirements applicable to all Sections within Divisions 02 to 27.

2. Subsurface Conditions

2.1. Promptly notify Consultant in writing if discovered surface or subsurface conditions at Place of Work differ materially from those indicated in Contract Documents.

2.2. Advise the Consultant of a reasonable assumption of probable conditions when determined.

2.3. After prompt investigation, should Consultant determine that conditions do differ materially, instructions will be issued for changes in Work.

3. Examination

3.1. The Contractor is expected to be totally familiar with site conditions and shall assume full responsibility for the cost involved in repairing any damage to the building, site and services, city property, adjacent buildings, etc., during general construction, regardless of the extent of the damage.

3.2. Inspect existing conditions, including elements or adjacent Work subject to irregularities, damage, movement, including Work during cutting and patching.

3.3. The Contractor shall provide all equipment necessary to make a full and detailed site evaluation. This shall include but not be limited to ladders, flashlights and hand tools.

3.4. The Contractor expressly agrees that conditions above existing suspended acoustic ceilings, but below fixed structure, unless obscured by an additional ceiling above, shall be considered exposed conditions for the purposes of making findings under the provisions of the Contract. There shall be no claims for extra costs for extra Work in these areas.

3.5. After uncovering, inspect conditions affecting performance of the Work.

3.6. Beginning of cutting or patching means acceptance of existing conditions.

4. Preparation

4.1. Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

4.2. Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.

5. Existing Services

5.1. Before commencing work, establish location and extent of service lines in area of Work and notify Consultant of findings.

5.2. Remove abandoned service lines running through within existing and new structures. Cap or seal lines at cut-off points as directed by Consultant.

6. Location Of Equipment And Fixtures

6.1. Inform Consultant of conflicting installations, install as directed.

6.2. Locate equipment, fixtures and distribution systems to provide minimum interference and

maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

6.3. Inform Consultant of impending installation and obtain approval for actual location.

6.4. Submit field drawings to indicate relative position of various services and equipment when required by Consultant.

7. Survey Record

7.1. Maintain a complete, accurate log of control and survey work as it progresses.

7.2. On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.

7.3. Record locations of maintained, re-routed and abandoned service lines.

PART 2 | PRODUCTS - NOT USED

PART 3 | EXECUTION - NOT USED

****END OF SECTION****

SECTION 01 73 30
EXECUTION, CUTTING & PATCHING

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. Section 01 32 00 - Construction Progress Documents.

1.2. Section 01 61 00 - Product Requirements.

1.3. Section 01 70 00 – Examination and Preparation

2. Submittals

2.1. Submit written request in advance of cutting or alteration which affects:

2.1.1. Structural integrity of any element of Project.

2.1.2. Integrity of weather exposed or moisture resistant element.

2.1.3. Efficiency, maintenance, or safety of any operational element.

2.1.4. Visual qualities of sight exposed elements.

2.1.5. Work of Owner or separate contractor.

2.2. Include in request:

2.2.1. Identification of Project.

2.2.2. Location and description of affected Work.

2.2.3. Necessity for cutting or alteration.

2.2.4. Description of proposed Work and Products to be used.

2.2.5. Alternatives to cutting and patching.

2.2.6. Effect on work of Owner or separate contractor.

2.2.7. Written permission of affected separate contractor.

2.2.8. Date and time work will be executed.

3. Tolerances

3.1. Monitor fabrication and installation tolerance control of Products to produce acceptable Work.

3.2. Do not permit tolerances to accumulate beyond effective or practical limits.

3.3. Comply with manufacturers' tolerances. In case of conflict between manufacturers' tolerances and Contract Documents, request clarification from Consultant before proceeding.

3.4. Adjust Products to appropriate dimensions; position and confirm tolerance acceptability, before permanently securing Products in place.

PART 2 | PRODUCTS

4. Materials

4.1. Primary Products: Those required for original installation.

4.2. Product Substitution: For any proposed change in materials, submit request for substitution

described in Section 01 33 00.

PART 3| EXECUTION

5. Examination

5.1. Examine existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.

5.2. After uncovering existing Work, assess conditions affecting performance of work.

5.3. Beginning of cutting or patching means acceptance of existing conditions.

6. Preparation

6.1. Provide temporary supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of Project from damage.

6.2. Provide protection from elements for areas which may be exposed by uncovering work.

6.3. Maintain excavations free of water.

7. Cutting

7.1. Execute cutting and fitting as needed to complete the Work. Prior to any cutting and or coring of concrete floors the contractor shall confirm the area is free of services or rebar. Notify the Consultant of any interferences.

7.2. Uncover work to install improperly sequenced work.

7.3. Remove and replace defective or non-conforming work.

7.4. Remove samples of installed work for testing for Hazardous materials.

7.5. Provide openings in the Work for penetration of mechanical and electrical work.

7.6. Employ experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

7.7. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

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

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

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

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

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

times

7.13. Any cost caused by omission or ill-timed work shall be borne by party responsible therefore.

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

8. Patching

8.1. Execute patching to complement adjacent Work.

8.2. Fit Products together to integrate with other Work.

8.3. Execute work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.

8.4. Employ original installer to perform patching for weather exposed and moisture resistant elements, and sight-exposed surfaces.

8.5. Restore work with new Products in accordance with requirements of Contract Documents.

8.6. Fit work with adequate support to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

8.7. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with firestop material.

8.8. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

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

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

PART 2 | MATERIALS – NOT USED

PART 3 | EXECUTION – NOT USED

****END OF SECTION****

SECTION 01 74 00
CLEANING & WASTE MANAGEMENT

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. This section describes requirements applicable to all Sections within Divisions 02 to 47.

1.2. Conduct cleaning and disposal operations to comply with local ordinances and environmental protection legislation.

1.3. Store volatile wastes in covered metal containers, and remove from premises at end of each working day.

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

1.5. Use of building ventilation systems is not permitted for this purpose.

PART 2 | MATERIALS

2. Cleaning Products

2.1. Cleaning Agents and Materials: Low VOC content wherever possible. The Consultant and the Board shall be notified prior to use of any exception.

PART 3 | EXECUTION

3. Cleaning During Construction

3.1. Maintain the Work in tidy condition, free from accumulation of waste products and debris, other than that caused by the Owner or other Contractors.

3.2. Remove waste material and debris from the work areas and deposit in waste container at the end of each working day.

3.3. Vacuum clean interior areas prior to start of finishing work. Maintain areas free of dust and other contaminants during finishing operations.

3.4. Individual Subcontractors are responsible for the daily clean-up and removal of debris related to, or generated by, their own work. The overall responsibility for project cleanliness rests with the Contractor.

3.5. The Contractor shall be responsible for snow removal within the construction area.

3.6. Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

3.7. Wherever possible recycle materials

3.8. Containers:

3.8.1. Provide adequate number and sizes of on-site garbage and recycling containers within designated work site as required for collection of waste materials and debris on a daily basis.

3.8.2. Provide additional waste containers when extent of work warrants.

3.8.3. Provide and use clearly marked, separate bins for recycling.

3.9. Dispose of waste materials and debris at registered waste disposal and recycling facility.

3.10. Remove oily rags, waste and other hazardous substances from premises at close of each

day, or more often when required.

3.11. Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

4. Waste Management

4.1. Audit, separate and dispose of construction waste generated by new construction or by demolition of existing structures in whole or in part, in accordance with Ontario Regulations 102/94 and 103/94 made under the Environmental Protection Act.

4.2. Containers:

4.2.1. Provide adequate number and sizes of on-site garbage and recycling containers within designated work site as required for collection of waste materials and debris on a daily basis.

4.2.2. Provide additional waste containers when extent of work warrants.

4.2.3. Provide and use clearly marked, separate bins for recycling.

4.3. Fires, and burning of rubbish or waste on site is strictly prohibited.

4.4. Burying of rubbish or waste materials on site is strictly prohibited.

4.5. Disposal of waste or volatile materials such as mineral spirits, oil, gasoline or paint thinner into ground, waterways, or sewer systems is prohibited.

4.6. Empty waste containers on a regular basis to prevent contamination of site and adjacent properties by wind-blown dust or debris

5. Preparation For Final Cleaning

5.1. Prior to final cleaning the General Contractor shall:

5.1.1. Remove all surplus products, tools, construction machinery and equipment not required for the performance of remaining work, and thereafter remove any remaining materials, equipment, waste and debris,

5.1.2. Replace all filters installed on any equipment in operation in the area of work,

5.1.3. Remove all paint spots or overspray from all affected surfaces, and

6. Final Cleaning Prior To Acceptance: Interior

6.1. Prior to applying for Substantial Performance of the Work, or, prior to Owner occupancy of the building or portion of the building affected by the Work, whichever comes first, conduct full and complete final cleaning operations for the areas to be occupied.

6.2. Final cleaning operations shall be performed by an experienced professional cleaning company, possessing equipment and personnel sufficient to perform full building cleaning operations. Contractors “broom cleaning” is not acceptable as a “Final Clean”. The cleaning contractor shall:

6.2.1. Clean interiors of all millwork and surfaces of any furniture and equipment present,

6.2.2. Use only cleaning materials recommended by the manufacturer of the surface to be cleaned,

6.2.3. Remove all stains, spots, scuff marks, dirt, dust, remaining labels, adhesives or other surface imperfections,

6.2.4. Clean and polish all glass and mirrors and remove remaining manufacturer's and safety "X" labels,

6.2.5. Clean and polish all finished metal surfaces such as enameled or stainless steel, chrome, aluminum, brass, and bronze,

6.2.6. Clean and polish all vitreous surfaces such as plumbing fixtures, ceramic tile, porcelain enamel, or other such materials,

6.2.7. Clean all ceramic tile surfaces in accordance with the manufacturer's instructions,

6.2.8. Vacuum, clean and dust behind grilles, louvres and screens,

6.2.9. Steam clean all unprotected carpets immediately prior occupancy by Owner, and

6.2.10. Clean all equipment and fixtures to a sanitary condition.

6.3. For any areas to be occupied after the owner’s initial occupancy, provide full cleaning operations as outlined above prior to turning over to owner,

6.4. The Board’s supplies and equipment must not be used for any cleaning operations including, but not limited to: garbage cans, mops, brooms, rags, ladders, chemicals etc.

7. Final Cleaning Prior To Acceptance: Exterior

7.1. For areas effected by construction final exterior cleaning operations shall be performed by the General Contractor or competent sub-contractor. Contractor’s “broom cleaning” only is not acceptable.

7.2. Final exterior cleaning shall include:

7.2.1. Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds,

7.2.2. Remove dirt and other disfiguration from exterior surfaces,

7.2.3. Sweep and wash clean paved areas,

7.2.4. Replace filters of mechanical equipment for all equipment that was in use during construction,

7.2.5. Clean all roofs, gutters, downspouts, areaways, drywells, and drainage systems,

7.2.6. Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

7.2.7. Remove overspray

PART 2 | MATERIALS – NOT USED

PART 3 | EXECUTION – NOT USED

****END OF SECTION****

SECTION 01 74 00
CLEANING & WASTE MANAGEMENT

PART 1 | GENERAL REQUIREMENTS

1. General Instructions

1.1. The procedures for completing Contract and acceptance by the Owner shall be in accordance with the methods prescribed by Owner.

1.2. Stages will be reviewed at the Contract start-up meeting to ensure that parties understand their responsibilities. Refer to Section 01 31 13 for procedures and requirements for Contract start-up meeting.

1.3. Within four (4) weeks of commencement of the Work, submit to the Consultant a list of closeout submittals required by the Contract Documents.

1.4. Note that entities other than the Owner may be involved in the closeout procedures described herein, including attendance at any operation and/or maintenance training sessions required. The Owner will coordinate such attendance as required.

2. Final Cleaning

2.1. Co-ordinate final clean-up with the Owner's representatives and opening requirements.

2.2. In addition to requirements for cleaning-up specified in the General Conditions of the Contract, include in work final cleaning by skilled cleaning specialists on completion of construction.

2.3. Remove temporary protections and make good defects before commencement of final cleaning of:

2.3.1. Mirrors;

2.3.2. Porcelain, enamel, and finish metals;

2.3.3. Washroom accessories.

2.3.4. Vacuum cleaning of ceilings, walls and floors.

2.3.5. Cleaning of glazed wall surfaces.

2.3.6. Cleaning of hardware, mechanical fixtures, lighting fixtures, cover plates, and equipment, including polishing of their finish metal, porcelain, vitreous, and glass components.

2.3.7. Removing of visible labels left on materials, components, and equipment.

2.3.8. Maintain cleaning until Owner has taken possession of building or portions thereof.

2.4. Close-Out Submittals

2.5. Collect reviewed submittals, and assemble required closeout submittals executed by Subcontractors, Suppliers, and manufacturers. Prior to submitting closeout submittals to the Consultant, undertake the following:

2.5.1. Review maintenance manual contents (operating, maintenance instructions, as-built drawings, materials) for completeness.

2.5.2. Review in relation to Contract Price, Change Orders, Change Directives, holdbacks and other adjustments to the Contract Price.

2.5.3. Review inspection and testing reports to verify conformance to intent of Contract

Documents and that changes, repairs or replacements have been completed.

2.5.4. Execute transition of performance bond and labour and materials payment bond to warranty period requirements.

2.5.5. Submit a final statement of accounting giving total adjusted Contract Price, previous payments, and monies remaining at time of application for completion of the Contract. Consultant will issue a final change order reflecting approved adjustments to Contract Price not previously made, if any.

2.6. No later than then (10) working days prior to submitting request for Consultant's review to determine if Substantial Performance of the Work has been achieved, submit to the Consultant the closeout submittals specified in this section, including, but not limited to, reviewed shop drawings, Product data sheets, samples, operating instructions, as-built records, and fully executed warranties and guarantees.

2.7. For items of the Work delayed materially beyond date of Substantial Performance of the Work, provide updated closeout submittals within ten (10) working days after acceptance, listing date of acceptance as start of warranty period.

2.8. Neither the Consultant's review to determine if Substantial Performance of the Work has been achieved, nor acceptance of the Work, will take place until receipt, by the Consultant, of acceptable copies of the closeout submittals required herein and by the Contract Documents.

2.9. As-built records and operation and maintenance manuals, as indicated in Section 01 33 00.

2.10. Maintenance materials:

2.10.1. Refer to schedule of itemized prices for overage, extra stock, and maintenance materials required. Deliver to a location and at a time specified by the Owner, organize items in Owner's storage area as directed by the Owner, and as follows:

2.10.2. Use unbroken cartons, or if not supplied in cartons, material shall be strongly packaged.

2.10.3. Clearly mark cartons or packaging as to contents, project name, and Supplier.

2.10.4. If applicable give colour and finish, room number or area where material is used.

2.10.5. Replace incorrect or damaged maintenance materials delivered to Owner, including damage through shipment.

2.10.6. Provide a typed inventory list of maintenance materials prior to Substantial Performance of the Work application. List all items, complete with quantities, and storage locations.

2.10.7. Establish a master list identifying maintenance materials and maintain a log of when materials are turned over to Owner and signing authority for acceptance of materials on behalf of Owner. Master list and log shall be in a format acceptable to the Owner.

3. Substantial Performance Of The Work

3.1. Deficiency review:

3.1.1. Neither Owner nor Consultant will be responsible for preparation or issuance of extensive lists of deficiencies. Contractor assumes prime responsibility for ensuring that items shown and described in the Contract Documents are complete. Any reviews to approve the certificate of Substantial Performance of the Work will be immediately cancelled if it

becomes obvious to the Consultant that extensive deficiencies are outstanding.

3.1.2. The Contractor shall conduct an inspection of the Work to identify deficiencies and defects, which shall be repaired. When the Contractor considers that the Work is substantially performed, the Contractor shall prepare and submit to the Consultant a comprehensive list of items to be completed or corrected and apply for a review of the Work by the Consultant to determine if Substantial Performance of the Work has been achieved.

3.1.3. The Contractor's request described above shall include a statement by Contractor that the Work to be reviewed by Consultant for deficiencies is, to the best of the Contractor's knowledge, in compliance with Contract Documents, reviewed shop drawings, and samples, and that deficiencies and defects previously noted by Consultant have been repaired.

3.1.4. No later than fifteen (15) working days after the receipt of the Contractor's request described above, but contingent upon the prior receipt, by the Consultant, of the closeout submittals in the manner and form specified in this section, the Consultant and the Contractor will review the Work to identify any defects or deficiencies. If necessary, the Contractor shall tabulate a list of deficiencies to be corrected prior to Substantial Performance of the Work being certified by the Consultant.

3.1.5. During review, the Consultant and the Contractor will decide which deficiencies or defects must be rectified before Substantial Performance of the Work can be certified, and which defects are to be treated as warranty items.

3.1.6. Provide a schedule of planned deficiency review having regard to the foregoing.

3.2. Certification of Substantial Performance of the Work:

3.2.1. When the Consultant considers that the deficiencies and defects have been completed and that it appears that the requirements of the Contract Documents have been substantially performed, the Consultant shall issue a certificate of Substantial Performance of the Work to the Contractor, stating the date of Substantial Performance of the Work.

3.2.2. The certificate of Substantial Performance of the Work shall be prepared in form required by Construction Lien Act.

3.2.3. The Contractor shall publish the notification of Substantial Performance and provide the Consultant a certification of publication. The date of certification of publication is the start date of the 45 day lien period.

3.3. Final Inspection for completion of the Contract:

3.3.1. Deficiencies and defects shall be made good before the Contractor submits a written request for final review of the Work and before the Contract is considered complete.

3.3.2. When Contractor is satisfied that the Work is complete, and after the Contractor has reviewed the Work to verify its completion in accordance with the requirements of the Contract Documents, the Contractor shall submit a written request for a final review by the Consultant, who in turn will notify the Owner.

3.3.3. If there are any deficiencies identified as a result of this review, they shall be listed by the Consultant and submitted to the Contractor. This list shall be recognized as the final

deficiency list for purposes of acceptance of the Work under the Contract.

3.3.4. Such deficiencies shall be corrected by a date mutually agreed upon between Consultant and the Contractor, unless a specific date is required by Contract, and a further review by the Consultant shall be called for by the Contractor following his own review to take place within seven (7) days from date of request.

3.3.5. Contractor shall thereafter submit invoice for final payment.

3.3.6. Money shall be withheld for deficiency work and will be released only when all deficiencies have been completed. No partial payment to be recognized until all work is completed.

3.4. If the Contractor needs to return to the Place of the Work to complete deficiencies after the Owner has taken possession, the Contractor shall provide the Owner with a minimum of one (1) week's prior notice of such requirement.

4. Warranty Period

4.1. Provide on-going review and attendance to call-back, maintenance and repair problems during the warranty periods.

4.2. At the beginning of the 12th month after Substantial Performance of the Work, the Owner, Contractor and Consultant, along with key Subcontractors as designated, shall carry out a complete review of the built project to determine which deficiencies are to be rectified under the warranty.

4.3. Extended warranty items shall have a complete review to determine which deficiencies are to be rectified under the warranty, one month prior to the end of the warranty.

4.4. Contractor shall be responsible for timely written notification of Owner, and Consultant a minimum of three (3) months prior to such end of warranty period inspection and any delay in such notification shall extend such warranty period until proper notification is received by Owner, and Consultant.

PART 2 | PRODUCTS – NOT USED

PART 3 | EXECUTION – NOT USED

****END OF SECTION****

SECTION 01 78 00
WARRANTIES

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. This section describes requirements applicable to all Sections within Divisions 02 to 49.

2. Warranties

2.1. Warranties shall be in accordance with the General Conditions, as amended, and as follows:

2.2. Warranties shall commence at date of Substantial Performance of the Work.

2.3. Submit warranties for applicable items, signed by the applicable company responsible for each warranty.

2.4. Submit warranties on form approved by Owner including, but not limited to, the following information:

2.4.1. Name and address of Project.

2.4.2. Warranty commencement date (date of Substantial Performance of the Work).

2.4.3. Duration of warranty.

2.4.4. Clear indication of what is being warranted and what remedial action will be taken under warranty.

2.4.5. Authorized signature and seal of company providing each warranty.

2.5. Owner shall be named in manufacturer's Product warranties. Submit on relevant Product manufacturer's standard warranty or guarantee form.

PART 2 | PRODUCTS – NOT USED

PART 3 | EXECUTION – NOT USED

****END OF SECTION****

SECTION 01 78 10
CLOSE-OUT SUBMITTALS & REQUIREMENTS

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. This section describes requirements applicable to all Sections within Divisions 02 to 27.

2. Take-Over Procedures

2.1. Take over procedures will be in strict accordance with the requirements as set out in this Section.

3. Substantial Performance

3.1. Prior to requesting a Substantial Performance deficiency inspection submit (ONE) 1 digital copy of the Operating and Maintenance Manuals for Consultants approval.

3.2. Application for Substantial Performance must include.

3.2.1. One (1) electronic copy of inspection and acceptance certificates required from regulatory agencies, including but not limited to.

3.2.2. Certificates of Approval of the Work by the local Building Department.

3.2.3. Electrical Inspection Certificate of Inspection.

3.3. Fire Alarm Verification Certificate.

3.4. Advise Consultant in writing, when project has been substantially completed. If Consultant agrees this stage has been reached, the Consultant shall prepare a complete list of deficiencies and submit copies of this list to Contractor and the Client.

4. Commencement Of Lien Periods

4.1. The date of publication of the Certificate of Substantial Performance of the Work, provided to the contractor by the Consultant, shall be the date for commencement of the lien period.

5. Total Performance

6. Prior to requesting a final inspection submit written certificate that the following have been performed:

6.1. Work has been completed and inspected for compliance with Contract Documents and is ready for final inspection

6.2. Defects have been corrected and deficiencies have been completed.

6.3. Equipment and systems have been tested and are fully operational.

6.4. Submit two copies of the balancing reports

6.5. Certificates required by the contractor have been submitted.

6.6. Operation of systems have been demonstrated to Owner's personnel.

6.7. Submit Record drawings.

6.8. Submit maintenance materials.

6.9. Provide certified site survey.

7. When items noted above are completed, request final inspection of Work by consultant, and

building inspector. If Work is deemed incomplete by Consultant, complete outstanding items and request re-inspection.

8. Payment Of Substantial Performance Holdback

8.1. Prior to the release of lien holdback provide one copy of the following by the Contractor and each subcontractor:

8.1.1. Statutory Declaration or Declaration of Last supply

8.1.2. Workplace Safety and Insurance Client “Certificate of Clearance”.

8.2. The Contractor shall submit an application for payment of the holdback amount.

8.3. After the receipt of an application for payment which will include a Statutory Declaration and WSIB Clearance from the, the Consultant will issue a certificate for payment of the holdback amount.

9. Final Payment

9.1. When the Contractor considers final deficiencies and defects have been corrected and it appears requirements of Contract have been completed, make application for final payment.

9.2. When the Consultant finds the Contractor's application for final payment valid, the Consultant will issue a final certificate of payment

10. Closeout Submittals

10.1. Prepare instructions and data using personnel experienced in maintenance and operation of described products and submit to Consultant for review.

10.2. Copy will be returned to contractor with Consultant's comments.

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

10.4. Two (2) weeks prior to Substantial Performance of the Work, submit to the Consultant, the final copies of operating and maintenance manuals.

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

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

10.7. Defective products will be rejected, regardless of previous inspections.

10.8. Replace products at own expense.

10.9. Pay costs of transportation.

11. Operation And Maintenance Manual Format

11.1. Provide two copies of operating and maintenance data.

11.2. Arrange content by the divisions of the specifications under Section numbers and sequence of Table of Contents.

11.3. Include the following in each manual:

11.3.1. Complete list of subcontractors and suppliers, their addresses and telephone numbers.

Provide 24 hour emergency telephone number for such subcontractors as Plumbing, Electrical, Sprinklers, Fire System, Heating, etc.

11.3.2. Specified warranties for contractor, each subcontractor and supplier.

11.3.3. Copy of finish hardware list, complete with all amendments and revisions and lock manufacturer's descriptive and service literature.

11.3.4. Schedule of paints and coatings. Include sufficient explanation to fully identify each surface with the applicable paint or coating used. Enclose copy of colour schedule.

11.3.5. Maintenance instructions for finished surfaces.

11.3.6. Brochures, cuts of equipment and fixtures.

11.3.7. Operating and maintenance instructions for equipment.

11.4. Submit copies of letters from manufacturers of equipment and systems indicating their technical representatives have inspected and tested systems and are satisfied with methods of installation, connection and operations. These letters shall state names of persons present at testing, methods used and list of functions performed.

11.5. Submit one complete set of reviewed shop drawings of architectural, structural, mechanical and electrical items.

11.6. Relevant certificates issued by authorities having jurisdiction

12. Recording Actual Site Conditions

12.1. Record information on set of black line opaque drawings, and within the Project Manual.

12.2. Annotate with coloured felt tip marking pens, maintaining separate colours for each major system, for recording changed information.

12.3. Record information concurrently with construction progress. Do not conceal Work of the Project until required information is accurately recorded.

12.4. Contract drawings and shop drawings: legibly mark each item to record actual construction, including:

12.4.1. Measured depths of elements of foundation in relation to finish first floor datum.

12.4.2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

12.4.3. Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.

12.4.4. Field changes of dimension and detail.

12.4.5. Changes made by change orders.

12.4.6. Details not on original Contract Drawings.

12.4.7. References to related shop drawings and modifications.

12.5. Specifications: legibly mark each item to record actual construction, including:

12.5.1. Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

12.6. Changes made by Addenda and change orders.

13. Other Documents: Maintain warranties, test reports and samples required by individual specifications sections.

14. Record (As-Built) Documents And Samples

14.1. Store AS-BUILT documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.

14.2. Label AS-BUILT documents and file in accordance with section number listings in List of Contents of the Project Manual. Label each document AS- BUILT DOCUMENTS in neat, large, printed letters.

14.3. Maintain AS-BUILT documents in clean, dry and legible condition. Do not use as-built documents for construction purposes.

14.4. Keep as-built documents and samples available for inspection by Consultant.

15. Record Drawings

15.1. Prior to Substantial Performance of the Work, update the marked up information from the AS-BUILT documents to a master set of drawing.

15.2. Submit one set of completed AS-BUILT documents to the Consultant for review.

15.3. Documents will be returned to contractor with Consultant's comments.

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

15.5. After the review is completed resubmit to the Consultant for Consultant to produce electronic record drawings for the owner to use.

16. Spare Parts

16.1. Provide spare parts, in quantities specified in individual specification sections.

16.2. Provide items of same manufacture and quality as items in Work.

16.3. Receive and catalogue all items. Submit inventory listing to Consultant.

16.4. Include approved listings in Maintenance Manual.

16.5. Obtain receipt for delivered products and submit prior to final payment.

17. Replacement (Maintenance) Materials

17.1. Deliver to site, unload and store where directed, replacement (maintenance) materials as required elsewhere in these Specifications. Obtain signed receipt from Owner’s Representative for delivered materials and include copy of receipt in Operation and Maintenance manuals.

17.2. Package materials so they are protected from damage and loss of essential properties.

17.3. Label packaged materials for proper identification of contents.

18. Special Tools

18.1. Provide special tools, in quantities specified in individual specification section.

18.2. Provide items with tags identifying their associated function and equipment.

18.3. Receive and catalogue all items. Submit inventory listing to Consultant.

18.4. Include approved listings in Maintenance Manual

19. Final Site Survey

19.1. Submit final site survey certificate in accordance with Section 01 70 00, certifying that elevations and locations of completed Work are in conformance Contract Documents.

20. Warranties And Bonds

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

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

20.3. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined. The date of Substantial Performance of the Work shall be the date for commencement of the warranty period.

20.4. Verify that documents are in proper form, contain full information, and are notarized.

20.5. Co-execute submittals when required.

20.6. Retain warranties and bonds until time specified for submittals.

PART 2 | PRODUCTS – NOT USED

PART 3 | EXECUTION – NOT USED

****END OF SECTION****

SECTION 01 78 40
MAINTENANCE REQUIREMENTS

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. Section 01 45 00 - Quality Control.

1.2. Section 01 78 40 – Maintenance Requirements.

1.3. This section describes requirements applicable to all Sections within Divisions 02 to 27.

2. Equipment And Systems

2.1. Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete

2.2. Panel board circuit directories: provide electrical service characteristics, controls, and communications.

2.3. Include installed colour coded wiring diagrams.

2.4. Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

2.5. Maintenance Requirements: include routine procedures and guide for trouble- shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

2.6. Provide servicing and lubrication schedule, and list of lubricants required.

2.7. Include manufacturer's printed operation and maintenance instructions.

2.8. Include sequence of operation by controls manufacturer.

2.9. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

2.10. Provide installed control diagrams by controls manufacturer.

2.11. Provide coordination Drawings, with installed colour coded piping diagrams.

2.12. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

2.13. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

2.14. Include test and balancing reports as specified in Section 01 45 00.

2.15. Additional requirements: As specified in individual specification sections.

PART 2 | PRODUCTS

3. Materials And Finish

3.1. Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations.

3.2. Instructions for cleaning agents and methods, precautions against detrimental agents and

methods, and recommended schedule for cleaning and maintenance.

3.3. Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

3.4. Building Envelope: include copies of drawings of building envelope components, illustrating the interface with similar or dissimilar items to provide an effective air, vapour and thermal barrier between indoor and outdoor environments. Include an outline of requirements for regular inspections and for regular maintenance to ensure that on-going performance of the building envelope will meet the initial building envelope criteria.

3.5. Additional Requirements: as specified in individual specifications sections.

4. Spare Parts

4.1. Provide spare parts, in quantities specified in individual specification sections.

4.2. Provide items of same manufacture and quality as items in Work.

4.3. Receive and catalogue all items. Submit inventory listing to Consultant.

4.4. Include approved listings in Maintenance Manual.

4.5. Obtain receipt for delivered products and submit prior to final payment.

5. Maintenance Materials

5.1. Provide maintenance and extra materials, in quantities specified in individual specification sections.

5.2. Provide items of same manufacture and quality as items in Work.

5.3. Receive and catalogue all items. Submit inventory listing to Consultant.

5.4. Include approved listings in Maintenance Manual.

5.5. Obtain receipt for delivered products and submit prior to final payment.

6. Special Tools

6.1. Provide special tools, in quantities specified in individual specification section.

6.2. Provide items with tags identifying their associated function and equipment.

6.3. Receive and catalogue all items. Submit inventory listing to Consultant.

6.4. Include approved listings in Maintenance Manual.

PART 3 | EXECUTION

7. Delivery To Site

7.1. Deliver to place of work and store.

7.2. General Contractor to receive and acknowledge delivery from contractors and sub-contractors of all parts and materials assembled for maintenance requirements. Provide a summary inventory list to the Consultant and/or the Board after all materials are gathered and verification of location. Signatures of receipt will not be accepted from anyone except the General Contractor’s representative.

8. Storage, Handling And Protection

8.1. Consult with the Board to determine location for storage.

8.2. Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

8.3. Store in original and undamaged condition with manufacturer's seal and labels intact.

8.4. Store components subject to damage from weather in weatherproof enclosures.

8.5. Store paints and freezable materials in a heated and ventilated room.

8.6. Remove and replace damaged products at own expense and to satisfaction of Consultant.

PART 2 | MATERIALS – NOT USED

PART 3 | EXECUTION – NOT USED

****END OF SECTION****

SECTION 01 79 00 DEMONSTRATION & TRAINING

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. This section describes requirements applicable to all Sections within Divisions 02 to 27.

2. Description

2.1. At Substantial Performance, at a time acceptable to Owner and Consultant, but not before operations and maintenance manual have been reviewed and accepted by the consultant; contractor shall give a complete demonstration in the presence of consultant; Sub-consultants, Owner and Owner's personnel of operation and maintenance of systems and equipment once they are 100% complete.

2.2. Owner will provide list of personnel to receive instructions and will coordinate their attendance at agreed-upon times.

3. Component Demonstration

3.1. Manufacturer to provide authorized representative to demonstrate operation of equipment and systems.

3.2. Instruct Owner's personnel, and provide written report that demonstration and instructions have been completed.

4. Submittals

4.1. Submit schedule of time and date for demonstration of each item of equipment and each system one (1) week prior to designated dates, for Consultant's approval.

4.2. Submit reports within forty eight (48) after completion of demonstration, that demonstration and instructions have been satisfactorily completed.

4.3. Give time and date of each demonstration, with list of persons present.

5. Conditions For Demonstrations

5.1. Equipment has been inspected and put into operation in accordance with manufacturer’s instructions and contract requirements.

5.2. Testing, adjusting, and balancing have been performed in accordance with manufacturer’s instructions and contract requirements, and equipment and systems are fully operational.

5.3. Provide information packages as required for use in demonstrations and instructions.

PART 2 | PRODUCTS – NOT USED

PART 3 | EXECUTION

6. Preparation

6.1. Verify that suitable conditions for demonstration and instructions are available.

6.2. Verify that designated personnel are present.

6.3. Prepare agendas and outlines.

6.4. Establish seminar organization.

6.5. Explain component design and operational philosophy and strategy.

6.6. Develop equipment presentations.

6.7. Present system demonstrations.

6.8. Accept and respond to seminar and demonstration questions with appropriate answers.

7. Preparation Of Agendas And Outlines

7.1. Prepare agendas and outlines including the following:

7.2. Equipment and systems to be included in seminar presentations.

7.3. Name of companies and representatives presenting at seminars.

7.4. Outline of each seminar's content.

7.5. Time and date allocated to each system and item of equipment.

7.6. Provide separate agenda for each system.

8. Seminar Organization

8.1. Coordinate content and presentations for seminars.

8.2. Coordinate individual presentations and ensure representatives scheduled to present at seminars are in attendance.

8.3. Arrange for presentation leaders familiar with the design, operation, maintenance and troubleshooting of the equipment and systems. Where a single person is not familiar with all aspects of the equipment or system, arrange for specialists familiar with each aspect.

8.4. Coordinate proposed dates for seminars with Owner and select mutually agreeable dates.

9. Demonstration And Instructions

9.1. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment.

9.2. Instruct personnel in all phases of operation and maintenance using operation and maintenance manuals as the basis of instruction.

9.3. Instruct personnel on control and maintenance of sensory equipment and operational equipment associated with maintaining energy efficiency and longevity of service.

9.4. Review contents of manual in detail to explain all aspects of operation and maintenance.

9.5. Prepare and insert additional data in operations and maintenance manuals when the need for additional data becomes apparent during instructions.

****END OF SECTION****

SECTION 02 00 00
EXISTING CONDITIONS

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. This section describes requirements applicable to all Sections within Divisions 02 to 27.

2. General

2.1. Make good surfaces and finishes damaged or disturbed due to Work of this Contract to match existing. Ensure that material used to repair damage is compatible with existing work.

2.2. Term “make good” to mean repairing or filling operations performed on existing floors, walls, ceiling or any other exposed surfaces. Perform cutting and patching where applicable as specified herein. It is intended that finished surfaces match and line with existing adjoining surfaces.

2.3. Restore Site to condition equal to or, if specified elsewhere, to condition better than existing conditions.

2.4. Restore lands outside of limits of Work which are disturbed due to Work to original condition in addition to complying with requirements of General Conditions of the Contract.

PART 2 | PRODUCTS - NOT USED

PART 3| EXECUTION - NOT USED

****END OF SECTION****

SECTION 02 40 00
DEMOLITION

PART 1 | GENERAL REQUIREMENTS

1. Related Work

1.1. Temporary Utilities Section 01 51 00

1.2. Execution Section 01 73 30

1.3. This section describes requirements applicable to all Sections within Divisions 02 to 27.

2. References

2.1. Conform to all laws, By-Laws and regulations of the authorities having jurisdiction and, in particular, the Ontario Occupational Health and Safety Act; The Environmental Protection Act; The Ontario Building Code, Ontario Regulation 332/12; The Ontario Fire Code; The National Building Code, 2010; and the National Fire Code.

2.2. CSA S350-M, code of practice for safety in demolition of structures.

2.3. Ontario regulations under the Environmental Protection Act:

2.3.1. O.Reg. 102/94 Waste Audits and Waste Reduction Work Plans

2.3.2. O.Reg. 103/94 Industrial, Commercial and Institutional Source Separation Programs

2.3.3. O.Reg. 347/90 General - Waste Management; refer to "Definitions"

2.4. Ontario regulations under the Occupational Health and Safety Act:

2.4.1. O.Reg. 213/91 Construction Projects

2.4.2. All regulations regarding “Designated Substances”

2.4.3. O.Reg. 860/90 Workplace Hazardous Materials Information System (WHMIS)

2.5. Conform to “Guidelines for Maintaining Fire Safety During Construction in Existing Buildings”, provided by the Office of the Ontario Fire Marshal.

3. Examination Of Existing Site And Structure

3.1. Examine the existing site and building before tendering to be familiar with the detailed extent of demolition, dismantling, relocation and reassembly required.

3.2. An inventory of hazardous asbestos materials has been conducted for the existing building; a copy of which is included in these Specifications, which contains the supplementary information. Contractor to coordinate removal of asbestos and other hazardous materials, as part of the Contract. If unknown hazardous materials, which are not described in the Contract documents, are discovered in the building, this additional abatement is carried in the project cash allowance.

3.3. Examine the drawings and include all costs associated with phasing of the work, including after-hours work and remobilization costs.

3.4. No allowance will be made for failure to obtain complete information prior to close of tenders.

4. Summary Of Work

4.1. Carry out all alteration and demolition work required to accommodate new work indicated on drawings. Make good any damage caused by alterations required.

4.2. Remove HVAC equipment, electrical fixtures and all other items so noted on drawings as required for the renovation, unless otherwise noted.

4.3. Unless noted otherwise, building materials resulting from demolition under this contract shall become the property of the Contractor, and shall be removed by the Contractor.

4.4. Supply and install temporary dust proof partitions at junctions with work area, as required to separate the work from the remainder of the building. Dust proof partitions shall be erected outside of building operating hours and shall remain in place until the work is fully commissioned and accepted by the Owner.

5. Schedule Of Work

5.1. Safety and required exiting from the existing building must be maintained at all times.

5.2. Work which will generate excessive noise, vibration or dust must be undertaken outside of the school's hours of operation. The Contractor is to become familiar with school hours as posted on the school website.

5.3. Dust proof partitions must be installed prior to any work being undertaken.

6. Protection

6.1. Protect adjacent properties against damage which might occur from falling debris or other cause. Make good damage to adjacent public or private properties resulting from Work of this Contract.

6.2. Protect existing building from damage and contamination during demolition activities. All openings must be made weatherproof. Provide temporary barriers, dust control measures, security controls, supports, and such additional protection as may be required by specific demolition work.

6.3. Prevent movement, settlement, and damage to existing building to remain, including services, paving, landscaped areas to remain, and adjacent structures. Provide temporary supports, including shoring and bracing, as required. All shoring must be designed by a professional engineer licensed in the Province of Ontario.

6.4. Employ licensed rodent and vermin exterminators to destroy all discovered vermin and rodents.

6.5. Remove contaminated and dangerous material from the site and dispose of safely and legally. Meet all M.O.E. requirements.

6.6. Take precautions to guard against movement or settlement of adjacent land, existing building, and remaining services and utilities. Provide and place bracing or other means of support.

6.7. Take precaution against contamination of air and adjacent properties.

7. Maintaining Fire Safety In Existing Building

7.1. Maintain all required exiting for safe operations within the existing building. Where an exit is closed off due to construction activities, provide alternate exit acceptable to both the Consultant and to Authorities Having Jurisdiction. Any temporary exits must be clearly identified with appropriate signage.

7.2. Maintain access roadways for fire department vehicles, acceptable to the fire department.

Access must be approved prior to commencement of construction activities.

7.3. Store all combustible materials in accordance with the Fire Code and the Occupational Health and Safety Act. Do not store combustible materials within the existing building or against the building. All combustibles shall be stored in a manner which minimizes risks to building and occupants.

7.4. Maintain dust proof partitions and protection at openings, as specified above, with fire separation ratings as required by Authorities Having Jurisdiction.

7.5. Maintain fire alarm system in operating condition in existing building. Notify the fire department and Owner of any temporary shutdowns of service and provide alternative measures during such periods of time.

7.6. Coordinate with Owner and Authorities Having Jurisdiction for all changes to fire emergency procedures as may be required during construction.

8. Services

8.1. Seal and cap mechanical and electrical services in order to facilitate removals indicated on drawings. Mark location and type of service of all capped services at the site. Submit record drawing showing locations and dimensions of all capped services.

PART 2 | PRODUCTS – NOT USED

PART 3 | EXECUTION

9. General

9.1. Remove and dispose of any remaining furniture, fixtures, fittings and equipment remaining in the work area, which are not shown to be relocated or reused in the completed project.

9.2. Protect all items indicated to be removed and later reinstalled. These items shall be removed prior to demolition work wherever possible. It will be the responsibility of the Contractor to repair or replace any such items damaged by careless handling.

9.3. Refer also to demolition and alteration notes on drawings.

10. Demolition

10.1. Demolish and masonry walls in small sections. Do not permit masonry to fall in mass.

10.2. Remove and carefully lower wood or steel framing as applicable.

10.3. Remove interior and exterior masonry and gypsum board finished walls, partitions, ceilings and bulkheads, as indicated on drawings, and as required to accommodate new construction.

10.4. Cut concrete floor slab as required to accommodate installation of new services. Provide continuous fire sealant at al floor penetrations.

10.5. Remove glass, metals and combustible materials from walls being demolished.

10.6. Remove all items not indicated or notes to remain or be re-used.

10.7. Remove mechanical and electrical equipment and piping indicated to abandoned. Refer to mechanical and electrical demolition drawings.

10.8. Any items noted to be re-used or re-located are to be removed carefully, cleaned, packaged

appropriately, and handed over to Contractor.

10.9. Upon discovery of mold or moldy materials, remove and dispose of these separately.

10.10. If any additional materials suspected to contain asbestos and other designated substance are encountered (and that are not described in the Asbestos Audit) do not disturb these materials. Inform the Consultant of the location and extent of suspect material. Do not resume work in this area until it has been cleared by an Abatement Consultant.

10.11. At the end of each day's work, leave work in a sage condition so that no part of the remaining structure is in danger of collapse.

10.12. Do not burn any refuse or debris at the sire.

10.13. Complete scanning and x-rays of any and all walls, partitions and floors, as required to complete the work and carry all required procedures as part of the base bid price.

11. New Openings In Existing Walls

11.1. Where new openings are shown to be cut into existing walls, break open the wall to the sizes required, provide new lintels over the opening, and patch all adjacent materials. Refer to structural drawings regarding new lintel assemblies.

12. Removal Of Existing Floor Finishes

12.1. Existing floor finishes shall be removed and old adhesive removed from the existing concrete slab by scraping or solvent, in accordance with Health & Safety requirements.

12.2. Remove paint from existing concrete floors by scraping or grinding. The use of solvents to remove paint will not be accepted, as these chemicals may interfere with the bonding of new floor finished or adhesives.

12.3. Existing concrete floors shall be prepared according to manufacturer's instructions for new adhesive applied finished where indicated on the drawings.

12.4. Removal Of Ceilings

12.5. Remove existing ceilings and bulkheads in areas where new ceilings and bulkheads are indicated, and as shown on drawings.

12.6. Ceilings to be demolished shall be removed complete with all finished, framing, suspension system, trim, fasteners, and accessories.

12.7. Where ceilings are to be removed to accommodate work, and later reinstalled, carefully disassemble ceilings to the extent required. Clean all components, wrap for protection, clearly label package contents, and store in a safe location until they are to be installed.

12.8. Where ceilings are to remain after adjacent walls or bulkheads are demolished, remove ceiling components as required to complete demolition work. Coordinate with forces doing new ceiling work, to confirm what components are to be retained for reuse. Cut ceiling tiles may not be used; new full or appropriately cut tiles will be required.

12.9. Where ceiling mounted equipment is indicated to be removed or reused, or where is must be temporarily removed to accommodate the Work, it is to be carefully removed, cleaned, wrapped, labelled as to contents, and stored in a sage location, ready for reinstallation.

13. Mechanical And Electrical Work

13.1. Mechanical and Electrical services must be temporarily capped or terminated to permit renovation in existing areas to proceed.

13.2. Refer to mechanical and electrical drawings for the extent of removals, relocations, and alteration required.

13.3. Ceiling mounted mechanical and electrical equipment, which is to removed and reused, is to be carefully removed and stored as specified above.

13.4. Cutting of holes up to 100mm in size I the existing structure and surfaced required by the mechanical and electrical trades shall be by those Subcontractors. Cutting and patching of openings greater that 100mm in size shall be by the Contractor in co-ordination with those trades. PATCHING OF ALL HOLES IN EXPOSED FINISHED SURFACES SHALL BE BY THE CONTRACTOR. Mechanical and Electrical trades shall do their own coring of existing slabs as required.

14. Completion Of Work

14.1. Remove all surplus materials, equipment and rubbish from the site.

14.2. Leave site in condition to meet approval of the Consultant.

14.3. On completion of Demolition work, thoroughly clean all existing surfaced to remain, including ceiling space. No debris or dirt shall remain to be enclosed by new construction.

****END OF SECTION****

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 | GENERAL REQUIREMENTS

1. Related Work

1.1. This section describes requirements applicable to all Sections within Divisions 02 to 27.

2. References

2.1. ASTM C260, Standard Specification for Air-Entraining Admixtures to Concrete.

2.2. ASTM C309, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

2.3. ASTM C494/C494M, Standard Specification for Chemical Admixtures for Concrete.

2.4. ASTM D1751, Standard Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).

2.5. CSA A5, Portland cement.

2.6. CSA-A23.1, Concrete Materials and Methods of Concrete Construction.

2.7. CSA-A23.2, Methods of Test and Standard Practices for Concrete.

2.8. CAN/CSA A3000, Cementitious Materials for Use in Concrete.

2.9. CAN/CSA S448.1, Repair of Reinforced Concrete in Buildings.

2.10. CSA A283, Qualification Code for Concrete Testing Laboratories.

3. Quality Assurance

3.1. Concrete supplier to have a valid “Certificate of Ready Mixed Concrete Production Facilities” as issued by the Ready Mixed Concrete Association of Ontario.

4. Project Records

4.1. Batch Logs: Concrete supplier to keep record of each batch delivered to site.

4.2. Concrete Delivery Slips: Keep all concrete delivery slips (“driver’s tickets”) on site until building is completed. Record on delivery slip where concrete was placed including time and date.

4.3. Record Drawings: Record on a set of Structural Drawings extent of each pour including pour date and falsework removal date. Also record all changes to that shown on drawings including footing elevations.

4.4. Keep project records up to date and make available to Consultant at all times.

5. Submittals

5.1. Submit to the Consultant for review before the start of Work, 4 white prints of shop drawings. Leave room on drawings for the stamps of the Consultant and the Structural Engineer. Check and sign before submission. Only 2 copies will be returned to General Contractor.

5.2. Minimum 2 weeks prior to starting concrete work, submit certification that plant, equipment, and materials to be used in concrete comply with requirements of CSA-A23.1.

5.3. Minimum 2 weeks prior to starting concrete work, submit all concrete mix designs, including pump mixes, and indicate where each concrete mix is to be used. Where Class C1, C2 or F1

mix designs are required, submit test data to confirm that air-void system conforms to CSA A23.1 for each mix design.

5.4. Minimum 2 weeks prior to starting concrete work, submit a written confirmation that all admixtures used in concrete will not have any adverse impact on the long term durability and performance of concrete, or any other materials embedded or in contact with concrete. Also provide a written statement that any admixtures used in concrete will not have any adverse effect on human health and the environment.

5.5. Minimum submission requirements for each concrete mix design shall include the following

5.5.1. minimum specified compressive strength at 28 days

5.5.2. maximum aggregate size

5.5.3. aggregate type (if not normal density

5.5.4. alkali-aggregate resistance

5.5.5. concrete density range, wet and dry (if not normal density)

5.5.6. CSA exposure class

5.5.7. cement type (if not type 10)

5.5.8. maximum water/cement ratio

5.5.9. plastic air content range air-void system test data

5.5.10. assumed method of placement of concrete

5.5.11. slump range

5.5.12. percentage and type of any supplementary cementing materials

5.5.13. admixtures (type and name only)

5.5.14. certificate of compatibility between admixtures unless all admixtures are supplied by same manufacturer

5.6. Minimum 2 weeks prior to starting concrete work, submit proposed quality control procedures for Consultant's approval for following items:

5.6.1. Finishing, curing and protection

5.6.2. Hot weather concreting

5.6.3. Cold weather concreting

5.7. Minimum 4 weeks prior to placing any slabs-on-grade, submit drawings showing proposed locations of construction joints and control joints in slabs-on-grade.

PART 2 | PRODUCTS

6. CONCRETE MIX MATERIALS

6.1. Portland cement: to CSA-A5.

6.2. Cementitious hydraulic slag: to CSA-A363

6.2.1. Fly ash: to CSA-A23.5, Type CI

6.2.2. Water: to CAN/CSA-A23.1to CSA-A23.1. Coarse aggregates to be crushed stone or gravel which is suitable for type N concrete as defined by Supplementary Guidelines to OBC 2012, SG-2, . Do not use recycled concrete as aggregate.

6.2.3. To ensure compatibility, all admixtures to be supplied by a single manufacturer or certificate of compatibility to be provided with mix design.

6.2.4. Air entraining admixture: to ASTM C260.

6.2.5. Chemical admixtures: to ASTM C494. Do not use admixtures containing chlorides.

6.2.6. Corrosion inhibiting admixture: Containing calcium nitrite:

.1 DCI by W.R. Grace (use DCI-S with ambient temperatures above 20°C)

.2 Rheocrete CNI by Master Builders (add set retarder with ambient temperatures above 20°C).

1.1.2. Shrinkage reducing admixture: Eclipse Floor for non-air entrained concrete and Eclipse Plus for air entrained concrete by W.R. Grace. Confirm compatibility with superplasticizer if being used.

1.1.3. Plastic fiber additive: fibrillated polypropylene fibers at least 19mm in length:

.1 Fibremesh by Master Builders

.2 ConLoc Fibres by Pro Technologies

.3 Fiberforce by Ampro

.4 Promesh by Canada Cordage

7. Other Materials

7.1. Grout: Premixed, non-metallic, non-shrink:

7.1.1. Euco NS Grout by Eulicd Admixture Canada

7.1.2. Masterflow 713 by Chemrex (M.B.T.)

7.1.3. V-3 Grout by W.R. Meadows of Canada

7.1.4. Sikagrout 212 by Sika Canada

7.1.5. M-Bed Standard by Sika Canada

7.1.6. CPD Non-Shrink Grout by CPD

7.1.7. Or approved equal

7.2. Dry pack grout: Use 1:2 mix of Portland cement and concrete sand. Add sufficient water for the mixture to retain its shape when made into a ball by hand. When thickness of grout exceeds 50mm, use 1:1½:2 mix of Portland cement, concrete sand and 10mm pea gravel instead. Compressive strength at 28 days to be 30 MPa.

7.3. Liquid curing/sealing compound: to ASTM C309 Type 1, Class B, water based acrylic, compatible with surface hardener where hardener is used

7.4. Sealtight CS 309 by W.R. Meadows of Canada. Apply two (2) coats where exposed concrete floor is called for in Room Finishing Schedule. Apply first coat as soon as concrete sets -

Apply second coat just prior to occupancy by Owner.

7.5. Premoulded joint fillers: Bituminous impregnated fibre board: to ASTM D1751.

7.6. Evaporation reducer: Confilm by Chemrex (M.B.T.)

7.7. Bonding agent: synthetic latex:

7.7.1. Surfacrete Concentrate by Sika Canada

7.7.2. Intralok by W.R. Meadows of Canada

7.7.3. Acryl-Set by Chemrex (M.B.T.)

7.7.4. CPD Concentrated Latex Adhesive by CPD

7.8. Drilled concrete expansion anchors:

7.8.1. Kwik-Bolt by Hilti

7.8.2. Wedge Anchor by Ucan Fastening Products

7.9. Drilled concrete adhesive anchors:

7.9.1. HVA Adhesive Anchor by Hilti

7.9.2. ADH Adhesive Anchor by Ucan Fastening Products

7.10. Epoxy for bonding anchors and dowels into predrilled holes in concrete:

7.10.1. HIT -HY-150 by Hilti

7.10.2. Epcon Ceramic 6 by ITW Construction Products

7.10.3. Flo-Rok FR1-22 & FR3-22 by Ucan Fastening Products

7.11. Non-slip nosing insert for concrete stairs: Fine aluminum oxide strips, 6mm (¼") wide x 10mm (d") deep.

7.12. For sawcuts and joints in interior slabs:

7.12.1. Rezi-Weld Flex by W. R. Meadows

7.12.2. Loadflex by Sika Canada

7.13. For sawcuts and joints in exterior slabs:

7.13.1. Sikaflex 2C NS/SL by Sika Canada

7.14. Elastomeric bearing pads: Virgin natural polyisoprene or virgin polychloroprene conforming to CAN/CSA-S6

7.15. Sliding bearing assembly: Galvanized top steel plate with a type 304 stainless steel highly polished lower surface and bottom elastomeric pad with a polytetrafluoroethylene (Teflon) upper surface. Static and kinetic coefficients of friction not to exceed 5% under working stress. Assembly to have a working stress capacity of 7 MPa on lower pad.

7.16. Elastomeric bottom pad to allow a 2% rotation of upper plate and still maintain a substantially uniform bearing pressure between plate and pad. For concrete work, provide two 12 dia. anchor studs for top plate and provide water tight polyethylene wrapping for assembly, except for anchor studs, which can be left in place during construction

7.16.1. Manufactured by:

.1 Fabreeka Canada Ltd.

.2 Goodco Ltd.

.3 Structural Tech Corp. Ltd.

7.16.2. Controlled density concrete fill, f'c = 4 MPa:

.1 K-Crete by Dufferin Concrete Products or equivalent

7.16.3. Prefabricated Seepage Protection System:

.1 Terradrain 200 by Terrafix Geosynthetics Inc.

.2 Weeperwick by Subsurface Systems Inc.

7.16.4. Bentonite Geotextile Waterproofing:

.1 Voltex by CETCO (distributor : DRE Industries)

7.16.5. Crack Filler Epoxy: Capweld 524 by Cappar Ltd.

7.16.6. Base under concrete Slabs on Grade: Clean, crushed stone, 20 to 22mm.

8. CONCRETE MIXES

8.1. Use ready-mix concrete. Proportion concrete in accordance with CSA A23.1, Use a water-reducing agent in all concrete. Obtain approval of the Consultant for the use of admixtures other than water-reducing and air entraining agents.

8.2. Supplementary cementing materials: Conform to the directions of the slag and fly ash manufacturers for the proportioning and mixing of concrete. Except as otherwise required, limit supplementary cementing materials to no more than 25% of total cementitious content and limit the fly ash component to no more than 10% of total cementitious content. The limit on supplementary cementing materials may be increased for Class N exposure concrete provided that the effects of the resulting concrete properties, including finishing, rate of early-age strength gain, curing and protection, are considered by the Contractor and a letter describing these effects and any special construction procedures is submitted for review with the mix design. Do not use supplementary cementing materials in architectural concrete.

8.3. For columns less than 300mm in least dimension and for walls less than 200mm thick, reduce nominal size of coarse aggregate to 10mm.

8.4. Interior slabs, beams, walls and columns: Provide normal density concrete to give following properties unless otherwise noted:

8.4.1. Class of exposure N

8.4.2. Cement: Type 10

8.4.3. Minimum compressive strength at 28 days: 25MPa unless specified otherwise on Structural Drawings

8.4.4. Nominal size of coarse aggregate: 20mm. See also clause 2.3.3.

8.4.5. Slump at time and point of discharge: 50mm to 110mm

8.5. Interior slabs-on-grade: Provide normal density concrete to give following properties:

8.5.1. Class of exposure:N

8.5.2. Cement: Type 10

8.5.3. Minimum compressive strength at 28 days: 25MPa unless specified otherwise on Structural Drawings

8.5.4. Maximum water/cementing material ratio: 0.55

8.5.5. Nominal maximum size of coarse aggregate: 20mm. Increase to 40mm where slab-on-grade thickness exceeds 130mm.

8.5.6. Slump at time and point of discharge: 50mm to 110mm

8.5.7. Plastic fiber additive: apply at rate of 0.9 kg/m³. Add sufficient water reducing agent to restore slump loss

8.5.8. Slump at time and point of discharge, after addition of fibers and plasticizer: 50mm to 110mm

8.5.9. Provide curing/sealing coat to all slabs-on-grade; two coats where slab exposed-refer to 2.2.3.above.

9. Interior Slabs-On-Grade With Resilient Floor Finishes

9.1. Provide normal density concrete to give following properties:

9.1.1. Class of exposure:N

9.1.2. Cement: Type 10

9.1.3. Minimum compressive strength 25MPa

9.1.4. Nominal maximum size of coarse aggregate: 40mm

9.1.5. Water/cementing material ratio: 0.55

9.1.6. Slump at time and point of discharge: 50mm to 110mm

10. Construction Method

10.1. Place & compact 200mm of clean, crushed stone, 20 to 22mm size.

10.2. Construct slab-on-grade on 15 mil polyolefin sheet vapor barrier placed directly below concrete. Terminate vapor barrier by extending vertically up the abutting concrete walls

10.3. Saw cuts should be done with a dry process (soft-cut on the same day of a pour).

10.4. Curing: Apply 24 hours of wet curing. Start curing immediately after finishing slab. Cover slab-on-grade for at least 72 hours using plastic sheets with joints taped and free edges covered.

10.5. Protection: Protect finished and cured slab from surface water (i.e. rain, snow).

10.6. Refer to Architectural Specifications for acceptable moisture content and testing methods prior to placing floor finishes.

11. Interior And Roof Concrete Toppings, Curbs And Bases

11.1. Provide normal density concrete to give following properties:

11.1.1. Class of exposure:N

11.1.2. Cement: Type 10

11.1.3. Minimum compressive strength 25MPa

11.1.4. Nominal size of coarse aggregate for:

11.1.5. Toppings between 25 and 35mm thick:10mm

11.1.6. Toppings between 35 and 50mm thick:14mm

11.1.7. Thick toppings: 20mm

11.1.8. Slump at time and point of discharge: 20mm to 60mm

11.2. Where topping is less than 25mm thick, no coarse aggregate is allowed and a bonding agent shall be provided within the mix and to bond the topping to the substrate.

PART 3 | EXECUTION

12. Construction Review

12.1. Construction reviews are undertaken by the Consultant and the Inspection and Testing Agency so that the Owner may be informed in writing as to the quality of the Contractor's performance and for the protection of the Owner. They will be carried out by examination of representative samples of the Work.

12.2. The Contractor will receive copies of the construction review reports and the results of material tests. He will thereby be informed of any defects or deficiencies found.

12.3. Bring to the attention of the Consultant, any defects or deficiencies in the Work, which may occur during construction together with a proposal for remedy. The Consultant will decide what corrective action may be taken and will issue the necessary instructions.

13. Preparation

13.1. Obtain written approval of each footing bearing surface by Geotechnical Engineer prior to placing concrete for footings/mud slabs.

13.2. Confirm that subgrade and backfill meets specifications and is free of frost and surface water before placing slab-on-grade.

13.3. Provide vapor barrier under all slabs placed on the ground including slabs-on-grade and framed slabs.

13.4. Grout column base plates and beam bearing plates as soon as steelwork is completed. Do not add load on steelwork until grouting is completed and grout strength has reached at least 20 MPa.

14. Sleeves, Openings And Embedments

14.1. Ensure that sleeves and openings do not impair the required strength of the member, and unless shown on the Structural Drawings, are accepted by the Consultant for size, location, and reinforcement before concrete is cast. No trade shall cut holes through existing concrete unless acceptable to the Consultant.

14.2. Do not embed in slabs and walls any conduit or pipe whose outside diameter is greater than one- quarter the concrete thickness. Do not space less than 3 diameters on centre. Locate so as not to impair the required strength of the member. Do not install in or below columns, conduit which displaces more than 3 percent of the cross-section.

14.3. Cooperate with any trade applying finishes to concrete surfaces to obtain a surface, which will ensure adequate bond. Provide chases, chamfers and reglets where required.

14.4. No sleeves, ducts, pipes or other openings shall pass through joists, beams, column capitals or columns, except where indicated on Structural Drawings or approved by the Consultant.

14.5. Where approved by Consultant, set sleeves, ties, pipe hangers and other inserts and openings as indicated or specified elsewhere. Unless indicated on the Structural Drawings, sleeves and openings greater than 100 x 100 mm must be approved by Consultant.

14.6. Do not eliminate, cut or displace reinforcement to accommodate openings or hardware. If openings or hardware cannot be located as specified, obtain approval of modifications from Consultant before placing of concrete.

14.7. Check locations and sizes of sleeves and openings shown on Structural Drawings with Architectural, Mechanical and Electrical Drawings. Notify Consultant of any discrepancies.

14.8. Set special inserts for strength testing as indicated and as required by non-destructive method of testing concrete.

14.9. Anchor bolts: Set anchor bolts using templates under supervision of appropriate trade prior to placing concrete. Locate each anchor bolt group to within 6 mm of required location with no accumulation of tolerances allowed between groups

15. Placing Concrete

15.1. Notify Consultant 24 hours before placing concrete and 24 hours before closing wall forms.

15.2. Do cast-in-place concrete work in accordance with CSA-A23.1.

15.3. Remove water and disturbed soil from excavations before placing concrete therein.

15.4. Do not overload forms.

15.5. Use rubber tipped vibrators for concrete containing epoxy coated reinforcement.

15.6. Finishing Flatwork

15.7. Finish flatwork in accordance with CSA-A23.1, and following clauses.

15.8. Protect concrete during finishing process in accordance with CSA-A23.1. Also use evaporation reducer during severe drying conditions.

15.9. Cast slabs with a top surface that is level or sloping as required by the Drawings. Allow for cambering where required. Set top of slab below finished floor level by the distance required for the type of applied finish.

15.10. Provide final finish in accordance with proposed use and as follows:

15.10.1. Screeded and bull floated for: mud slabs and footings.

15.10.2. Screeded and bull floated with scratch finish for: base slabs, which receive mortar setting beds or bonded toppings.

15.10.3. Powered float finish for: roofs and slabs, which receive a membrane.

15.10.4. Wood float finish with brooming for: exterior exposed slabs.

15.10.5. Powered steel trowel finish for: interior exposed slabs; slabs which receive resilient flooring, carpet, epoxy-based finishes, thin-set tiles, etc.

15.11. Steel trowel exposed interior concrete floors at least twice. Provide final spin trowelling when non-slip finish is required.

15.12. Except as noted, conform to finish tolerance Class A for floors and Class B for exterior slabs and base slabs for toppings. For wood flooring, conform to finish tolerance Class C. Compliance will be considered satisfactory if 80% of the measurements, using the straightedge method, are less than or equal to the tolerance and no measurement exceeds the tolerance by more than 25%. When requested by Consultant, make measurements within 3 days of placing concrete and before falsework is removed and submit results to Consultant.

16. Curing and Protection

16.1. Cure and protect concrete in accordance with CSA A23.1. In addition to Cold-Weather Protection requirements in A23.1, provide protection so that temperature of concrete surfaces is maintained at not less than 21 degrees C for 3 days after placement, not less than 10 degrees C for the next 2 days and above freezing for the next 2 days. Vent exhaust gases from combustion type heaters to atmosphere outside heated enclosure.

16.2. Cure slab surfaces immediately after finishing is completed. Use a curing compound compatible with applied finishes except where bonded topping to be applied. Where curing compound is not used, cover slab surfaces with absorptive mat or fabric and keep continuously wet.

16.3. Extend basic curing period until concrete has reached following strength levels for structural safety:

16.3.1. Framed slabs and beams: 75% of specified 28 day strength.

16.3.2. Columns, piers and footings: 75% of specified 28 day strength.

16.3.3. Walls: 50% of specified 28 day strength.

17. Slabs on Grade

17.1. Determine that the compacted granular fill supporting slabs-on-grade has been approved before starting work.

17.2. Over compacted granular fill, place & compact 200mm of clean crushed stone, 20 to 22mm size.

17.3. Over crushed stone, vapour barrier as per Architectural Specification. Seal all joints and punctures with tape. Repair all tears or holes with layers of sheeting, tapping all seams.

17.4. Provide and install joint filler between slab and masonry walls.

17.5. See Drawings for thickness of concrete and slab reinforcing.

17.6. Provide slab depressions and slopes as indicated on the Architectural Drawings. Slope floors to drain.

17.7. Testing & Inspection Company must inspect vapour barrier and reinforcing just prior to placement of concrete and Contractor must rectify any deficiencies noted prior to pour.

18. Joints

18.1. Slabs-on-grade: Provide joints in both directions. Maximum spacing of construction joints to be 30m with sawcut joints in-between spaced at 30 times slab thickness maximum, but not more than 5m maximum. Locate joints on column centre lines wherever possible and on intermediate lines, which result in approximately square panels. Protect edges of sawcuts from breakage. Clean out sawcuts in exposed slabs and fill with control joint filler after concrete is at least 120 days old. At construction joints in exposed slabs, sawcut top 25 mm for a width of 5 mm and fill with control joint filler after concrete is at least 120 days old. Clean out sawcuts in other slabs and fill with a sand-cement paste one month prior to installing floor coverings.

18.2. Expansion Joints: See Structural Drawings for widths, locations and details. Remove all forming and filler material used during construction and provide clear space between structural elements equal to width specified.

18.3. Construction Gaps: See Structural Drawings for widths, locations and details. Do not place concrete in gaps in beams and slabs until all concrete at that level is at least 28 days old. Do not fill wall gaps until all adjoining framed slabs, above and below, are at least 28 days old.

18.4. Isolation Joints: Provide 10mm thick premoulded joint filler of the same depth as the thickness of the concrete wherever slabs-on-grade abut foundation walls, columns and piers. Omit if slab is chased or dowelled into structure.

19. Cracks in Slab-on-Grade

19.1. Extensive cracking of slabs-on-grade or cracks in excess of 3 mm in width shall be cause for rejection of slab or portion of slab at the discretion of the Consultant.

19.2. Protect edges of cracks in slabs-on-grade from breakage.

19.3. Unless slab is rejected, repair cracks that are over 0.4 mm wide in exposed slabs-on-grade in unfinished areas after concrete is at least 120 days old. Repair by filling crack with a sand-cement grout and then, after 7 days, cutting out top 20 mm of crack for a

width of 5 mm and filling with control joint filler.

20. Inspection and Testing

20.1. Inspection and testing of concrete and concrete materials will be carried out in accordance with A23.1 by a Testing Agency designated by Consultant. Testing agency shall be certified under CSA A283 with category to suit testing provided.

20.2. Agency will review all submittals pertaining to concrete mix designs and certification of plant, equipment and materials.

20.3. Agency will take additional test cylinders during cold weather concreting. Assist Agency by curing these cylinders for 7 days on site adjacent to the work which they represent and under the same conditions as the concrete which they represent.

20.4. Samples will be taken prior to the addition of steel fiber reinforcement or superplasticizers to the mix on site.

20.5. Methods for testing concrete will be in accordance with CSA-A23.2.

20.6. Inspection or testing by Agency will not augment or replace Contractor quality control nor relieve him of his contractual responsibility.

20.7. Assist the Agency in its work. Notify Agency as to the concreting schedule and before each pour. Provide concrete samples.

20.8. The Agency will report to the Consultant, with copies to the Structural Engineer, Contractor, Concrete Supplier and Municipal Authorities. Reports will include the locations in structure to which tests relate, comments on abnormal results and conditions, and the Supplier’s mix design numbers. Test reports shall be provided within five working days.

21. Rejected Work

21.1. Do not deliver to the site materials which are known not to meet the requirement of the Specifications. If rejected after delivery, they shall be immediately removed.

21.2. Where review reveals materials or workmanship which appear to have failed to meet the specified quality or tolerances, the Consultant shall have the authority to order additional curing; to have tests made of in-situ concrete, concrete cores, reinforcement or other materials; to order a structural analysis of the existing elements; and to load test the structure. All such work will be carried out in order to assist in determining whether the structure may, in the opinion of the Consultant be accepted, with or without strengthening or modification. Testing shall meet the requirements of the Ontario Building Code. All expenses incurred shall be chargeable to the Contractor regardless of the results.

****END OF SECTION****

SECTION 03 35 00
CONCRETE FLOOR FINISHING

PART 1 | GENERAL

1. Section Includes

1.1. Finishing concrete floor surfaces.

2. Related Sections

2.1. This section describes requirements applicable to all Sections within Divisions 02 to 27.

3. References

3.1. ACI-302.IR-96, Guide for Concrete Floor and Slab Construction.

3.2. ASTM-C171-97a, Sheet Materials for Curing Concrete.

3.3. ASTM-C309-98a, Standard Specification for Liquid Membrane Forming Compounds for Curing Concrete.

3.4. CSA-A23.1/A23.2-00, Concrete Materials and Methods of Concrete Construction I Methods of Test for Concrete.

4. Submittals

4.1. Submit Product data and Shop Drawings under provisions of Section 01 33 00 - Submittals.

4.2. Provide list of Products proposed for use on Project where such Products are not specified by trade name or where Specification permits choice or alternatives. Include descriptive manufacturer or Supplier literature.

4.3. Include application instructions for concrete curing compound.

5. Quality Assurance

5.1. Conform to CSA-A23.1/A23.2 and ACI 302.IR.

6. Qualification

6.1. Concrete Finishes Company specializing in commercial floor finishing with a minimum of five years documented experience, approved by the Consultant.

6.2. Submit references 2 months before concrete work commences.

7. Delivery, Storage, And Handling

7.1. Deliver Products to site under provisions of Section 01 61 00 - Product Requirements.

7.2. Store and protect Products under provisions of Section 01 61 00 - Product Requirements.

7.3. Take delivery of and store packaged materials on site in original undamaged condition with manufacturers' packing, labels and seals intact.

8. Environmental Requirements

8.1. Temporary Lighting: Minimum one 200 W light source, placed 2.5m above the floor surface, for each 40m2 of floor being finished.

8.2. Temporary Heat: Ambient temperature of 10 degrees C minimum.

8.3. Ventilation: Sufficient to prevent carbon monoxide or high levels of carbon dioxide and other injurious gases from affecting concrete.

8.4. Electrical Power: Sufficient to operate equipment normally used.

8.5. Work Area: Water tight protection against rain and detrimental weather conditions.

9. Warranty

9.1. Provide a warranty for the work of this section in accordance with the General Conditions but for a period of three years.

9.2. The warranty shall cover defects in concrete floor finishing due to faults in workmanship or materials provided in this section.

PART 2 | PRODUCTS

10. Materials

10.1. Water: clean, potable and not detrimental to quality of concrete.

10.2. Concrete Materials: Conform to Section 03 30 00 - Cast in Place Concrete.

10.3. Concrete Sealer: pigmented, resin, copolymer curing compound and sealer. The Euclid Chemical Company: Super Floor Coat Colored.

PART 3 | EXECUTION

11. Examination

11.1. Verify that substrate surfaces are ready to receive work and elevations are as indicated on Shop Drawings and as instructed b the finish manufacturer.

11.2. Beginning of installation shall mean acceptance of substrate and site conditions.

11.3. Ensure that underslab vapour retarder vapour specified in section 07 13 00 – Waterproofing is installed and ready to receive the work of this section for slabs-on-grade except as specified below.

12. Preparation

12.1. Steel trowel concrete slabs left exposed or to receive carpeting, resilient flooring, and applied floor finishes.

12.2. Where floor drains occur, floors shall be level around walls with a minimum 5mm per meter uniform pitch to drains, unless indicated otherwise.

Tolerances

12.3. Exposed High Wear Resistance Surface Dense Trowelled: 6mm in 3000mm.

12.4. Exposed Smooth Non-slip Surface Trowelled and Broomed: 8mm in 3000mm.

12.5. Correct defects in the floor only by grinding or removal and replacement of the defective slabs. Areas requiring corrective work will be identified by the Consultant. Re-measure corrected areas. Costs of corrective work shall be borne by the Contractor.

13. Field Quality Control

13.1. Field inspection and testing will be performed under provision of Section 01 45 00 – Quality Control

13.2. The cost inspection and testing will be paid from the cash allowance specified in Section 01 21 00 – Allowances. Allow 24 hours before proceeding with concrete enhancer application.

14. Protection

14.1. Protect finished installation in accordance with the requirement of Section 01 61 00 – Product Requirements.

****END OF SECTION****

SECTION 05 15 00
MISCELLANEOUS METALS

PART 1 | GENERAL REQUIREMENTS

1. General Requirements

1.1. Division One, General Requirements is part of this Section and shall apply as if repeated here.

1.2. Provide all miscellaneous metal items except those listed herein.

2. Referenced Standards

2.1. ASTM A325-14 Specification for High Strength Bolts for Structural Steel

3. Joints

3.1. ASTM A307-14 Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength

3.2. ASTM A563-07A- (2014) Specification for Carbon And Alloy Steel Nuts

3.3. CAN/CSA-S16.1-M94 Limit States Design of Steel Structures

3.4. CSA-W47.1-09 (R2014) Certification of Companies for Fusion Welding of Steel

3.5. CSA W55.3-08 (R2013) Certification of Companies for Resistance Welding of Steel and Aluminum

3.6. CSA W59-13 Welded Steel Construction (Metal Arc Welding)

3.7. CAN/CSA-G40.20-13 General Requirements for Rolled or Welded Structural Quality Steel

3.8. CAN/CSA-G40.21-13 Structural Quality Steel

3.9. CAN/CSA-G164-M92 Hot Dip Galvanizing of Irregularly Shaped Articles (R2003)

3.10. CAN/CGSB-1.40-M89 Primer, Structural Steel, Oil Alkyd Type

4. Quality Assurance

4.1. Qualifications of Subcontractor: execute work of this Section using a firm thoroughly conversant with governing laws, bylaws, and regulations. Use workmen skilled in work of this Section.

5. Welding

5.1. Welding of structural components shall be done only by fabricators certified by CSA Welding Qualification Codes, CSA W47 or W55.3 as applicable, for welding of steel, and who shall perform welding to meet specified requirements of CSA W55.2 or W59.1, as may apply.

5.2. Weld all stainless steel by the Argon Arc process. Grind smooth and polish joints, crevice free, and flush without seams.

5.3. Weld all connections where possible, and bolt where not possible. Provide method to prevent loosening of nuts. Ream holes drilled for fastenings. Make welded joints tight, flush, and in true planes with base metals. Grind welds in exposed locations smooth in a manner that will not leave blemishes on exposed surfaces. Join members generally by inert metal arc welding where practicable, using materials recommended by manufacturers of metals being welded. Remove flux completely following welding, and grind and polish joints smooth and clean.

5.4. Touch up all uncoated weld areas.

6. Shop Drawings

6.1. Submit shop drawings in accordance with the requirements of specification Section 01340, Shop and Interference Drawings, of all the work of this Section, including large-scaledetail of members and materials, of connection and jointing details, and of anchorage devices, dimensions, gauges, thicknesses, description of materials, metal finishing, as well as all other pertinent data and information, for Consultant's review before fabrication.

6.2. Shop drawings of all load bearing and/or force-resulting components shall bear the seal and signature of a registered Ontario Professional Structural Engineer registered in the Province of Ontario.

6.3. Product Delivery, Storage, and Protection

6.4. Maintain protection provided for work of this Section from time of installation until final finishes are applied or to final cleanup.

6.5. Protect prime-painted surfaces from damage.

6.6. Protect exposed surfaces of prefinished metal work which does not receive site finishing with protective coatings or wrappings. Use materials recommended by finishers or manufacturers of metals, to ensure that method is sufficiently protective, easily removable, and harmless to the finish.

PART 2 | PRODUCTS

7. Materials

7.1. General

7.1.1. Metals shall be free from defects which impair strength or durability, or which are visible. Metals shall be new, of best quality, and free from rust, or waves, or buckles, clean, straight, and with sharply defined profiles.

8. Metals

8.1. Steel

8.1.1. Structural: hot rolled to meet requirements of CAN3-G40.21, Grade 350W for plates, tubes and hollow sections.

8.1.2. Sheet: cold-rolled furniture steel, double annealed, mill stretched and levelled, and fully pickled. Otherwise, steel shall be hot-rolled or cold-rolled of alloy to suit needs of fabrication, use, and appearance.

8.1.3. Exterior Steel: hot dip galvanized conforming to CSA G164, minimum Z350 coating.

8.2. Primers and Coatings: quick drying oil alkyd conforming to CISC/CPMA 2.75.

8.3. Fastenings: use nuts and bolts conforming to ASTM A307, A325, and A563 as applicable. Use cadmium-plated fastenings where other protection is not specified.

8.4. Anchors and Shims: for exposed anchorage of aluminum, use stainless steel and otherwise to match metal anchored. For non-exposed work, anchors and shims may be galvanized steel.

8.5. Pipe: to ASTM A53, Schedule 40 galvanized steel pipe for concrete filled bollards. Schedule 80 for interior non filled bollards.

8.6. Bituminous Paint: alkali-resisting to meet specified requirements of CAN/CGSB-1.108, Type 2.

9. Design and Fabrication

9.1. Generally:

9.1.1. Fabricate work of this Section with machinery and tools specifically designed for the intended manufacturing processes, and with skilled tradesmen.

9.1.2. Fit and assemble work in the shop. When this is not possible, make a trial shop assembly.

10. Construction

10.1. Fabricate work with materials, component sizes, metal gauges, reinforcing, anchors, and fasteners of adequate strength to withstand intended use, and with allowable design factors imposed by Jurisdictional Authorities.

10.2. Ensure that work will remain free of warping, buckling, opening of joints and seams, distortion, and permanent deformation.

11. Assembly

11.1. Accurately cut, machine, and fit joints, corners, copes and mitres so that junctions between components fit together tightly, and in true planes.

11.2. Fasten work with concealed methods, unless otherwise indicated on the Drawings.

11.3. Weld all connections where possible, and bolt where not possible, and cut off bolts flush with nuts. Countersink bolt heads and provide method to prevent loosening of nuts. Ream holes drilled for fastenings.

11.4. Make welded joints tight, flush, and in true planes with base metals, and continuous at joints where entry of water into building or into voids of members or assemblies is possible. Continuously grind and make smooth welds in exposed locations.

11.5. Provide for differential movements within assemblies and at junctions of assemblies with surrounding work.

11.6. Fabricate shims of steel of sizes required.

12. Finish Work

12.1. Provide holes and connections for work installed under other Sections of this Specification.

12.2. Cleanly and smoothly finish exposed edges of materials, including holes.

12.3. Cap open ends of sections exposed to view, such as pipes, channels, angles, and other similar work.

12.4. Prime Painting of Steel: clean all loose mill scale, rust, dirt, weld flux, and spatter from work after fabrication. Grind smooth sharp projections. Prepare for prime painting by blast cleaning to SSPC-SP6. Apply to steel a shop prime coat of paint. Work paint into corners, and onto open areas smoothly. Deliver work to site with primer undamaged. Paint all surfaces except those to be welded in field. Paint surfaces that are inaccessible to finish field painting with two coats of primer.

12.5. List of Miscellaneous Metals: the list herein supplied is for convenience of material

suppliers. It is not necessarily complete and should be augmented by a thorough inspection of Drawings and all requirements to complete work. The Work of this Section shall include, but is not necessarily limited to, the following:

12.5.1. Anchors, bolts, inserts, sleeves for work in this section;

12.5.2. D-Bolts to be installed on Daycare Terrace HSS posts and Prodema Wood Panel surface. Allow for 8 D-bolts, in locations as directed by consultant.

12.5.3. Exterior Bollards;

12.5.4. Bumpers, guards, posts;

12.5.5. Channel framing and supports for vanity counters;

12.5.6. Corner guards or other shapes cast in concrete;

12.5.7. Floor plates;

12.5.8. Elevator Sump pit cover to be steel checked plate c/w support angles. Cover to be flush with concrete floor and also refer to architectural drawings.

12.5.9. Folding partition supports

12.5.10. Hangers and supports (for work in this Section only);

12.5.11. Ladders, Elevator Pit Ladders

12.5.12. Steel lintels (loose), including those required over masonry openings and recesses for mechanical or electrical services Lintels (if not by Structural Steel);

12.5.13. Lintel support plates (fixed), where lintels cannot be supported on masonry, provide plates anchored flush into column or wall and weld lintel thereto;

12.5.14. Roof framing; steel plates, sheet steel backing plates, metal supports for parapet flashing, angles and channels to provide framing at cants, curbs and parapets (if not by Structural Steel);

12.5.15. Steel framing for louver openings (if not by Structural Steel);

12.5.16. Elevator sill framing

12.5.17. Sleeves (for work in this Section only);

12.5.18. Rolling shutter and folding grille steel framing for suspended partitions; and

12.5.19. Steel head and jamb framing at overhead doors and rolling shutters.

12.5.20. Projection screen support framing.

12.5.21. Toilet partition support framing

12.5.22. Wall and glazing support as required

12.5.23. 3 mm stainless steel caps for “fins” as per detail D1 / A251. 18 Gauge stainless steel extruded form as indicated, mirror finish

12.5.24. ZJ Anchor – Eyebolt and connection plate as per detail A-A / S-204

12.6. Grease Interceptor cover to be steel checked plate c/w support angles. Cover to be flush with concrete floor and also refer to architectural drawings.

PART 3 | EXECUTION

13. Inspection of Site

13.1. Take site measurements to ensure that work is fabricated to fit surrounding construction around obstructions and projections in place, or yet to be put in place to suit service locations, and inaccuracies of construction.

14. Installation

14.1. Install work plumb, true, square, straight, level, and accurately and tightly fitted together and to surrounding work.

14.2. Work includes anchor bolts, bolts, washers and nuts, lag screws, expansion shields, toggles, straps, sleeves, brackets, clips, shims and other items necessary for secure installation, as required to support and/or resist loads and forces, and as required by Jurisdictional Authorities.

14.3. Provide anchors at 24” (600 mm) o.c. for cast-in-place work unless shown otherwise.

14.4. Attach work to wood by screws through countersunk holes in metal.

14.5. Attach work to masonry with lead plugs and non-corrosion fastenings to support load with a safety factor of three (3).

14.6. Insulate between dissimilar metals, or between metals and masonry or concrete with bituminous paint to prevent electrolysis.

14.7. Patching and Refinishing

14.8. After erection, touch up prime paint finishes damaged or removed during installation.

14.9. Remove damaged, dented, defaced, defectively finished, or tool-marked components and replace with new.

14.10. Refinish shop-applied finishes in field only with approval of Consultant.

14.11. Clean off dirt on surfaces resulting from installation work.

15. Miscellaneous Items

15.1. Generally:

15.1.1. This schedule does not list all items included in work of this Section. Items not listed are shown on Drawings.

15.1.2. Ensure that all Drawings and Specification Sections, including those for structural, mechanical, and electrical work as applicable are consulted to establish the limits of work included in this Section.

15.2. Concealed Support Elements and Framing

15.2.1. Supply and install all support elements and framing as shown on the Drawings except where framing is part of building structural steel. Construct supports from rolled steel sections assembled by welding.

15.2.2. Design supports to withstand, within acceptable deflection limitations, their own weight, the weight of the items to be supported, loads imposed by the motion of supported items, where applicable, and all live loads, static and dynamic which might be applied to the

supported items in the course of their normal function. Design supports with a safety factor of three (3). Design supports further as required to accommodate structural deflection.

15.2.3. Provide all accessories, inserts and fixings necessary for attachment of supports to building structure. Drill supports, as required, to receive attachment of supported items. Arrange supports to avoid conflicts with pipes, ducts, connections, thermal and vapour barrier construction, framing provided under other sections, and such that supports and their fixings are fully concealed from view within the finished work.

15.3. Vanity and Counter Support Framing

15.3.1. Supply and install fabricated steel supports for Washroom vanities, millwork, shelving, counters and all other similar framing systems shown, complete with all anchors, brackets, sleeves, screws and other incidentals required.

.1 Refer to Mechanical Drawings for specific products

15.4. Partition Support Framing

15.4.1. Furnish steel channel and angle framing complete with angle clips to support suspended ceiling-hung partitions and enclosures

15.4.2. Perform drilling of holes in existing structure, as required, to support framework.

15.4.3. Install steel framing clear of ducts and pipes and adequately brace to structure.

15.4.4. Co-ordinate installation of framing with manufacturer of toilet partitions and shower enclosures.

15.4.5. Complete installations shall be rigid, trim, level and true, ready to receive toilet partitions and enclosures to be installed under Section 10165 – Plastic Laminate Toilet Partitions.

15.5. Overhead Door Frames

15.5.1. Construct welded built up angle and plate or bent steel door frames for sectional overhead doors, complete with welded-on anchors of bent bar, steel plate headers and frame extensions as required for mounting of door operating devices for overhead doors to details as indicated on drawings

15.5.2. Cope and weld frames in concealed locations where possible. Where not possible, grind welds smooth where exposed to exterior of building, connections or welds projecting into clear opening spaces not permitted. Hot dip galvanize fabricated items.

15.5.3. Erect plumb and square, braced and secure for casting into concrete or building into masonry work as applicable.

16. Miscellaneous Sections and Framing

16.1. Supply and install steel sections which are

16.1.1. Not shown and identified on Structural Drawings, unless noted to be supplied by another Section of Specifications.

16.1.2. Not noted on Drawings to be supplied by another Section of the Specifications.

16.1.3. Not specified under another Section of the Specifications.

16.1.4. Supply and install such items complete with anchors, brackets, bearing plates and other accessories required for installation.

16.1.5. Where steel sections are required to be built into masonry or concrete, supply such members to respective trades for building in.

****END OF SECTION****

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. Hollow Metal Doors and Frames Section 08 11 13

1.2. Door Hardware Section 08 71 00

1.3. Painting and Coating Section 09 90 00

1.4. Electrical Division 26, 27

1.5. This section describes requirements applicable to all Sections within Divisions 02 to 27.

2. References

2.1. CAN/CSA O80-Series Standards for Wood Preservation

2.2. CSA O121 Douglas Fir Plywood

2.3. CSA O141 Softwood Lumber

2.4. CSA O151 Canadian Softwood Plywood

2.5. CSA B111 Wire Nails, Spikes and Staples.

2.6. National Lumber Grading Authority (NGLA), Standard Grading Rules for Canadian Lumber

3. Delivery And Storage

3.1. Do not deliver materials until they are required for incorporation into the work.

3.2. Protect materials, under weatherproof cover, both in transit and on site.

3.3. All exterior and interior finish materials shall, upon delivery, be neatly stored in a dry place and shall be protected from damage due to weather, water, or any other cause.

4. Protection

4.1. Protect fire-retardant materials against high humidity and moisture.

4.2. Protect countertops and cabinets with 6 mm plywood or other suitable sheet material.

4.3. Protect installed hardware from damage and blemishes.

PART 2 – MATERIALS

5. Materials

5.1. Wood materials: straight, sawn square, true, dressed four sides, properly sized and shaped to correct dimensions from nominal sizes indicated or specified.

5.2. Lumber grade and moisture content:

5.2.1. Comply with the official grading rules of NLGA for the particular lumber and grade, and structurally complying with the latest requirements of the Ontario Building Code.

5.2.2. Comply with CSA Standard O141 Softwood Lumber. Use only grade marked lumber.

5.3. All wood materials:

5.3.1. Well-seasoned NLGA, free from defects which impair strength and durability.

5.3.2. Moisture content limit:

.1 S-GRN: Unseasoned

.2 S-DRY: Maximum 19% moisture content

.3 KD: Maximum 15% moisture content

5.4. Pressure Treated Lumber to CSA O80.

5.5. Lumber for Exterior Fences and Enclosures: Select Grade Eastern White Cedar.

5.6. Blocking, cant strips, grounds, nailing strips:

5.6.1. NLGA No. 2 Ontario White Pine, No. 2 Red Pine, all complying with the grading rules of the NLGA for Construction,

5.6.2. Douglas Fir dense complying with COFI standard grading and dressing rules.

5.7. Douglas Fir plywood:

5.7.1. comply with CSA Standard O121, COFI Exterior.

5.7.2. Western softwood plywood - comply with CSA Standard O151, COFI Waterproof glue WSP. Exposed two sides shall be grade G2S, and exposed one side shall be grade G1S.

5.8. Wood preservative

5.8.1. Pentox Green preservative and Osmose Cut End preservative, as manufactured by Osmose Pentox Inc.; Pentox Conservator Clear for painted wood.

5.8.2. For painted surfaces use clear type and for concealed surfaces use green tinted type.

5.8.3. Fire Retardant Treatment: To ULC S102; flame spread rating 25 or less.

5.9. Rough hardware:

5.9.1. nails, screws, bolts, lag screws anchors, special fastening devices and supports as required for the erection of all carpentry items.

5.9.2. For preservative treated wood, use only stainless steel hardware, with the following exception:

.1 where galvanized steel items, such as gates, flashings, etc., are being attached to wood, galvanized steel fasteners shall be used.

5.9.3. Do not mix stainless steel with galvanized steel; contact of these dissimilar metals can cause galvanic corrosion.

5.9.4. Stainless steel hardware to be type 317.

5.9.5. Galvanized hardware must be hot-dipped galvanized as follows:

.1 fasteners meeting CAN/CSA-G164 minimum zinc coating of 600 g/m2 (ASTMA153 Class A or B1 G 185)

.2 connectors meeting CAN/CSA-G164 minimum zinc coating of 600 g/m2 (ASTM A653 Class G-185 sheet) or better.

.3 Electroplated galvanized hardware is not permitted.

PART 3 | EXECUTION

6. Preparation

6.1. Examine surfaces to receive the work of this Section and proceed only when conditions are satisfactory for a proper installation.

6.2. Lay out work carefully and to accommodate work of other trades. Accurately cut and fit; erect in proper position true to dimensions; align, level, square, plumb, adequately brace, and secure permanently in place. Join work only over solid backing.

7. Installation – General

7.1. Provide running members of the longest lengths obtainable.

7.2. Slowly feed machine-dressed members using sharp cutters. Provide finished members free from drag, feathers, slivers or roughness of any kind. Remove machine marks by sanding.

7.3. Machine sand surfaces exposed in the finished work and hand sand to an even smooth surface free of scratches.

7.4. Properly frame material with tight joints and rigidly secure in place. Use glue-blocks were necessary.

7.5. Design construction methods for expansion and contraction of the materials.

7.6. Conceal joints and connections wherever possible. Locate prominent joints only where directed.

7.7. Match joints made on the site with joints made in the shop.

7.8. Unless otherwise specified glue and blind screw or nail all work. Set and fill and plug surface screws using matching wood plugs.

7.9. Accurately scribe, cope and mitre members where required to produce hairline joints.

7.10. Erect work plumb, level, square and to the required lines.

7.11. Do not regard blocking, strapping and other rough carpentry indicated as complete or exact. Provide rough carpentry items required for the installation of the Work of other Sections.

7.12. The use of pressure treated wood is required for the following:

7.12.1. Wood in direct contact with the ground or framed into concrete below ground level.

7.12.2. Structural wood elements within 150mm of ground.

7.12.3. In termite areas, for all structural wood elements within 450mm of ground.

7.12.4. Wood framing members without a dampproof membrane separating the wood framing member from concrete in contact with the ground.

7.12.5. Building components where moisture may accumulate.

7.12.6. Retaining walls.

7.13. Aluminum must not be in direct contact with pressure treated wood. Provide minimum 6mm spacing between aluminum products and treated wood, with10mil polyethylene barrier and polyethylene or nylon spacers.

8. Installation - Rough Carpentry

8.1. Blocking and Grounds: Fasten wood nailers, blocking, bucks, grounds curbs, copings and strapping solidly to supporting materials in true planes so that they will remain straight and not be loosened by work of other Trades.

8.2. Framing: Do all wood framing in accordance with the Ontario Building Code-latest version, and to CAN 3 086 as applicable.

8.3. Wood Cants, Copings: Fasten wood cant blocking to structure with 19 mm dia. Bolts 760 mm o.c. Fasten curbs as indicated. Wood cants, curbs and copings to be preservative treated. Plywood to be exterior grade.

8.4. Canopies: Fasten T&G fir ply over steel deck at canopies. Conceal fasteners to leave deck clear where exposed to view below

8.5. Preservative:

8.5.1. Apply preservative to concealed wood members in contact with exterior walls and roof before fixing in place.

8.5.2. Apply preservative to all cut ends of pressure treated wood.

8.5.3. Preserve all other wood indicated to be preserved. Use clear preservative for items to be painted.

8.5.4. Preserve wood by immersing in preservative for at least one hour.

9. Installation - Electric And Telephone Backboards

9.1. Supply and install 19mm thick backboards of fir plywood, fire retardant, pressure treated, solid, good 2 sides, sanded both sides, in electrical and telephone rooms to sizes required by equipment.

9.2. Before installation, all backboards are to be prime painted, both sides. Painting to be in conformance to Specification Section 09 90 00.

9.3. Fasten to wall using fasteners and spacing suitable to wall type to provide secure, sturdy installation which will carry equipment load without damaging wall. Confirm heights and locations required with electrical Subcontractor.

9.4. Painting shall be done in accordance with Section 09 90 00.

****END OF SECTION****

SECTION 06 20 00
FINISH CARPENTRY & MILLWORK

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. This section describes requirements applicable to all Sections within Divisions 02 to 49.

2. Referenced Standards

2.1. ANSI A208.2 Medium Density Fibreboard (MDF)

2.2. AWMAC Architectural Woodwork Manufacturers of Canada

2.3. CSA 0121 Douglas Fir Plywood

2.4. CSA 0141 Canadian Softwood Lumber

2.5. CAN3-A172 High Pressure Paper Base, Decorative Laminates

2.6. CAN3-0188 Interior Mat-Formed Wood Particleboard

2.7. CAN/ULC-S102 Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies

2.8. NLGA National Lumber Grades Authority Standard Grading Rules for Canadian Lumber

3. Submittals

3.1. Shop Drawings

3.1.1. Submit shop drawings to Consultant in accordance with the requirements of specification Section 01 33 00, for casework, and casework hardware, handrails, guards and other fabrications.

3.1.2. Clearly indicate the material being supplied and show all connections, attachments, reinforcing, anchorage and location of exposed fastenings.

3.2. Samples

3.2.1. Submit samples in accordance with the requirements of specification Section 01300, Submittals.

3.2.2. Submit samples of exposed hardware, plywood veneers, plastic laminate.

4. Quality Standard

4.1. Millwork shall conform to the Premium Grade requirements of the Architectural Woodwork Manufacturers Association of Canada (AWMAC), Quality Standards for Architectural Woodwork, latest edition, except where specified otherwise.

4.2. For conditioning and storage of plastic laminate materials, manufacturing techniques, and choice of appropriate glues to suit atmospheric conditions to be encountered, conform to CSA Standard CAN3-A172.

5. Single Source Responsibility

5.1. It is the intent of this section to establish a single, competent source to be responsible for the supply and installation of finished panels which conform to the flame spread rating requirement specified.

6. Qualified Architectural Millwork Shops

6.1. Qualifications: Work of this Section shall be executed by manufacturer and tradesmen with experience in successful manufacture and installation of this type of work and of quality as indicated on drawings and as specified. Submit proof of such experience, with list of installations, upon request by Consultant.

7. Job Conditions

7.1. Visit premises and take all field measurements necessary to ensure proper fitting of the work of this Section with field conditions in the building.

7.2. Do all cutting and fitting and prepare components to receive and accommodate work of other Sections.

8. Delivery, Storage And Handling

8.1. Provide protective coverings of suitable material for plastic laminate items; take special precautions at corners.

8.2. If required, store millwork items in temperature and humidity controlled area until delivery.

8.3. Do not permit delivery of millwork to Site until area is sufficiently dry so that woodwork will not be damaged by excessive changes in moisture control.

PART 2 | PRODUCTS

9. Materials - General

9.1. Where the designation "NLGA" appears hereinafter, it shall mean NLGA Standard Grading Rules for Canadian Lumber, approved by the Canadian Lumber Standards Accreditation Board.

9.2. Kiln dry all lumber to maximum 8% moisture content.

9.3. Casework Framing: Pine, NLGA 115a, No. 1 common.

9.4. Nailing Strips, Blocking, Furring and Strapping: NLGA 122c, "Standard" light framing.

9.5. Hardwood Plywood: conform to CSA 0115.

9.6. Core for Plastic Laminate and Melamine: Plywood conforming to CSA 0121, G2S or particleboard to CAN3-0188.1, Grade R, or 48 lb pcf MDF "Rangerboard" or "Panfibre Select" particleboard as manufactured by Uniboard Canada Inc., or "Nordboard MDF" by Nordboard Industries Inc.

9.7. Nails, Spikes and Staples: to CSA B111. Galvanized for exterior work, interior highly-humidareas and for treated lumber; plain finish elsewhere. Use spiral thread nails, except where specified otherwise.

9.8. Glue for Wood Furniture and Assemblies: CSA O112.4, polyvinyl adhesive.

9.9. Glue for High Humidity Areas: CSA O112.5, Type II, moisture resistant urea formaldehyde resin adhesive.

9.10. Tempered Hardboard: to CAN/CGSB 11-GP-3, Type 2.

10. Plastic Laminate

10.1. Conforming to CAN3-A172, General Purpose - standard grade (GP-S), 1.6 mm (1/16") thick for tops, Post Forming - Standard Grade (PF-S) 1.6 mm (1/16") thick for post forming. Balance

all panels with 0.75 mm (1/32") backing sheet (BK).

10.2. Use waterproof adhesive capable of holding materials together without failure.

10.3. Refer to Section 06 41 16 – Plastic Laminate Work for finishes.

10.4. Thicknesses shall be as indicated on Drawings.

10.5. All exposed edges shall be finished with 3mm (1/8”) thick PVC edging in colour to match adjacent panel, typical unless noted otherwise.

11. PVC Edging And Nosing

11.1. Exposed edges where indicated on drawings to have 3 mm (118”) thick PVC edging.

12. Cabinet Hardware

12.1. Hardware for Drawers

12.1.1. Drawer Pulls: 5/16” (8 mm) diameter x 4” (100 mm) length, satin stainless steel as manufactured by Canadian Builders Hardware or equivalent by Richelieu, Gallery, or Stanley.

12.1.2. Drawer Extensions: all drawers up to 3” (75 mm) deep and 16” (400 mm) wide shall be fitted with single extension box drawer slide equivalent to Knape & Vogt 8300. All other drawers shall be fitted with full extension file drawer slide equivalent to Knape & Vogt 8500.

12.1.3. Drawer Locks: dull chrome or satin stainless steel finish, half-mortise style as manufactured by Canada Lock Products or National Cabinet lock and suitable for master keying. Provide locks for cabinet doors and drawers as indicated.

12.2. Keying requirements to be noted on shop drawings.

13. Miscellaneous

13.1. Closet Rod and Flanges: Provide in closets as indicated 1-1/4” (31 mm) o.d. stainless steel coat rod equivalent to Canadian Builders Hardware CBH 762 complete with CBH 752 mounting flanges and intermediate supports as required.

13.2. Piano Hinge Hardware: Richelieu, nickel plated. Size to suit.

13.3. Grommets: Round metal grommet with brush, colour black, 67mm diameter overall dimension. Product No. 16601290 as manufactured by Richelieu. Allow for twenty (20) to be installed in locations as directed by Consultant.

13.4. Exposed Fasteners: for securing plywood, veneer core, panelling, cold rolled steel, etc. as indicated shall be 3/8” (10 mm) diameter stainless steel hex socket cap bolts and domed cap nuts complete with washers.

13.5. Casters with Lock: Swivel caster with brake, plate mounted, colour Matte Gray. Product No. 307145100 as manufactured by Richelieu.

13.6. Hardware for glazing panels: provide 10mm x 19mm top and bottom glass support shoes and gaskets as required to install glass dividers. Finish is to be brushed nickel equivalent to Richelieu model #EXU381116170 or equivalent as manufactured by Canadian Builders Hardware, Gallery, or Stanley.

14. Fabrication

14.1. Fabricate work in accordance with the best practice by skilled craftsmen of companies specializing in the work specified and to the requirements of other trades.

14.2. Use running members in greatest lengths obtainable.

14.3. Machine-dressed work shall be slow fed using sharp cutters and the finished work shall be free from drag, feathers, slivers or roughness of any kind. Remove machine marks by sanding.

14.4. In finished work, machine-sand exposed surfaces in the shop and hand-sand on the job to even smooth surfaces, free from scratches, ready for finishing.

14.5. Frame materials with tight joints rigidly held in place. Use glue blocks where necessary.

14.6. Assemble work in shop and deliver to job ready for installation as far as practicable. Leave ample allowance for fitting and scribing on the job.

14.7. Take care to prevent the opening up of glue lines in the finished work.

14.8. Joints made on the on the job shall be equal in quality and workmanship to joints made in the shop.

14.9. Finish all exposed edges of particleboard with matching 3mm PVC edge banding typical.

14.10. Glue and blind screw or nail all work unless otherwise specified. Set surface nails and plug surface screws with wood plugs of material to match surface.

14.11. Glues shall be waterproof and of type suitable for work to be joined. Refer to glue manufacturer's recommendations for lumber moisture content, glue shelf life, pot life, working life, mixing, spreading, assembly time, time under pressure and ambient temperature.

14.12. Moisture content of interior woodwork shall be not less than 4% nor more than 8%.

14.13. Accurately scribe, cope, and mitre members where required.

14.14. Erect work plumb, level, square, and to the required lines.

14.15. Fabricate finished woodwork in the building free from bruises, blemishes, mineral marks, knots, shakes and other defects.

14.16. Be responsible for methods of construction, and for ensuring that materials are rigidly and securely attached and will not be loosened by the work of other trades.

14.17. Take field dimensions and fabricate work to suit field dimensions.

14.18. Fasten wood nailers, blocking, framing, and strapping solidly to adjacent materials in true planes.

14.19. Do not permit delivery of this work to the site until the area is sufficiently dry so that woodwork will not be damaged by excessive changes in moisture content.

14.20. Provide all blocking coming in direct contact with millwork in accordance with applicable provisions set forth herein.

14.21. Provide drilled holes at 1-1/4” (32 mm) o.c. vertically in fitment gables scheduled to receive pins for adjustable shelves.

15. Millwork - General

15.1. Construct units as detailed and specified herein.

15.2. Fit drawers with stops to prevent tipping or complete withdrawal.

15.3. Use plywood or particleboard for countertops, fronts, backs, bottoms, gable divisions, shelves and doors.

15.4. Drawer sides, backs and bottoms shall be 1/2” (13 mm) thick melamine as scheduled and detailed. Drawer and door fronts shall be 3/4” (19 mm) thick melamine as scheduled and detailed.

15.5. Provide 3 mm PVC edging on all four sides of drawer fronts and doors and adjustable shelves; exposed edges of fixed shelving; exposed edges of cabinets including those behind drawer fronts and swing doors.

15.6. Provide miscellaneous cut-outs in backs of millwork to accommodate electrical cords, telephone cords, etc., and provide purpose-made grommets.

PART 3 | EXECUTION

16. Installation

16.1. Strips and Blocking

16.1.1. Where wood is to be fastened to masonry, supply metal nailing plugs to masonry section, for building into masonry joints.

16.1.2. Provide and install wood strips required for attaching the work of other Sections.

16.1.3. Provide and install all wood blocking required.

16.2. Carpentry and Millwork

16.2.1. Install carpentry and millwork items as detailed.

16.2.2. Execute installations and assemble work on the job using skilled forces, under supervision of competent joinery foreman.

16.2.3. Adequately fasten units and secure in place with concealed fixings wherever possible. Include grounds and furring where required.

16.2.4. Install casework level, plumb, true, and complete in all respects. Shim as necessary with concealed shims. Accurately scribe and closely fit face plates, filler strips and trim to irregularities of adjacent surfaces.

16.2.5. Installation to conform to AWMAC and latest revision of specified standards.

16.2.6. Install all casework finish hardware in accordance with manufacturer's recommendations.

****END OF SECTION****

SECTION 06 41 16
PLASTIC LAMINATE WORK

PART 1 | GENERAL

1. Scope Of Work

1.1. Provide all plastic laminate work indicated on the drawings. Coordinate with millwork subtrade.

1.2. Provide all countertops as indicated on drawings, except where counters are part of equipment specified elsewhere. Countertops shall be plastic laminate finished except where indicated otherwise.

1.3. For counters indicated to be solid polymer, refer to specifications Section 06 61 16.

2. Related Work

2.1.	Finish Carpentry	Section 06 20 00
2.2.	Architectural Wood Casework	Section 06 41 13
2.3.	Door Hardware	Section 08 71 00
2.4.	Electrical	Divisions 26, 27, 28

3. Submittals

3.1. Refer to Section 01 33 23.

3.2. Submit two 300 x 300mm samples of all materials to the Consultant for approval. The samples shall be identified by the project number, date and the name of the contractor the samples shall show colours and details of edging, forming and construction. The materials used in the building shall correspond to the approved samples.

3.3. Shop Drawings:

3.3.1. Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices and other components.

3.3.2. Show full-size details, edge details, attachments, etc.

3.3.3. Show locations and sizes of furring, blocking, including concealed blocking and reinforcement required.

3.3.4. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers and other items installed in countertops.

3.3.5. Submit data sheets for particle board, plywood, adhesives, joint sealants, and sealers.

3.4. Maintenance Data and Materials:

3.4.1. Submit manufacturer’s care and maintenance data, including repair and cleaning instructions. Include in project closeout documents.

3.4.2. Provide maintenance kit for finishes.

4. Protection

4.1. Refer to General Instructions Section 01 10 00.

4.2. Handle and store countertops in accordance with manufacturers recommendations. Countertop surfaces shall be covered with heavy kraft paper, or tops shall be put in cartons for protection during shipment.

4.3. If protective film is provided, do not remove until counters have been installed.

4.4. Remove any stickers immediately after installation

4.5. Protect installed countertop surfaces with heavy kraft paper secured in position with masking tape. Do not remove until final inspection.

4.6. Comply with the printed directions, issued by the material manufacturers.

5. Warranty

5.1. Plastic laminate work shall be warranted against warping or delamination for a period of two (2) years from the date of Substantial Performance of the Contract.

5.2. Work showing defects during the warranty periods shall be replaced or made good without delay and at no expense to the Owner.

PART 2 | MATERIALS

6. Materials - Plastic Laminate Countertops

6.1. Plastic laminate:

6.2. Conforming to CAN3-A172; by Wilsonart and Arborite as indicated below.

6.3. 1.6mm (.062") thick, general purpose grade for flatwork and 1.25mm (.050") thick standard postforming grade for shaped profiles and bends; finishes to be sued, solid and wood grain colours as later selected by the Consultant from the manufacturers standard range of colours. Balancing sheet shall be the same thickness as surface sheet and shall be supplied by the same manufacturer.

6.4. Plastic Laminate selections are as follows:

6.4.1. I.LAM.01 for upper cabinetry and counters; Wilsonart, White Carrara, 4924 or approved alternate.

6.4.2. I.LAM.02 for base cabinetry; Arborite, Brilliant Glamour Oak, W470, Matte Finish or approved alternate.

7. Cores

7.1. Wood products shall be FSC certified, manufactured with no added urea formaldehyde.

7.2. Particle board shall be NuGreen 2 NAUF particle board, as manufactured by Uniboard, meeting the requirements of ANSI A208.1 Grade M-2. Surface shall be smooth, dense, and free from loose particles, or defects which will telegraph through the laminate.

7.3. Plywood core - fir core, poplar faced, 3, 5, or 7 ply, exterior grade veneer plywood, urea-formaldehyde free. Faces and second ply shall be without voids, or fir plywood conforming to CSA 0121, graded solid faces, 3, 5, or 7 ply.

7.4. Provide waterproof cores in countertops with sinks and in all other areas where moisture is possible.

7.5. Adhesives:

7.5.1. Formulated for use in decorative laminate fabrication and to suit the conditions of application

without failure.

7.5.2. Adhesive conforming to CSA 0112 Series, no added urea formaldehyde; Greenguard Children & Schools certified low emitting products.

7.5.3. Adhesive for countertops where sinks will be installed is to be water resistant.

7.5.4. Adhesive shall be acceptable to the laminate manufacturer.

7.5.5. Plastic Laminate adhesives applied onsite and used within the weatherproofing system must have a VOC content equal to or less than 20 g/L as per section 01 67 00.

7.6. Sealant - approved water-resistant sealer or glue, low VOC.

7.7. Draw bolts - mechanical devices of approved manufacture which can be recessed into the core of decorative laminated panels and used to draw two parts together for permanently tight joints. Fixing clips - 1.6mm. (16 ga.) steel, galvanized (or prime painted), as detailed.

8. Finish Schedules

8.1. Refer to room finish schedule and drawings for details of countertop work.

9. Plastic Laminate Countertops

9.1. All units shall be shop fabricated. Plastic laminate shall be applied to an approved underlayment with a thermosetting adhesive.

9.2. Build work plumb, true and square. Arrange adjacent parts of continuous laminate work to match in colour and pattern.

9.3. Obtain the governing dimensions before fabricating items which are to accommodate or abut appliances or equipment.

9.4. Veneering of plastic laminate to core material shall be done according to the laminate manufacturer's directions. All veneered work shall be backed with a balancing sheet except where exposed in the finished work, then face veneer to be applied to all exposed surfaces.

9.5. Where fabrication is done at the site, laminate and core materials shall be stored in the work area for not less than 48 hours for preconditioning before bonding together.

9.6. Form shaped profiles and bends as detailed, using postforming or bending grade according to manufacturer's recommendations. Core and laminate profiles shall coincide to provide continuous support and bond over the entire surface.

10. Self Edging

10.1. Straight self edging shall be decorative laminate 1.6mm thick.

10.2. Curved self edging shall be postformed material or bending grade.

10.3. Chamfer exposed edges of laminate uniformly, at approximately 15mm.

10.4. Do not mitre the decorative laminate sheet at edges.

10.5. Joints:

10.5.1. Locate joints where indicated, where not indicated at approximately 2440 or 3660mm centres also include joints at corners, and changes in superficial area.

10.5.2. Accurately fit decorative laminate together to provide tight, flush, butt joints.

10.5.3. Joints in cored. panels shall be made with 6mm blind splines and draw bolts, one draw bolt for widths up to 150mm, two or more draw bolts at maximum 450mm o.c. for widths exceeding 150mm.

10.5.4. Seal the core at joints with sealer.

11. Cutouts

11.1. Provide cutouts as required for inserts, grilles, appliances, outlet boxes, and other fixtures. Radius the internal corners, chamfer the edges, and seal the core.

11.2. Provide face finish, to match countertop material, at cutouts for under counter sinks.

12. Examination Of Surfaces And Conditions

13. Surface and ambient temperatures shall be minimum of 20oC at a relative humidity between 20 to 80%.

PART 3 | EXECUTION

14. Installation – General

14.1. Install all work plumb, true and square, neatly scribed to adjoining surfaces.

14.2. Make allowances around periphery and where fixed objects pass through or project into countertops, to permit normal movement without restriction.

14.3. Secure work by concealed means in an approved manner (or as detailed). Fasteners shall not be more than 600mm o.c. and 150mm from edges and ends. Where concealed fastening is not possible use stainless steel trim threaded screws with matching cup washers or other approved means.

14.4. Sand or chamfer site cut edges of the laminate free from chips. Radius any internal angle cuts. Seal core edges.

14.5. Isolate decorative laminate panels from direct contact with exterior metal frames.

14.6. Upon completion of installation remove identification marks and clean surfaces. Protect as specified in 1.4 above.

14.7. At junction of counter back splash and adjacent wall finishes, apply small bead of sealant.

15. Trim

15.1. Decorative laminate trim shall be as detailed. Joints shall be kept to the minimum, with none occurring in lengths under 3000mm. Slightly bevel the laminate edges of joints. Secure trim with adhesive.

****END OF SECTION****

SECTION 07 21 16
BATT & BLANKET INSULATION

PART 1 | GENERAL REQUIREMENTS

1. Section Included

1.1. Batt Insulation

1.2. Acoustical Batt Insulation

2. Related Sections

2.1.	General Requirements	Division 01
2.2.	Rough Carpentry	Section 06 10 10
2.3.	Fire Stopping and Smoke Seals	Section 07 84 00
2.4.	Mechanical	Division 23

3. References

3.1. CAN/ULC-S702-1997, Thermal Insulation, Mineral Fibre, for Buildings.

PART 2 | PRODUCTS

4. Insulation

4.1. Sound Attenuation Batt Insulation

4.1.1. For use at all sound attenuated partitions. Shall be light density preformed, friction fit, glass or mineral fibre batt insulation conforming to the requirements of CAN/ULC-S702. Thickness as scheduled.

4.1.2. Batt sizes shall be of largest practical size and as required to suit wall assemblies and in thicknesses as indicated on Drawings.

4.1.3. Acceptable materials:

.1 “Safe’n’Sound” as manufactured by Roxul Inc.

.2 “EcoTouch QuietZone Pink FiberGlass Acoustic Insulation: Acoustic Batt Insulation as manufactured by Owens Corning

.3 Alternate approved by Consultant.

5. Accessories

5.1. Insulation Clips: Impale type, perforated 50mm by 50mm cold rolled galvanized carbon steel 0.8mm thick, spindle of 2.5mm diameter annealed steel, length to suit insulation, 25mm diameter washers of self-locking type.

5.2. Retaining Mesh: Galvanized steel, hexagonal wire mesh.

PART 3 | EXECUTION

6. Examination

6.1. Verify that substrate surfaces, adjacent materials and installation conditions are rec1dy to accept the work of this section. Ensure insulation materials and surfaces are dry.

6.2. Beginning of installation means acceptance of substrate and conditions.

7. Insulation Installation

7.1. Supply insulation to Section 06 10 10 - Rough Carpentry as required for building-in to work of that section.

7.2. Install insulation to maintain continuity of thermal protection and acoustical separation of building elements and spaces.

7.3. Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation. Trim insulation neatly to fit spaces.

7.4. Do not compress insulation to fit into spaces. Install in spaces without gaps or voids.

7.5. Install friction fit insulation tight to framing members.

7.6. On sloping surfaces or in ceiling applications retain insulation in place with impale type fastener spaced at 600mm on centre. Adhere fastener to substrate with adhesive compatible with fastener and substrate.

7.7. In unfinished unexposed applications retain insulation in place with wire mesh secured to framing members with fasteners appropriate for framing material.

7.8. Keep insulation minimum 75mm from heat emitting devices such as recessed light fixtures.

7.9. Notify the Consultant upon completion of insulation installation to allow for inspection before work is enclosed and obscured.

8. Protection

8.1. Protect insulation under provisions of Section 01 56 00 -Temporary Controls.

8.2. Protect insulation from harmful weather exposures and physical abuse.

8.3. Provide temporary coverings or enclosures when insulation will be subject to damage and cannot be protected by permanent construction immediately after installation.

****END OF SECTION****

SECTION 07 92 00
JOINT SEALANTS

PART 1 | GENERAL REQUIREMENTS

Section Includes

1. Related Work

1.1.	General Requirements	Division 01
1.2.	Firestopping and Smoke Seal	Section 07 84 00
1.3.	Plumbing Fixtures	Division 22

2. References

2.1.	CGSB-19-GP-5M-84	Sealing Compound, One Component, Acrylic Base, Solvent Curing.
2.2.	CAN/CGSB-19.13-M87	Sealing Compound, One-Component, Elastomeric, Chemical Curing.
2.3.	CAN/CGSB-19.17-M90	One-Component Acrylic Emulsion Base Sealing Compound.
2.4.	CAN/CGSB-19.21-M87	Sealing and Bedding Compound, Acoustical.
2.5.	CAN/CGSB-19.22-M89	Mildew Resistant Sealing Compound for Tubs and Tiles.
2.6.	CAN/CGSB-19.24-M90	Multi-Component, Chemical Curing Sealing Compound.
2.7.	CAN/ULC-S711.1-05	Standard for Thermal Insulation – Bead-Applied One Component polyurethane Air Sealant Foam, Part 1.
2.8.	CAN/ULC-S711.1-05	Standard for Thermal Insulation – Bead-Applied Two Component Polyurethane Air Sealant Foam, Part 1 : M.

3. Approved Manufacturers

3.1. The products of the following manufacturers are approved for use subject to meeting the specifications for the particular type of sealants listed below. However, this is not an approval to substitute another type of sealant for those specified unless the material manufacturer requests change in his product in writing to the Consultant.

- 3.1.1. Canadian General Electric Company Ltd.
- 3.1.2. Dow Corning Canada Inc.
- 3.1.3. Tremco
- 3.1.4. Alternate approved by the Consultant.

3.2. Material manufacturers must be willing to review Shop Drawings and drawing details, visit the site to review sealant installation and provide written reports to the Consultant.

4. Installer Qualifications

4.1. Sealants and caulking shall be installed by a specialized Subcontractor, having skilled mechanics thoroughly trained and competent in all aspects of caulking work, with minimum 5 years' experience.

4.2. Sealants shall be appropriate for the application and materials to be caulked.

5. Submittals

5.1. Submit samples of each sealant, in conformance with Section 01 33 23 – Shop Drawings, Product Data and Samples.

5.2. Provide colour cards for Consultants selection.

5.3. Submit written adhesion and compatibility approval from the sealant manufacturer for all materials to be sealed.

6. Delivery, Storage, And Handling

6.1. Deliver and store materials in original wrappings and containers with manufacturer's seals and labels intact. Protect from freezing, moisture, water and contact with ground or floor.

7. Environmental And Safety Requirements

7.1. Comply with requirements of Workplace Hazard Materials Information System (WHIMIS) regarding use, handling, storage, and disposal of hazardous materials, and regarding labelling and provision of material safety data sheets acceptable to the authority having jurisdiction.

7.2. Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

7.3. Ventilate area of work as required and as may be directed by the Consultant by use of approved portable supply and exhaust fans.

8. Warranty

8.1. Extend Contractor's warranty to five (5) years, in writing. Warranty shall commence on the date of Substantial Performance.

8.2. Defective work shall include, but not be restricted to, joint leakage, cracking, crumbling, melting, running, loss of adhesion, loss of cohesion, or staining of adjacent surfaces.

8.3. Provide manufacturer's project-specific twenty (20) year non-staining warranty and ten (10) year weather seal warranty for "Type A" sealant listed below.

PART 2 | PRODUCTS

9. Materials

9.1. Sealant Type A: For exterior locations. Non-Staining, primer less, silicone weather-proofing sealant:

9.1.1. SilPruf SCS9000 NB, manufactured by Canadian General Electric Company Limited, Dow Corning 756 SMS, manufactured by Dow Corning Canada Inc., or

9.1.2. Spectrem 3, manufactured by Tremco Ltd., and conforming to the product properties published.

9.1.3. Alternate approved by Consultant.

9.2. Sealant Type B: For interior locations. Non-staining, primer less, silicone hybrid sealant:

9.2.1. SCS7000, manufactured by Canadian General Electric Company Limited.

9.2.2. Dow Corning 756 SMS, manufactured by Dow Corning Canada Inc., or

9.2.3. Spectrem 3, manufactured by Tremco Ltd., and

9.2.4. Alternate approved by Consultant.

9.3. Sealant Type C: For interior locations where conditions of high humidity exist such as washrooms, showers, Mildew resistant, one component silicone conforming to CGSB 19-GP.22M and ASTM C920:

9.3.1. CGE SCS1700 Sanitary Sealant,

9.3.2. Dow Corning 786, or

9.3.3. Tremco Tremsil 200 White

9.3.4. Alternate approved by Consultant.

9.4. Sealant Type D: For interior locations. Paintable, non-staining, primer less, silicone hybrid sealant:

9.4.1. SCS7000, manufactured by Canadian General Electric Company Limited.

9.5. Sealant Type E:

9.5.1. Multi-component, epoxidized polyurethane sealant conforming to CAN/CGSB- 19.24, Type 2, Class B, SWRI Certified.

9.5.2. Dymeric 240, manufactured by Tremco Ltd.

9.5.3. Weatherproofing Sealant (CWS) Contractors Concrete Sealant by Dow Corning.

9.5.4. Alternate approved by Consultant.

9.6. Colours of sealants and caulking when exposed in the finished work to later selection by the Consultant. Allow different colours for different situations and materials. Allow for custom colours for exterior sealants.

9.7. Primers for sealing: As manufactured or recommended by the manufacturer of the sealing materials for the specific applications.

9.8. Joint backing material:

9.8.1. foam strips, of approved manufacture, compatible with sealant and 50% greater width than joint width;

9.8.2. Vertical Surfaces: extruded polyolefin foam, Sof Rod by Tremco Ltd.

9.8.3. Horizontal Surfaces: closed cell polyethylene foam, Standard Backer Rod by Tremco.

9.9. Bond Breaker: pressure sensitive plastic tape backing material, which will not bond to sealant; 3M #226 or #481, or Valley Industries #40.

9.10. Acoustical Sealant.

9.10.1. To CAN/CGSB-19.21.

9.10.2. Acceptable Product: Tremco Commercial Sealants & Waterproofing, Tremco Acoustical Sealant.

9.10.3. Alternate approved by Consultant.

9.11. Preformed Compressible and Non-Compressible Back-up Materials.

9.11.1. Polyethylene, Urethane, Neoprene or Vinyl Foam.

.1 Extruded closed cell foam backer rod.

.2 Size: oversize 30 to 50%.

9.12. Neoprene or Butyl Rubber: Round solid rod, Shore A hardness 70.

9.13. High Density Foam: Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200kPa, extruded polyolefin foam, 32kg/m; density, or neoprene foam backer, size as recommended by manufacturer.

9.14. Bond Breaker Tape: Polyethylene bond breaker tape which will not bond to sealant.

9.15. Cleaning material for surfaces to receive sealant to be as recommended by the manufacturer of the sealant.

PART 3 | EXECUTION

10. Locations

10.1. Seal all exterior junctions and joints wherever required to close gap and wherever sealant is essential to maintain the continuity of air barrier, water barrier, or non-rated smoke separation of wall with Sealant Type A. Areas to be caulked include:

10.1.1. Concrete to metal, masonry, concrete and precast concrete.

10.1.2. Masonry to metal, concrete, precast concrete, and masonry.

10.1.3. Metal to metal, masonry, concrete, and precast concrete.

10.1.4. Around pipes and conduit through foundation walls.

10.1.5. Between hollow metal frames and screens and adjacent materials.

10.1.6. Between metal panels and adjacent materials.

10.1.7. Between window and louvre frames and sills and adjacent materials.

10.1.8. At all control and expansion joints.

10.2. Seal all interior junctions and joints wherever required to close gap and wherever sealant is essential to maintain the continuity of air barrier, water barrier, or non-rated smoke separation of wall with Sealant Type B. Areas to be caulked include:

10.2.1. Concrete to metal, masonry, concrete and precast concrete.

10.2.2. Masonry to metal, concrete, precast concrete, and masonry.

10.2.3. Metal to metal, masonry, concrete, and precast concrete.

10.2.4. Around pipes and conduit through walls.

10.2.5. Between hollow metal frames and screens and adjacent materials.

10.2.6. Between window and louvre frames and sills and adjacent materials.

10.2.7. At all joints between millwork and masonry, to provide neat junction.

10.2.8. At junction between all counters and/or splashbacks and adjacent substrate with neat 3mm bead.

10.2.9. At all control and expansion joints.

10.3. Seal with Sealant Type C at the following locations:

10.3.1. Around access panels in ceramic tile faced walls with a neat 3mm bead.

10.3.2. Around perimeter of piping penetration at tile work.

10.3.3. At junctions between all counter tops and/or splashbacks and adjacent substrate in washrooms, with neat 3mm bead.

10.3.4. At junctions of lavatories, toilets, and other plumbing fixtures and adjacent substrate.

10.4. Seal with Sealant Type D at all interior non-moving joints to be painted.

10.5. Seal at all other vertical and horizontal joint locations with Sealant Type E.

10.6. Refer to Section 07 84 00, Firestopping and Smoke Seal, for location of fire stopping and fire-resistant caulking.

10.7. Refer to Section 09 29 00, Gypsum Board, for acoustic sealant work.

11. Supervision

11.1. Unless specified otherwise herein comply with the recommendations and directions of the manufacturer whose materials are being used on the work.

11.2. Arrange for the sealant manufacturer's technical representatives to visit the site prior to the commencement of the sealing to meet with the Contractor and the Consultant.

11.3. Sealant manufacturer to visit site periodically and to provide written reports to Consultant ensuring sealant is in accordance with good trade practice, the manufacturer's recommendations and the intent of this Specification.

12. Protection

12.1. Protect installed work of other trades from staining or contamination.

13. Preparation

13.1. Install sealants only when surfaces and ambient temperatures are suitable for the material used, as per manufacturer’s recommendations.

13.2. Clean all joints and spaces to be sealed.

13.3. Ensure that surfaces are structurally sound, free from grease, chalk or other contaminants which may adversely affect the adhesion of the sealing materials. Use dry oil free clean compressed air stream if necessary to clean out the joint.

13.4. Clean surfaces with a solvent or cleaner recommended by the manufacturer of the sealant materials.

13.5. Remove chalk lines completely. Do not place clear sealant over coloured chalk lines.

13.6. Test materials for indications of staining or poor adhesion before any sealing is commenced.

13.7. Submit colour chart to Consultant and obtain his written instructions for colours and locations of colours.

14. Priming

14.1. If recommended by the manufacturer of the sealing materials, prime joints to prevent staining, or to assist the bond, or to stabilize porous surfaces.

14.2. Apply primer with a brush which will permit the priming of all joint surfaces.

15. Backup Material

15.1. Apply bond breaker tape where required to manufacturer’s instructions.

15.2. Install joint back-up to achieve correct joint depth and shape, with approximately 30% compression.

16. Mixing

16.1. Mix materials in strict accordance with sealant manufacturer’s instructions.

17. Masking

17.1. Where necessary to prevent contamination of adjacent surfaces, mask the areas adjacent to the joints with masking tape.

18. Installation

18.1. Install joint backing materials at all locations as detailed or where required by sealant manufacturer's printed directions.

18.2. Install a bond breaker tape or packing over asphalt impregnated fibre board as recommended by sealant manufacturer.

18.3. Ensure that the correct sealant depth is maintained.

18.4. Finished joints shall be free of wrinkles, sags, air pockets, ridges and embedded impurities.

18.5. Tool all sealant surfaces to produce a smooth surface.

18.6. Remove droppings and excess sealant as work progresses and before material sets.

18.7. Sealing materials shall be gun grade or tool grade consistency to suit the joint conditions.

18.8. Commence sealing only after all adjacent surfaces have been painted under Painting Section.

19. Cleaning

19.1. Clean adjacent surfaces immediately and leave work neat and clean. Remove excess sealant and droppings using recommended cleaners as work progresses. Remove masking after joint tooling.

****END OF SECTION****

SECTION 08 11 13
HOLLOW METAL DOORS, FRAMES, AND SCREENS

PART 1 | GENERAL REQUIREMENTS

1. Division One, General Requirements is part of this Section and shall apply as if repeated here.

2. Referenced Standards

2.1. Canadian Standards Association (CSA).

2.2. CSA A101-M1983, Thermal Insulation, Mineral Fibre, for Buildings.

2.3. CAN/CSA-G40.21-M92, Structural Quality Steels.

2.4. CSA W59-M1989, Welded Steel Construction (Metal Arc Welding).

2.5. Canadian General Standards Board (CGSB).

2.6. CAN/CGSB-1.181-92, Ready-Mixed Organic Zinc-Rich Coating.

2.6.1. CGSB 41-GP-19Ma-84, Rigid Vinyl Extrusions for Windows and Doors.

2.6.2. CAN/CGSB-51.20-M87, Thermal Insulation, Polystyrene, Boards and Pipe Covering.

2.6.3. CGSB 51-GP-21M-78, Thermal Insulation, Urethane and Isocyanurate, Unfaced.

2.7. American Society for Testing and Materials (ASTM).

2.7.1. ASTM A653-97 (M-97), Standard Specification for Steel Sheet, Zinc-Coated (Galvanized)or Zinc Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

2.7.2. ASTM A924-97 (M-97), Standard Specification for General Requirements forSteel Sheet Metallic-Coated by the Hot-Dip Process.

2.7.3. ASTM B29-92, Specification for Refined Lead.

2.7.4. ASTM B117-95, Method of Salt Spray (Fog) Testing

2.7.5. ASTM B749-85 (91), Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.

2.7.6. ASTM E 152-81a, Methods for Fire Tests of Door Assemblies.

2.7.7. ASTM E 163-94a, Methods for Fire Tests of Window Assemblies.

2.8. Underwriter's Laboratories of Canada (ULC).

2.8.1. CAN4-S104M-M80, Fire Tests of Door Assemblies.

2.8.2. CAN4-S105M-M85, Fire Door Frames.

2.9. Canadian Steel Door and Frame Manufacturer's Association.

2.9.1. CSDFMA, Specifications for Commercial Steel Doors and Frames, 1990.

2.9.2. CSDFMA, Recommended Selection and Usage Guide for Commercial Steel Doors, 1990.

2.10. National Fire Protection Association (NFPA).

2.10.1. NFPA 80-1992, Fire Doors and Windows.

2.10.2. NFPA 252-1990, Door Assemblies Fire Tests of.

3. Requirements of Regulatory Agencies

3.1. Steel Fire Rated Doors and Frames:

3.1.1. labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4 S104M and CAN4 S105M for ratings specified or indicated.

4. Product Delivery, Storage, and Handling

4.1. Brace frame units to prevent distortion in shipment, and protect finished surfaces by sturdy protective wrappings.

4.2. 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.

5. Shop Drawings

5.1. Submit shop drawings in accordance with the requirements of specification Section 01340, Shop and Interference Drawings.

5.2. 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.

PART 2 | PRODUCTS

6. Materials

6.1. Steel:

6.1.1. Commercial grade, tension levelled steel to ASTM A924-97 (M97), galvanized to ASTM A653-97 (M97), coating designation ZF75 (A25) typical and Z275 (G90) in exterior locations.

6.2. Doors and Panels:

6.2.1. Facings, rails, stiles: 3/64” (1.2 mm) (18 ga.) base steel thickness.

6.2.2. Interior Stiffeners: 0.914 mm base steel thickness.

6.2.3. Hardware Reinforcement: 1/8” (3 mm) base steel thickness.

6.2.4. Sound Deadening and Insulating Material: semi-rigid fibreglass 24 kg/m3 minimum density, to fill core space. Honeycomb structural core consisting of kraft paper with 3/4” (19 mm) cells x core thickness may be used at interior locations.

6.2.5. Glazing Stops: 1/16” (1.6 mm) base steel thickness, formed, drilled and countersunk for fasteners.

6.3. Frames:

6.3.1. Steel: 1/16” (1.6 mm) (16 ga.) base thickness.

6.3.2. Hardware Reinforcement: 1/8” (3 mm) base steel thickness.

6.3.3. Mortar Guards: 0.762 mm base steel thickness.

6.3.4. Rubber Bumpers: Glynn-Johnson GJ64 or approved equivalent.

6.4. Anchors:

6.4.1. Frames in Masonry: adjustable "T" strap anchors.

6.4.2. Labelled Frames: to conform to ULC requirements.

6.4.3. Frames in Gypsum Board Partitions: steel anchor clips and floor anchors of suitable design securely welded inside each jamb.

6.4.4. Anchorage to Floor: minimum 1/8” (3 mm) thick clip angles with 2 holes for expansion bolting to floor.

6.5. Galvanizing:

6.5.1. Typical interior units: steel sheet galvanized to ASTM A653-97 (M97), coating designation ZF75 (A25), to a total mass coating of 120 g/m2, both sides.

6.5.2. Exterior units, and interior units in unheated areas: steel sheet galvanized to ASTM A653-97 (M97), coating designation Z275 (G90), to a total mass coating of 275 g/m2, both sides. Mill phosphatize to provide for good paint adhesion.

6.6. Acoustic Hollow Metal Door and Frame (STC 53):

6.6.1. Provide dust cover boxes on all frame mortises.

6.6.2. Comprehensive installation instructions must be provided with system.

6.7. Anchors: Provide suitable anchors to properly install frames in partition types shown on drawings.

7. Fabrication - Generally

7.1. Fit and assemble work in the shop, where possible. Make trial assembly in shop when not possible.

7.2. Fabricate, reinforce and anchor component parts and assemblies to support loads that usage will impose without deflection detrimental to function, appearance or safety. For interior doors either the use of metal stiffeners with the spaces between stiffeners filled with insulation, or honeycomb structural core will be acceptable. For exterior doors the core is to be completely filled with insulation.

7.3. Reinforce components to resist in-use stresses imposed by finishing and security

7.4. hardware.

7.5. Prepare frames and doors for finish hardware with mortises and reinforcement. Drill and tap to template information. Reinforce for surface-mounted hardware and for door closer brackets. Provide for concealed door closers where specified. Install mortar guards at cut-outs and reinforcing plates in frame. For cylindrical locks install reinforcing units to lock manufacturer's specification. For mortise locks provide a suitable internal bracket to hold the lock case rigidly in the centre of the door.

7.6. Provide for anticipated expansion and contraction of frames and supports.

7.7. Fit elements at intersections and joints accurately together in true planes, plumb and level.

7.8. Weld frame and door assemblies. Weld continuously at joints exposed to view including door edge seams, or at joints through which air or water could penetrate from the exterior of the building to the interior. Seams shall be welded, filled and sanded flush.

7.9. Where welding is impossible, connections may be bolted. Ream drilled holes and leave exposed edges clean and smooth.

7.10. Isolate from each other dissimilar metals and metal from concrete or masonry, to prevent electrolysis.

7.11. Ensure that exterior doors and frames are tightly fitted, and that entry of water is prevented by drips on head frames of out swinging doors exposed to weather.

7.12. Make allowance in frames and doors to receive electrical conduits for security strikes and contactors which may be installed in doors and frames. Provide electrical conduit protection mortar boxes to receive conduit for electric strikes, locks, door closers, and hinges as detailed.

8. Door and Screen Frames

8.1. Fabricate frames to details shown on Drawings using welded construction.

8.2. Fabricate steel frames in minimum base steel thickness specified. Minimum frame material thickness applies only to work which does not otherwise require heavier gauges to meet specified fire-rated construction.

8.3. Touch up frames in the factory where coating has been removed.

8.4. Where members join at corners, cut mitres and weld continuously along inside welding.

8.5. Where tubular transoms or mullions meet frame members, joint by butt welding.

8.6. Attach two channel spreaders at bottom of door frames to maintain square alignment. Provide removable attachment for spreaders on frames that to not extend below finished floor, and remove them after frames are built in.

8.7. Incorporate structural stiffeners for frame members where required to withstand loadings. Securely anchor them at bottom and top. Where they extend above ceiling, anchor them to concrete or structural framing to suit site conditions and in such a way that load from the structure is not transferred to the frames.

8.8. Install three rubber bumpers in latch side stops of each interior door frame. Locate lowest bumper 9” (230 mm) above bottom of door.

8.9. Back-paint exterior frames and frames to unheated areas where in contact with masonry or concrete or other dissimilar materials.

8.10. Fabricate glass stops for non-rated screens the same as specified for glass stops for doors. Fabricate glass stops for fire rated screens 3/4” (19 mm) wide and of 1.35 mm thick sheet steel.

8.11. Note all exterior doors on the Door Schedule shall have insulated frames. Fill these frames with fiberglass or foamed in place polyurethane insulation.

9. Doors and Panels

9.1. Fabricate interior and exterior doors and panels with sheet steel in specified base steel thickness.

9.2. Minimum panel thickness applies only to doors not otherwise requiring heavier gauges to meet specified fire-rated construction.

9.3. Fabricate doors with faces true and smooth, and with no dimples or welds visible.

9.4. Bevel edges of stiles to suit door swing.

9.5. Locate hardware to Canadian Steel Door & Frame Manufacturer's Association Standard, unless shown otherwise on Drawings or Door Schedule.

9.6. Fill solid all voids within doors and panels with insulation, or honeycomb core. For exterior doors and panels, fill voids with insulation.

9.7. Fabricate muntins, removable stops, and glass mouldings of minimum 1.2 mm steel.

9.8. Prepare doors to receive glass and grilles. Install grilles. Secure removable stops with countersunk Phillips oval head screws symmetrically spaced on stop lengths.

9.9. Close top and bottom edges of exterior doors to make a weathertight seal, and doors to which the tops can be seen from stair landings or other high elevations, so that they are flush with face edges.

10. Anchors

10.1. Provide frames for installation in masonry walls with the following number of anchors:

10.1.1. Frames up to 7’-6” (2300 mm) height, 3 anchors

10.1.2. Frames 7’-6” (2300 mm) to 8’-0” (2400 mm), 4 anchors

10.1.3. Frames over 8’-0” (2400 mm), 1 anchor for each 2’-0” (600 mm) or fraction thereof in height over 8’-0” (2400 mm).

10.2. Provide frames for installation in stud partitions with the following number of anchors:

10.2.1. Frames up to 7’-6” (2300 mm height, 4 anchors

10.2.2. Frames 7’-6” (2300 mm) to 8’-0” (2400 mm),, 5 anchors

10.2.3. Frames over 8’-0” (2400 mm),, 5 anchors, plus 1 additional for each 2’-0” (600 mm) or fraction thereof in height over 8’-0” (2400 mm).

10.3. Provide frames to be anchored to previously-placed concrete, masonry, or structural steel, with anchors of suitable design, as shown on reviewed shop drawings.

10.4. Securely weld adjustable floor anchors to inside of each jamb profile, with two holes provided at each jamb for floor anchorage.

10.5. Anchors shall have minimum gauges: "T" strap type, 1/16” (1.6 mm) "L" type, 3/64” (1.2 mm); wire type, 5/32” (3.9 mm) diameter; stirrup type, 1/16” (1.6 mm); stud type, 3/64” (1.2 mm); jamb spreaders; 3/64” (1.2 mm).

11. Finishing

11.1. Carbon Steel: clean and smooth work at welds which has been ground. Fill if necessary, and prime all areas from which zinc has been removed.

12. Fire Rated Hollow Metal Doors and Frames

12.1. Construct fire-rated doors and frames of ratings indicated, in accordance with ULC Section 120 IDO, and as otherwise required by Jurisdictional Authorities. Fire rated screens containing doors shall be labelled (whole assembly).

12.2. Ensure that hardware used meets requirements of ULC 120 ID16, and installed to NFPA 80 requirements.

12.3. Doors and frames indicated as labelled shall have attached ULC labels. Attach labels on the inside of the hinge jamb midway between the top hinge and the head of the door frame. Where fire doors are shown in pairs swinging in the same or opposite directions they shall bear a ULC label of a category that does not require astragals.

13. Temperature Rise Limit

13.1. In addition to fire protection rating, certain doors require a maximum temperature rise limit, and are indicated on the Door Schedule by the designation "TRR".

13.2. Provide combination temperature rise and fire protection rating label, attach to the door at the same location specified for fire rated doors.

PART 3 | EXECUTION

14. Installation

14.1. Installation of the work of this Section is specified in other Sections.

****END OF SECTION****

SECTION 08 71 00
FINISH DOOR HARDWARE

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. Division One, General Requirements is part of this Section and shall apply as if repeated here.

1.2. Throughout the specification, type of materials are specified by manufacturer's name and catalogue number in order to establish standards of quality and performance and not for the purpose of limiting competition. Unless specifically stated otherwise such as locks/locksets, the bidder may use the alternate products specified, except that the burden is upon the bidder to prove such quality. Supply samples if required, to permit a fair evaluation of the proposed substitute with respect to quality, serviceability, warranty and cost.

2. Work Included in This Section

2.1. Supply to the site, all finish hardware specified complete with templates and installation instructions, together with all required screws, expansion shields, anchors and other related accessories for satisfactorily attaching or installing all finish hardware.

2.2. Package hardware separately for each opening and state clearly on each package the number and description of the opening for which the hardware is intended.

3. Hardware Consultant

3.1. Furnish the services of a fully experienced Architectural Hardware Consultant (A.H.C.) to be in available as required to co-ordinate and check shop drawings and provide consultation services and technical support when required and on-site inspections

3.2. All hardware shall be inspected after installation by the Manufacturer's representative who shall certify in writing to the Owner, that all hardware has been supplied and installed in accordance with the specifications and Hardware List, and are functioning properly.

3.3. At project completion instruct the Owner's Representative on all aspects of maintenance and adjustments of all Finish Hardware.

3.4. Following award of contract, arrange to meet with Owner and Consultant to finalize the keying schedule.

4. Co-ordination of Related Work

4.1. Co-ordinate the hardware with other allied trades such as carpentry, millwork, aluminum door and screens, wood doors, hollow metal doors and frames, electrical and others.

4.2. Power for door hardware including all raceways and boxes to wall switches and wiring to

4.3. alarm system is to be supplied by Electrical Engineering specifications.

4.4. All other electrical work shall be provided at each opening by the electrical contractor as required.

4.5. The work of other trades to required to be performed to ensure proper installation and function of the automatic door operators shall be as follows:

4.5.1. Wiring and conduit between control devices and operator. Wiring, conduit and electrical equipment required to interface with door operators/controls and any other electrical

control/monitoring systems supplied and installed by others.

4.5.2. Preparation of wall and frame to provide adequate support for operator header.

4.5.3. 120 Volt electrical service.

5. Handling and Storage

5.1. Handle and store materials on job site in such a manner that no damage will be done to the materials.

5.2. Deliver and store materials undamaged in a dry area.

5.3. Wrap all hardware in separate packages complete with all trimming and screws required for each item, distinctly labelled and numbered for each opening to correspond with the final reviewed Finish Hardware Schedule.

6. Hardware Reinforcement

6.1. Provision of hardware reinforcing required to provide a firm support for hardware is under other sections of these specifications, however, it shall be the responsibility of this section to check that all doors, frames and panels are reinforced in a satisfactory manner to provide a firm support. Report any doors, frames or panels that have not been adequately reinforced.

7. Fire and Building Codes

7.1. All hardware shall comply with applicable fire and building codes and requirements of local authority having jurisdiction over hardware. All electrical items must have CSA approval.

7.2. For all doors indicated on Door Schedule as requiring a fire-resistance rating, hardware shall have been tested and listed by ULC as meeting requirements for use on labelled fire doors, and shall bear labels or markings attesting to such listing.

8. Barrier Free Requirements

8.1. The building is designed to meet the needs of barrier free access. All hardware shall be supplied and installed in accordance with the Ontario Building Code and CAN/CSA-B61-M90.

9. Submittals

9.1. Shop Drawings:

9.1.1. It shall be the responsibility of the hardware supplier to examine the plans and schedules to satisfy itself that all hardware listed can be used as specified.

9.1.2. Prepare and submit to the Consultant for review, one (1) electronic copy of hardware schedule showing all hardware required for each opening.

9.1.3. Fully detail schedule as to actual factory catalogue numbers, quantities, hardware locations, etc. Include catalogue cut sheets of each item of hardware.

9.1.4. Arrange schedule in the same format and numerical sequence as that in the accompanying schedule.

9.1.5. All pages of the schedule shall be printed on 8-1/2" x 11" sized paper.

9.1.6. Within seven (7) days after receiving reviewed hardware schedule, supply two (2) Hard copies of the schedule to the General Contractor and Consultant. Bind in a hard cover

with provision for insertion of additional pages for purposes of preparing an asbuilt. Provide one (1) electronic version of the as built hardware schedule.

9.2. Samples:

9.2.1. Submit samples of the complete line of hardware and finishes to the Consultant in accordance with the requirements of specification Section 01300, Submittals, if and when requested, to accompany any proposal for substitution. Fully label each sample as to manufacturer, type, size, and location for which its use is proposed.

9.2.2. Remove samples from the Consultant's office promptly upon request of Consultant.

9.2.3. Substitute new samples for any samples that are not considered by the Consultant to be equal to the hardware scheduled. Final approved samples will be retained by the Consultant until the project is completed.

9.2.4. Do not order hardware from the manufacturers until the samples have been approved by the Consultant, and the hardware and finishes supplied are identical with the approved samples.

9.3. For Maintenance Use: Submit the following to the Consultant:

9.3.1. One (1) set wrenches for locksets, exit devices and door closers.

9.3.2. Two (2) sets of manufacturer's installation instructions for locksets.

9.3.3. Two (2) sets of manufacturer's instructions in regard to proper care of hardware including lubrication of locksets, exit devices and door closers.

9.3.4. One (1) complete set of template schedules.

9.3.5. Catalogue cuts of all hardware installed.

10. Changes

10.1. Check all changes to the work of this section, that may be issued and revise the reviewed hardware schedule accordingly. Submit all revisions to the hardware schedule to the Consultant for review.

11. Warranty

11.1. Submit a warranty in accordance with the requirements of specification Section 01300, Submittals, covering the repair or replacement of defective work within specified periods.

11.2. Provide total warranty of five (5) years for door closers and one (1) year for all other hardware.

11.3. State in the warranty that any defective (material and operation) item of hardware shall be replaced immediately upon notification that item is defective at no expense to Owner.

12. Hardware Location of Doors

12.1. Standard hardware location dimensions shall be in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturer’s Association unless indicated or scheduled otherwise.

13. Typical Hardware Headings / General Descriptions

13.1. Door and frame preparation, installation and adjustment of all hardware, including automatic door operators and security hardware shall be included in the base contract.

Coordinate with hollow metal door frame and aluminum manufacturers.

13.2. The following is a list of the “typical hardware” that can generally be expected to be utilized for this project. Where the general hardware types contemplated below don't indicate the specific type of door, contractors shall extrapolate from the list provided for the assumed hardware.

13.3. This project will include, but is not limited to, the following hardware items:

13.3.1. Hinges: for the majority of the project, standard concealed bearing butt hinges will be used, however, allow for the installation of stainless steel or aluminum continuous hinges in selected areas such as corridor doors. All doors equipped with power operators will have continuous hinges, as well as power transfers for electric hardware.

13.3.2. Locksets: all locksets will be heavy-duty lever type, cylindrical locks. All locks will be equipped with removable core cylinders, construction keyed, with permanent cores being installed prior to occupancy.

13.3.3. Exit devices: all exit devices on single doors will be heavy-duty stainless steel push pad type devices, with either lever trim or pull handle trim. Pairs of doors will be equipped with surface mounted vertical rod devices, less bottom rod with mid mounted mortise locks in each leaf on fire rated applications, also with lever or cylinder trim. Devices on power operated doors will be equipped with electrical latch retraction and other electrical options. The hardware installation or door manufacturing sections may have to prepare the door, but the electrical sections will be required to make the electrical connections.

13.3.4. Closers: all closers on aluminum, hollow metal or wood doors will be surface mounted. Provide for the installation of through bolt mounting on fire rated wood doors, if any, and selected high traffic doors. The hardware installation section will be required to adjust the closers after the air handling system has been balanced. Selected doors will require the closer plates to be cut to allow for concealed overhead stops.

13.3.5. Overhead stops (concealed): will be required on selected hollow metal and/or wood doors where the door does not swing against a wall. Interior doors may use surface or concealed overhead stops. Allow for the preparation and installation of either type depending on door conditions.

13.3.6. Kickplates, push plates, etc. : may be required to be fastened to the door with screws. Door pulls with through bolts must be countersunk whether in wood or metal doors, with the pushplate covering the bolts. DO NOT drill the through bolts through the push plates.

13.3.7. Wall stops: will be typical cast type with lead or plastic anchors

13.3.8. Thresholds, seals, sweeps and auto door bottoms: will be required to be cut to fit openings. Screws will be supplied, but the installer shall allow for anchors to suit conditions, as required.

13.3.9. Automatic power door operators: where required, shall be supplied and installed by the hardware provider, but related trades should allow for work overlap in their sections, such as the supply and installation on conduit, wire (120 Volt AC and low voltage) and junction boxes and connections to the security system, if applicable.

13.3.10. Electrical hardware: preparations and coordination will be required between related

trades. As an example, doors and frames should be equipped with hardware preparations and cutouts as per templates. The hardware installer trade usually will install and manually adjust the hardware. The electrical trades will then remove, make electrical connections and re-install the device and commission the devices. In some instances, the carpentry and electrical trades shall coordinate their installation to coincide. The hardware installer will be responsible for installing battery operated push button access locks.

13.3.11. All office doors to have standard butt hinges, cylindrical lever type locksets sets, concealed overhead stops, two (2) kickplates, door edges and door channels, and sound seals.

13.3.12. Exit stair doors to have hinges, exit devices, electromagnetic locking devices, surface closers, kickplates, floor or wall stops, perimeter seals, door sweeps and kickplates.

13.3.13. Utility/storage rooms to have hinges, locksets, surface closers, overhead stops (concealed or surface) where required, kickplates, door edges and door channels.

13.3.14. Corridor doors to have continuous hinges, concealed vertical rod exit devices with center mortise lock option to avoid bottom rods, surface closers, kickplates, floor or wall stops, perimeter seals, door sweeps or automatic door bottoms, kickplates and astragals on pairs

13.3.15. Refer also to Door Schedule and hardware schedule for extent of automatic operators, security hardware, electromagnetic locking devices, card readers, etc.

13.3.16. Provide security hardware for exterior fencing – coordinate appropriate welded mounting required to be attached to fencing and gates to receive hardware.

PART 2 | PRODUCTS

14. Hardware

14.1. All hardware shall be supplied by manufacturers approved within the hardware heading specifications.

14.2. Hardware manufactured by following firms shall be acceptable, subject to approval by Consultant of samples and list of items proposed. Alternates to be approved by Consultant:

14.2.1. Hinges:

.1 Stanley Hardware

.2 Hager Hinge Canada Ltd.

.3 Mont-Hard (Canada) Inc.

.4 Dorex

14.2.2. Locks / Latches:

.1 Sargent of Canada Ltd.

.2 Yale-Corbin Canada Ltd.

.3 Schlage Locks-Ingersoll-Rand Door Hardware

.4 Ilco Unican Inc. Dominion Lock Division

.5 Best Universal Locks Ltd.

.6 Arrow Lock Canada Ltd.

14.2.3. Exit Devices:

.1 Sargent of Canada Ltd.

.2 Yale-Corbin Canada Ltd.

.3 Von Duprin -Ingersoll-Rand Door Hardware

.4 Magnokrom Inc.

.5 Arrow Lock Canada Ltd.

.6 American Device Mfg. Co. (Dorma Door Controls)

14.2.4. Door Closers:

.1 Sargent of Canada Ltd.

.2 LCN Closers-Ingersoll-Rand Door Hardware

.3 Yale-Corbin Canada Limited

.4 Yale-Rixson Firemark (Can) Ltd. (floor type only)

.5 Norton Closers-Yale-Corbin Canada Ltd.

.6 Dorma Door Controls Ltd.

.7 Hager

14.2.5. Door Holders:

.1 Sargent of Canada Ltd.

.2 Yale-Rixson Firemark (Can) Ltd.

.3 Magnokrom Inc.

.4 LCN / Ingersoll-Rand Door Hardware

.5 K.M. Thomas Co. Ltd.

14.2.6. Overhead Stops:

.1 Sargent of Canada Ltd.

.2 LCN / Ingersoll-Rand Door Hardware

.3 Yale-Corbin Canada Limited

14.2.7. Removable Mullions:

.1 Sargent of Canada Ltd.

.2 Von Duprin -Ingersoll-Rand Door Hardware

.3 Yale-Corbin Canada Limited

14.2.8. Door Stops:

.1 Canadian Builders Hardware Manufacturers Ltd.

.2 LCN / Ingersoll-Rand Door Hardware

.3 Hager Architectural Hardware

.4 General Hardware

.5 Standard Metal Hardware Mfg. Ltd.

.6 Ives of Canada Ltd.

14.2.9. Pushplates:

.1 Canadian Builders Hardware Manufacturers Ltd.

14.2.10. Door Pulls:

.1 Hager Architectural Hardware

.2 Gallery Specialties

.3 Standard Metal Hardware Mfg. Ltd.

.4 Ives of Canada Ltd.

14.2.11. Kickplates:

.1 Canadian Builders Hardware Manufacturers Ltd.

.2 Gallery Specialties

.3 Hager Architectural Hardware

.4 General Hardware

.5 Standard Metal Hardware Mfg. Ltd.

.6 Ives of Canada Ltd.

14.2.12. Thresholds:

.1 K.N. Crowder Mfg.

14.2.13. Weatherstripping:

.1 Hager Architectural Hardware

14.2.14. Miscellaneous:

.1 Canadian Builders Hardware Manufacturers Ltd.

.2 Hager Architectural Hardware

.3 Gallery Specialty Hardware Ltd.

.4 Dominion Brass Products Ltd.

.5 Standard Metal Hardware Mfg. Ltd.

15. Keying System and Interchangeable Core Type Cylinder

15.1. Develop new keying system for the building in consultation with Owner and Consultant. Keying system shall include keying alike, keying differently, keying in groups, sub-master

keying and grand-master keying locks as required. Factory register all locks to a new system.

15.2. Provide all locksets, dead bolts and exit devices with cylinders to be keyed alike and used as construction cylinders during construction.

15.3. Prepare and submit keying chart and related explanatory data to Consultant for approval. Do not commence lock work until written confirmation of keying arrangements is received from Consultant.

15.4. Supply three (3) keys per lockset. Stamp each key DO NOT DUPLICATE on one side and on the other with a key symbol consisting of not more than four letters or numbers.

15.5. Supply for temporary construction use, Construction Master Keyed (CMK) cylinders, keyed alike as required. When no longer required, replace CMK's with permanent cylinder(s). Check operation of lock and keys.

15.6. Supply keys, including a grand master and master keys, packed in separate envelopes for each group (key symbol) marked with the architectural door number(s) operated by the keys.

15.7. Deliver all permanent keys to the Consultant and obtain a signature for same.

15.8. Mortise and rim cylinders shall be interchangeable core type; all locks.

15.9. All Cabinet locks shall be Master Keyed under one or more Master Key Systems.

15.10. All keys STD Bow wherever possible shall be Large Bow GM-Large Bow.

15.11. Supply following keys:

15.11.1. 4 - Master keys, stamped - DO NOT DUPLICATE

15.11.2. 4 -Keys for each lock

15.11.3. 1 - Key cabinet

16. Supplementary Material Requirements:

16.1. The following supplements the Finish Hardware Schedule. Where conflict occurs, the Finish Hardware Schedule shall govern:

16.1.1. Locks and Latches:

.1 Supply strikes in stainless steel C32D.

.2 Where lever handles are specified, locks and latches shall be specially designed for lever handles. Lever trim shall be through-bolted.

.3 Latch bolts to be anti-friction three piece bolts.

16.1.2. Exit Devices: exit devices shall be approved labelled device for fire rated and exit doors.

16.1.3. Closers:

.1 All door closers shall be hydraulically controlled and full rack and pinion in operation.

.2 Each closer shall have adjustable general speed, latch speed and back check control.

.3 Supply special closer keys and wrenches as usually packed with closers.

.4 Supply all necessary attaching brackets, mounting channels, cover plates, etc. where necessary for correct application of door closers.

16.1.4. Thresholds:

.1 Supply thresholds in required widths and lengths to suit door openings.

.2 Cut ends of thresholds to follow exactly the door frame profile.

16.1.5. Pulls, Pushplates, Kickplates:

.1 Door pulls shall have concealed mounting.

.2 Length of kickplates shall be 1-1/2” (38 mm) less than door width for single door and 1” (25 mm) less than door width for door in pairs.

.3 All stainless steel plates are to be 1/16” (1.6 mm) thick and of one manufacturer's product, free from burrs and sharp edges. Use Type 304 stainless steel only.

.4 Provide pushplates and kickplates with temporary strippable plastic coating.

16.1.6. Seals, Thresholds:

.1 All seals (sound, light, weather) to be black sponge neoprene with aluminum extrusions of the same gauge, dimensions, quality and finish of those specified. Hollow metal exterior doors where parallel arm closers are used to have seal / stop type where brackets can be mounted on extrusions.

.2 Supply thresholds complete with countersunk holes, and with screws and anchors as required for proper anchorage sills to receive flush finish of adjacent floor finish.

.3 Modify sills to receive flush finish of adjacent floor finish.

17. Templates

17.1. All hardware applied to metal doors and frames shall be made to template.

17.2. Check Hardware Schedule, Drawings and Specifications, and furnish promptly to applicable trades any templates, template information and manufacturer's literature, required for proper preparation for and application of hardware, in ample time to facilitate progress of work.

17.3. Templates shall consist of hardcopies of manufacturer’s template literature or, alternatively, electronic links to manufacturer’s website.

18. Fasteners

18.1. Provide screws, bolts, expansion shields, and other fastening devices as required for the satisfactory installation and operation of the hardware. Provide Robertson or Phillips heads.

18.2. Fastening devices shall be of the same finish as the hardware which is to be fastened.

18.3. Where a pull is scheduled on one side of the door and a push plate on the other side, issue installation directions to the trade responsible for fixing, so that the pull is secured through the door from the reverse side, and the push plate installed to cover the screws.

18.4. Supply flush pulls with machine screws for attaching as specified above.

18.5. For fastenings in concrete for floor stops and thresholds, use machine screws in expansion shields.

18.6. For door closers for doors in wet areas, mount on non wet side with stainless steel or brass screws (nickel plated) to prevent corrosion.

PART 3 | EXECUTION

19. Examination

19.1. Before furnishing any hardware, carefully check all Architectural Drawings of work requiring hardware, verify door swings, door and frame material and operating conditions, and assure that hardware will fit work to which it is to be attached.

19.2. Check shop drawings and frame and door lists affecting hardware type and installation, and certify to correctness thereof, or advise Consultant in writing of required revisions.

****END OF SECTION****

SECTION 09 20 00
GYPSUM BOARD

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1.	Rough Carpentry	Section 06 10 00
1.2.	Hollow Metal Doors and Frames	Section 08 11 13
1.3.	Acoustic Ceilings	Section 09 51 00
1.4.	Painting	Section09 90 00

2. References

2.1. ASTM International:

2.2. ASTM C1396 Standard Specification for Gypsum Board

2.3. ASTM C840 Standard Specification for Application and Finishing of Gypsum board

2.4. ASTM C1629 Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fibre-Reinforced Cement

2.5. CAN/ULC-S101 Standard Methods of Fire Endurance Tests of Building Construction and Materials

2.6. The Gypsum Construction Handbook - CGC Inc.

3. Delivery And Storage

3.1. Handle and store materials carefully to prevent damage. Materials must be delivered to site in their original, unopened packages.

3.2. Obtain approval of proposed locations for stockpiling material. Materials must be stored in an enclosed shelter providing protection from exposure to the elements. Provide any necessary temporary covers, skids and the like.

3.3. Store all panels flat.

3.4. Do not install damaged or deteriorated material but remove from Site.

3.5. Materials as delivered shall bear manufacturer's name, brand name of material and where applicable, ULC designation.

4. Environmental Conditions

4.1. Do not apply gypsum board or joint filler to surfaces that are damp or contain frost.

4.2. During gypsum panel application and joint finishing, temperatures within work areas shall be within the range 12^{o}C. to 25^{o}C.

4.3. Provide adequate ventilation to carry off excess moisture

5. Relations With Other Trades

5.1. Co-ordinate with mechanical and electrical Trades to ensure that all services are installed prior to application of wall board.

5.2. Coordinate with mechanical and electrical trades for locations of access panels. Install access doors and panels supplied by those trades.

5.3. Co-ordinate with forces installing insulation and vapour barrier in exterior soffits.

PART 2 | PRODUCTS

6. Materials

6.1. All materials to conform to ASTM C1396 unless specified otherwise. Except where noted otherwise, products listed herein are produced by Canadian Gypsum Company (CGC). Equivalent products from Georgia Pacific (GP) and Certainteed will be accepted, subject to acceptance of equivalency by the Consultant.

6.2. Gypsum panels

6.2.1. Typical panels to be 16mm thick abuse resistant, water resistant and mould resistant, to ASTM C1629.

6.2.2. Acceptable 16mm thick gypsum panels:

.1 Sheetrock Mold Tough Abuse Resistant Firecode Core gypsum panels or

.2 GP ToughRock Fireguard X Mold-Guard Abuse Resistant gypsum board.

6.2.3. Panels in gypsum board ceilings at high ceilings may be 13mm thick mould resistant panels;

6.2.4. Acceptable 13mm thick gypsum panels:

.1 CGC Sheetrock Mold Tough or

.2 GP ToughRock Mold-Guard.

6.3. Fire-rated Gypsum panels:

6.3.1. To ASTM C1629.

6.3.2. Minimum thickness for fire-rated panels is 16mm.

6.3.3. Abuse resistant, water resistant, mould resistant, Type X-Fire-rated.

6.3.4. Acceptable 16mm fire-rated panels:

.1 CGC Sheetrock Mold Tough Abuse Resistant Firecode Core gypsum panels

.2 GP ToughRock Fireguard X Mold-Guard Abuse-Resistant gypsum board.

6.4. Fibreglass Mat panels:

6.4.1. Where interior panels are to be installed before the building is fully enclosed, all rated and non-rated panels shall be fibreglass mat faced panels. Panels must be warranted by the manufacturer for extended exposure to the elements.

6.4.2. GP DensArmor Plus Abuse Resistant panel.

6.5. High Impact Panels:

6.5.1. To ASTM C1629. Impact resistant, mould resistant wallboard

6.5.2. CGC “Sheetrock Mold Tough VHI Firecode Core” gypsum board, or GP DensArmor Plus Impact-Resistant interior panels.

6.5.3. Minimum thickness to be 16mm.

6.5.4. All framed partition walls within 3m of a floor area shall be constructed using high impact wallboard.

6.6. Shaft Liner Panels:

6.6.1. To ASTM-C442, fire resistant gypsum panel, square cut ends and edges, 600mm wide by practical length.

6.6.2. To ULC tested assembly.

6.7. Acceptable panels:

.1 CGC shaftwall Liner Panels; 25mm thickness minimum.

.2 CertainTeed Gypsum Canada Inc.: Pro ROC shaftliner 25mm thick.

.3 G-P Gypsum Corporation: GyProc Fireguard Shaft Liner Panels, 25mm thick.

6.8. Cement board: 16mm thick; "Durock" Next Generation cement board, by CGC

6.9. Exterior Gypsum Board Sheathing at Soffits: 16 mm thick, Type X, CGC “Securock” glass-mat exterior sheathing, DensGlass by Georgia Pacific, or GlasRoc Sheathing by CertainTeed Gypsum Canada Inc.

6.10. Sheathing at base of gypsum board stud partitions: Georgia Pacific, DensGlass Gold Fibreglass Fireguard Sheathing in 16mm thickness.

6.11. Metal Studs and Channels: minimum 0.455mm (26 ga) galvanized steel as manufactured by Bailey Metal Products or approved alternate; to ASTM C645.

6.12. Metal Furring Channels: minimum 0.455 (26ga) sheet galvanized steel channel and accessories as manufactured by Bailey Metal Products, or approved alternate; to ASTM C645.

6.13. Cold Rolled Furring Channel: 20mm, x 12.7mm zinc coated channel weighing minimum 0.446 kg per m.

6.14. Cold Rolled Carrying Channel: 38mm x 15mm zinc coated channel weighing min 0.707 kg per m.

6.15. Cold Rolled Carrying Channel: 28 ga. galvanized steel with perforated flanges; one piece per location.

6.16. Control Joint: CGC No. 093.

6.17. Hanger wire: minimum 3.77mm (9ga) galvanized steel wire.

6.18. Tie Wire: minimum 1.5mm (16 ga) galvanized soft annealed steel.

6.19. Screws: CGC Brand Screws (or approved equal) of type recommended by the board manufacturer.

6.20. Thermal Break: Permanent adhesive faced rubberized cork, 3 mm thick by width of stud on channel to be used between masonry in exterior wall and metal furring channels.

6.21. Joint Treatment Material:

6.21.1. Joint compound, topping compound, laminating compound; to ASTM C474 and C475.

6.21.2. Use material recommended by board and tape manufacturer for the proposed use.

6.21.3. CGC Sheetrock or Durabond Setting-Type, for use with CGC fibreglass drywall tape.

6.22. Reinforcing Tape:

6.22.1. Paper or fibreglass mesh tape, as recommended by the panel manufacturer for the panel type.

6.23. Finish materials

6.23.1. Over surface of glass mat faced boards, use level 5 finisher such as CGC Tuff Hide.

6.24. Acoustic sealant: Quietseal Pro as manufactured by Quietrock, or equivaltent as manufactured by CGC, Tremco or Presstite Division of Interchemical Corporation for acoustic partitions.

6.25. Acoustic Insulation: AFB acoustic fire batt by Roxul or Thermafiber SAFB Sound Attenuation Fire Blankets (unfaced) from Owens Corning, to thickness shown on drawings, and as required to obtain required S.T.C. rating.

6.26. Ceiling Anchors: Self drilling tie wire anchors, Phillips "Red Head" T-32 or approved equal.

6.27. Drywall Reveals: Fry Reglet, reveal mouldings and “F” reveal mouldings, 13mm wide, with baked on finish, as follows:

6.27.1. DRM-625-50 and DRM-50-50

6.27.2. DRMF-625-50 and DRMF-50-50

6.27.3. Aluminum alloy 6063 T5 with chemical conversion coating.

6.27.4. Colour to be selected by the Consultant.

6.28. Access Panels: Refer to mechanical and electrical drawings and specifications for type and quantity of access panels required in partitions and ceilings.

6.29. Stainless Steel Corner Guards (CG):

6.29.1. Gauge: Minimum16 gauge stainless steel wall guards in satin finish.

6.29.2. Size: Flange width of 50mm.

6.29.3. Height: 1220mm in height.

6.29.4. Type and Finish: Type 304 alloy with #4 satin finish.

6.29.5. Mounting: Adhered to wall with no exposed fasteners.

6.29.6. Acceptable product: Construction Specialties or equivalent product.

6.29.7. Location: Supply and install corner guards at gypsum board finished partitions at all exposed corners.

6.30. Pre-finished Metal Column Trim Ring at round columns; acceptable ring trim products by Armstrong or CGC.

PART 3 - EXECUTION

7. General

7.1. Provide plumb, straight, level, rigid, and secure installation. Failing to achieve this result shall be cause for rejection and reinstallation of this work.

7.2. Conform to The Gypsum Construction Handbook, ASTM C840, and these specifications. The most stringent requirements shall apply.

7.3. Where walls run parallel and under steel joists, the joists shall be enclosed both sides with gypsum board to provide sound barrier between rooms. Fill with minimum 100 mm acoustic batt insulation.

7.4. Install access panels supplied by mechanical and electrical contractors. Rigidly secure panel frames to furring or framing systems.

8. Ceiling Suspension

8.1. Do not regard grillage system indicated on drawings as exact or complete. The Specification for metal framing contained in CGC Gypsum Construction Handbook and ASTM C840 shall govern installation conditions not covered by this Specification. The more stringent specifications shall apply.

8.2. Hangers

8.2.1. Install hangers for suspended wallboard ceilings to support the grillage independent of walls, columns, pipes, ducts and the like. Erect plumb and securely anchor to the structure. Submit details of proposed method to the Consultant for approval. If so requested, test hangers to prove that anchorage is adequate to support the proposed loading. Erect hangers plumb and securely anchor to structural steel or support channels fastened to structural steel (DO NOT FASTEN TO STEEL DECK).

8.2.2. Space hangers at 1200mm maximum o.c. along the carrying channels and not more than 150mm from ends (or as required to conform with fire tested assemblies where applicable.

8.3. Carrying Channels

8.3.1. Space channels at 1200mm maximum o.c. (or as required to conform with fire tested assemblies where applicable).

8.3.2. Run channels transversely to structural framing members.

8.3.3. Where splices are necessary, lap members at least 200mm and wire each end with two laps; avoid clustering or lining up splices.

8.3.4. Attach to hangers by bending hanger under runner and securely wire in place with a saddle tie.

8.3.5. Provide 25mm clearance between channels and abutting walls and partitions.

8.4. Cross Furring

8.4.1. Install drywall screw channels transversely across runner channels, joists or other supports.

8.4.2. Space drywall screw channels at 600mm o.c. and not more than 150mm from perimeter walls. Provide 25mm clearance between channels and abutting walls and partitions. Use closer spacing if so noted on drawings.

8.4.3. Secure drywall screw channels to each support with approved clip or attachment; splice joints by messing minimum 200mm and tying channels together with double strand 16 gauge tie wire.

8.4.4. Level drywall screw channels to a maximum tolerance of 4mm over 3600mm.

8.4.5. Drywall shall not be fixed directly to open web steel joists and the like. Provide cross furring as specified.

8.5. Opening

8.5.1. Frame openings with suitable channels; check clearances with respective Trades. Provide support for edges of boards at all cut-outs and openings in ceilings.

8.5.2. Provide all additional hangers and supports for fixtures as required.

8.5.3. Provide additional hangers and framing for enclosure of radiant heating panels.

8.6. Bulkheads

8.6.1. Furr out bulkheads in areas indicated and as required to conceal mechanical, electrical or other services in rooms where drywall finishes are scheduled, and elsewhere if called for on drawings.

8.6.2. Use methods and materials as previously specified in this section. Drywall panels at bulkheads shall be as specified for walls.

9. Steel Stud System (Partition) Installation

9.1. Conform to the guidelines for metal framing contained in The Gypsum Construction Handbook, CSA A.82.31, and these specifications. The most stringent requirements shall apply.

9.2. Attach metal runners at floor and ceiling to structural elements with suitable fasteners located 50mm from each end and spaced 600 mm. o.c. with toggle or molly bolts spaced 400mm o.c.

9.3. Position studs vertically, engaging floor and ceiling runners, and spaced 400mm o.c., unless otherwise noted on drawings. When necessary, splice studs with 200mm nested lap and one positive attachment per stud flange. Place studs in direct contact with door frame jambs, abutting partitions, partition corners and existing construction elements.

9.4. Where studs are installed directly against exterior walls install rubberized cork stip between studs and wall surfaces to provide thermal break.

9.5. Anchor studs for shelf-walls and those adjacent to door and window frames, partition intersections and corners to ceiling and floor runner flanges with an approved crimping tool. Securely anchor studs to jamb and head anchor clips of door or borrowed-light frames by bolt or screw attachment. Over metal door and borrowed-light frames, place horizontally a cut-to-length section of runner, with a web-flange bent at each end, and secure with one positive attachment per flange. Position a cut-to-length stud (extending to ceiling runner) at vertical panel joints over door frame header.

9.6. Stiffen partitions exceeding 3m long or 2.7m high with 19mm. cold rolled channels. Fix horizontally and provide the number of rows necessary to ensure a rigid installation.

9.7. Provide other partition reinforcing necessary to support wall hung components, cupboards, closets and the like. Use 2 studs at jambs of openings and corners.

9.8. Where horizontal runs of service lines are to be installed within the partition, erect studs with web openings aligned.

9.9. Provide reinforcing and necessary stiffeners to support hollow metal frames and screens. Reinforcing to be capable of supporting screens rigidly and solid without deflection.

10. Chase Wall Installation

10.1. Align two parallel rows of floor and ceiling runners spaced apart as indicated. Attach to concrete slabs with concrete stub nails or power driven anchors 600 mm o.c. Attach to suspended ceilings with toggle or molly bolts 400mm o.c. Attach to wood framing with suitable fasteners 600mm o.c.

10.2. Align metal studs vertically in runners, 200mm o.c. with flanges in the same direction and with studs on opposite sides of chase directly across from each other. Anchor studs to floor and ceiling runner flanges with an approved metal crimping tool.

10.3. Cut cross bracing to be placed between rows of studs from gypsum panels, 400mm high by chase wall width. Space braces at quarter points not to exceed 600mm o.c. vertically and attach to stud webs with six 25mm screws 200mm o.c. maximum on each side.

10.4. Bracing with 64mm metal studs may be used in place of gypsum panels. Anchor web at each end of metal brace to stud web with two 10mm pan head screws. When chase wall studs are not opposite, install metal stud cross braces 400mm o.c. horizontally and securely anchor each end to a continuous horizontal 64mm runner screw-attached to chase wall studs with the cavity.

10.5. Adapt cross bracing as necessary to avoid interference with service.

11. Wall Furring Installation

11.1. Direct Furring Channel Attachment - Attach metal furring channels, vertically or horizontally spaced 400mm o.c. to masonry or concrete surfaces with hammer-set ro power-driven fasteners or concrete stub nails staggered 600mm o.c. on opposite flanges. Nest channels 200mm at splices and anchor with two fasteners in each wing. Where furring channel is installed directly to exterior wall, install thermal break strip between furring channel and wall. For horizontally placed channels attach maximum 100mm from floor and ceiling.

11.2. Bracketed Furring Channel Attachment

11.2.1. Attach adjustable wall furring brackets with serrated edges up, 900mm o.c. horizontally, 1200mm o.c. vertically, within 100mm of columns or other abutting construction, within 150mm of floor and ceiling, and as required above and below openings. Use 50mm cut nails in mortar joints of brick or clay tile or concrete block, or in field of lightweight aggregate blocks; use 16mm concrete stub nails or power driven nails or other suitable fasteners in monolithic concrete. Place fastener in top hole of bracket.

11.2.2. Lay cold-rolled channels horizontally with flanges down, on furring brackets, plumb with other channels, and tie with double strand 16 ga. or triple strand 18 ga. wire at each junction with cold rolled channel.

11.2.3. Free Standing Furring - In locations where wall furring is indicated as self-supporting, use steel studs and furring channels installed to provide a rigid frame to receive wall board.

12. Application Of Gypsum Board

12.1. Do not apply gypsum board until bucks, anchors, blocking, electrical and mechanical work are approved.

12.2. Apply all gypsum board parallel to framing. Position all ends over studs. Use maximum practical lengths to minimize end joints. Fit ends and edges closely, but not forced together.

12.3. Stagger joints on opposite sides of partition.

12.4. Apply single, double or triple layers of gypsum board to metal furring as indicated using screw fasteners.

12.5. Maximum screw spacing for single-ply gypsum board and face ply of 2-ply gypsum board to be 300mm o.c.

12.6. Maximum spacing of screws for base-ply of 2-ply gypsum board over steel framing to be 300mm o.c. along edges of the gypsum board and 600mm o.c. into stud or furring channel in the field of the gypsum board.

12.7. Use cement board as backer board wherever tile is to be installed to walls of shower partitions.

13. Adhesive Application

13.1. Where gypsum board is called to be laminated to masonry walls, application shall conform to Gypsum Association Publication GA-216-2013, Section 11, “Adhesive Application of Gypsum Panel Products to Interior Masonry, Concrete, or Brick Walls”.

13.2. Do taping and filling, as specified below, for paint finish.

14. Construction Of Sound Attenuated Partitions

14.1. Where sound insulated drywall partitions are indicated on the drawings, provide double stud wall, offsetting studs and wrapping acoustic insulation between studs. Apply one layer of specified soundproof wallboard, on both faces of wall.

14.2. Install sound attenuation batts to completely fill void between studs.

14.3. A 6mm continuous bead of acoustical sealant around perimeter of wall at web of top and bottom tracks and end studs. Lay gypsum board into position forcing caulking bead to fill space between gypsum board and structure.

14.4. Seal full perimeter for cut-outs around electrical boxes and ducts with acoustical sealant.

15. Construction Of Fire Rated Partitions

15.1. Where fire rated construction is required, the thickness and number of layers of board shall be governed by rating required and material used in approved assemblies.

15.2. Provide 1 hour rated beam enclosures, where required, to ULC design.

16. Construction Of Suspended And Furred Ceilings

16.1. Apply gypsum panels of maximum practical length with long dimension at right angles to drywall furring channels. Position end joints over furring channel web and staggered in adjacent rows.

16.2. Closely fit together, ends and edges but not forced together.

16.3. Fasten panels to drywall furring channels with screws spaced a maximum of 300mm o.c. in field of panels and along abutting ends and edges.

16.4. Provide control joints in ceilings as noted but maximum 7500 mm o.c. each way or at change

in direction.

16.5. Provide framing and drywall finish in stairwells, where required to enclose underside of stairs and landings.

16.6. Where noted on plans, provide bulkheads with steel framing and drywall finish.

17. Wall Furring

17.1. Apply gypsum panels parallel to framing. Position all edges over drywall furring channels with joints staggered in successive courses.

17.2. Use maximum practical lengths to minimize end joints. Fit ends and edges closely, but not forced together.

17.3. Fasten panels to channels with screws spaced a maximum 300mm oc.

18. Application Of Accessories

18.1. Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Joints shall be made tight, accurately aligned and rigidly secured.

18.2. Reinforce all vertical and horizontal exterior corners with cornerbead fastened with screws 200mm oc on both flanges along entire length of bead.

18.3. Where assembly terminates against masonry or other dissimilar material, apply ledge trim over panel edge and fasten with screws or staples spaced 300 mm. oc.

18.4. Power drive screws at least 9mm. from edges or ends of panel to provide uniform dimple 0.8mm deep.

18.5. Where recessed reglets are noted on drawings, built into drywall assembly to provide edges flush with drywall.

19. Taping And Filling

19.1. Finish in accordance with GA-214, as follows:

19.2. Exposed gypsum board to Level 5 finish, suitable for finish painting with semi- glass and gloss coatings. Use full skim coat of joint compound over entire surface to achieve smooth and uniform appearance.

19.3. Concealed gypsum board to minimum Level 1 finish. Where a fire-resistance rating is required, finishing level must conform to ULC rated assembly design.

19.4. Finish face panel joints and internal angles with joint system consisting of self-adhering cross-fibre fibreglass joint tape and joint compound installed according to manufacturer's directions and feathered out into panel faces. Note: If self-adhering joint tape is not used, taping compound will be required.

19.5. Be sure drywall surface is dry and clean.

19.6. Center and apply CGC Fiberglass Drywall Tape directly over joint, pressing firmly to ensure even adherence to surface. Eliminate wrinkles by pressing entire length of tape with drywall knife. Avoid overlapping tape at intersections. Cut tape with drywall knife.

19.7. Cover taped joint with a layer of setting-type joint compound, forcing compound through the tape with a drywall knife or trowel to completely fill and level the joint. Allow joint to dry, and

sand lightly. Apply second coat of setting-type or drying-type joint compound, feathering approximately 50mm beyond first coat. Let dry and sand lightly as required.

19.8. To finish inside corners, bend tape with to form a “U” shape. Apply tape along one side only. Press tape into corner for approximately 30mm, then apply the other side. Work downward, alternating sides in this manner until tape is pressed firmly in place. Apply setting-type joint compound as specified above, first on one side for the length of the corner and then repeating the process on the second side.

19.9. Finish fastener heads, corner bead and trim as required with two to three coats of joint compound, feathered out onto panel faces and sanded to a smooth surface.

19.10. Provide skim coat over entire face of boards to ensure smooth surface for painting.

19.11. Fill screw head depressions to bring flush with adjacent surface of gypsum board so as to be invisible after painting is completed.

19.12. Sand dried taping compound lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

19.13. Completed installation to be smooth, level or plumb, free from waves and other defects and ready for painting.

19.14. Painting shall be done in accordance with Section 09 90 00

****END OF SECTION****

SECTION 09 30 00
WALL AND FLOOR TILE

PART 1 | GENERAL

1. Scope

1.1. The work in this section includes, but is not limited to the following:

1.2. Supply and installation of interior wall, floor tile.

1.3. The preparation of the floor and walls to receive tiles.

1.4. The supply and installation of an anti-fracture membrane on cold joints and over existing control joints in the floor and slab cracks, where necessary.

1.5. Protective barricades and traffic control. Protection of new tile surfaces.

1.6. Work required to result in a first class installation for the Owner's intended use. No substitution of materials or installation methods will be accepted.

1.7. Refer to drawings for locations and extent.

2. References

2.1. ANSI A137.1: National Standard Specifications for Ceramic Tile.

2.2. ASTM C1178/C1178M, Standard Specification for Glass Mat Water Resistant Gypsum Backing Panel.

2.3. ASTM C920, Standard Specification for Elastomeric Joint Sealants.

2.4. CAN/CGSB 75.1 M88, Tile, Ceramic.

2.5. Terrazzo, Tile and Marble Association of Canada (TTMAC): Specification Guide 09 30 00, Tile Installation Manual.

2.6. TTMAC: Dimensional Stone Guide

2.7. TTMAC: Hard Surface Maintenance Guide

3. Samples

3.1. Contractor is to provide samples of each different tile color and finish type that is specified on the drawings and in Part 2 below before ordering.

4. Delivery, Storage, Handling and Protection

4.1. Delivery: Coordinate deliveries to comply with construction schedule and arrange ahead for off the ground, under cover storage location. Do not load any area beyond the design limits.

4.2. Storage: Carefully check, unloaded, stored and handled materials to prevent damage. Store material in original, undamaged containers or wrappings with manufacturer's seals and labels intact.

5. Protection

5.1. Restrict traffic by other trades during installation.

5.2. Provide adequate protection of completed tiled surfaces to prevent damage by other trades until final completion of this project. Minimum protection to consist of 4 mil polyethylene sheets lapped 4" and taped.

5.3. Heavily travelled areas to have additional 1/2" thick fibreboard sheet protection with taped joints

over polyethylene sheet protection as specified above.

5.4. Protect exposed edges of floor tile with 4" wide tapered strip of plywood of same thickness of tile, adhered to floor until adjoining floor finish is to be installed.

6. Warranty

6.1. Warrant the work of this section against defects in materials and workmanship in accordance with the General Conditions, but for a period of five (5) years, and agree to promptly 'make good' defects which become evident during the warranty period without cost to the Owner. Defects will include but not be limited to the following; cracking, crazing, discolouration, staining, pitting, splitting and deformation of tiles and grout.

PART 2 | PRODUCTS

7. Ceramic Wall Tile

7.1. I.FLR.01 'Light Grey' IP07 12x12 "Industrial Park" Series, by Daltile.

7.2. I.FLR.03 'Charcoal Grey' IP09 12x12 "Industrial Park" Series, by Daltile.

7.3. Or approved equal.

8. Accessories

8.1. Minor Levelling and Skim Coating:

8.1.1. Mapecem Quickpatch, by Mapei Canada Inc.

8.1.2. Flextile Patch by Flextile Ltd.

8.1.3. Feather Edge by TEC

8.2. Setting Beds:

8.2.1. Type 1 for Interior wall tile:

8.2.2. Ultraflex LFT RS, by Mapei Canada Inc.

8.2.3. Flextile 56 SR by Flextile Ltd.

8.2.4. Ultimate Large Tile Mortar & Fast Set Ultimate Large Tile Mortar by TEC.

8.3. Wall Grout:

8.3.1. Premixed Grout: Conforming to ANSI A118.3, A118.6 and A118.7, one-component, stain and chemical-resistant, colour consistent, premixed grout with colour-coated quartz technology. Colour is to be Flextile 500 Series "Bone" or other off white equivalent to be approved by architect.

8.3.2. MAPEI Flexcolor CQ by MAPEI Inc.

8.3.3. Flextile 500 Series by Flextile Ltd.

8.3.4. Power Grout by TEC

8.4. Mastic for Wall Application of Tile:

8.4.1. Ker 907, Ultra/Mastic 1, by Mapei Canada Inc.

8.4.2. TEC 122 Double Duty Ceramic Tile Adhesive for Walls and Floors.

8.5. Trims

8.5.1. Exposed Tile Edge Strips: Extruded clear satin anodized aluminum edge strips, 3mm wide at top edge; height as required to suit tile installation; with integral perforated anchoring leg for setting the strip into the setting material:

8.5.2. Acceptable Products: Schlüter Joly, or approved alternate.

8.6. Tile Cleaner

8.6.1. A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers and as follows:

8.6.2. Job Site Cleaner: Phosphoric acid/nitric acid based cleaning solution mixed in accordance with cleaner manufacturer's recommendations and as recommended by tile manufacturer.

8.6.3. Maintenance Cleaner: Nontoxic, electrolytic, biodegradable, non-ammonia containing, pH controlled cleaning solution mixed in accordance with manufacturer's recommendations.

PART 3 | EXECUTION

9. Examination

9.1. Maintain minimum temperature of 13 degrees C at tile installation area for 24 hours prior to curing and for 24 hours after installation. Do not apply work to frozen surfaces.

9.2. Examine areas and conditions affecting work of this section and report any discrepancies or defects which would affect finished results.

10. Surface Preparation

10.1. Make backing surfaces level and true to a tolerance in plane of 1/8" in 8' for walls and 1/8" in 10' for floors using Levelling Bed Mortar.

10.2. Surfaces will be structurally sound, well fastened, clean and free from dust, oil, grease, paint, tar, wax, curing agents, primers, sealers, form release agents or any deleterious substances that may act as bond barriers.

10.3. Vacuum off loose material where necessary.

10.4. Backing surfaces will be dry and fully cured. Dampness must not exceed 5% by volume.

10.5. Examine concrete substrate, repair as required to produce level, clean surface for new tile installation. Repair Work to include levelling, filling, grinding or cutting.

10.6. Work of other trades that is required before new tile installation (i.e. electrical conduit installed below ceramic tile) to be installed, complete and approved before tile installation.

11. Control Joints

11.1. Install control joints in accordance with TTMAC guidelines, detail 301MJ and the following;

11.2. Install at 16'-20 'on centres. Review position and layout with architect prior to installation.

11.3. Use prefabricated control joint trim for the length of each control joint as approved by the architect.

12. Installation

12.1. Installation of the tile to be by thin-set method, as indicated on the drawings and as specified;

12.1.1. Install wall tile to wallboard in strict accordance with tile manufacturers' written installation instructions as per the preinstallation conference.

.1 Install wall tile on gypsum board in accordance with TTMAC Detail 304W for dry areas and Detail 305W.B for wet areas.

12.2. Unless otherwise specified, execute tile work according to the latest issue of Specification Guide 09 30 00, Tile Installation Manual - published by Terrazzo, Tile and Marble Association of Canada 2016-2017, as the minimum standard except as varied by this Specification.

12.3. Thoroughly clean surfaces to which tile is to be applied.

12.4. Back butter floor tile.

12.5. Neatly cut tile around fitments, fixtures, access panels, and the like. Splitting of tile is expressly prohibited except where no alternative is possible. Form intersections, corners and returns accurately.

12.6. Finish surfaces flat and level or, sloped and graded as required.

12.7. Joint Widths: Install tile with the following joint widths, unless indicated on drawings:

12.7.1. Make joints consistent width and alignment within tile area.

12.7.2. Ceramic Mosaic Tile: 1/16" (1.5mm)

12.7.3. Wall Tile: 1/16" (1.5mm)

12.7.4. Large Format Tile: minimum 1/8" (3mm) to a maximum 1/4" (6mm)

12.7.5. Maintain 2/3 of grout joint depth free of setting material.

12.8. Joints in base to match floor patterns. Joints will be watertight without voids, cracks or excess grout.

12.9. Lay out tile so that fields or patterns are centred on wall areas or architectural features and so that no tile less than 1/2 size occurs.

12.10. Install tiles in patterns and locations as indicated on drawings.

12.11. Coordinate work of this section with work of other sections for items requiring to be recessed into work of this section.

12.12. Sound tiles after setting and remove and replace tiles not fully bedded.

12.13. Re-point joints after cleaning to eliminate imperfections. Avoid scratching tile surfaces.

12.14. Finished tile work will be clean and free of tiles which are pitted, chipped, cracked or scratched. damaged tile will be removed and replaced.

12.15. Where indicated on Drawings or as required, install continuous single piece metal edge trims centred under doors in closed position and other locations where tile meets other floor finishes.

13. Grouting

13.1. Grout tiles in accordance with manufacturer's written instructions, and ANSI A108.10.

13.2. When grouting a fresh laid floor, make certain that traffic and grouting will not cause movement

of floor in setting bed. Protect floor by using kneeling boards or gypsum board to defend floor against traffic while grouting.

13.3. Mix grouts and install in strict accordance with the manufacturer's instructions.

13.4. Excess grout will be removed from the surface of tiles using the edge of a rubber float held at a 45 degree angle, moving it diagonally to the joints. Fill gaps and air holes.

13.5. Do not allow grout to harden on face of tile. Refer to manufacturer's instructions for thorough removal.

14. Cleaning

14.1. Clean tiled areas after grouting has cured, using compatible solutions and methods as recommended by the manufacturer.

14.2. Remove grout residue from tile as soon as possible.

14.3. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's written instructions, but no sooner than 10 days after installation.

14.4. Flush surface with clean water before and after cleaning.

14.5. Leave finished installation clean and free of cracked, chipped, broken, unbounded, or other tile deficiencies.

****END OF SECTION****

SECTION 09 51 00
ACOUSTIC CEILINGS

0PART 1 | GENERAL REQUIREMENTS

1. Related Requirements

1.1. Section 05 50 00 Metal Fabrications

2. Reference Standards

2.1. ASTM A580/A580M - Standard Specification for Stainless Steel Wire 2018.

2.2. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.

2.3. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2021a.

2.4. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method 2022.

2.5. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings 2022.

2.6. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels 2019.

2.7. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2022.

2.8. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials 2020.

3. Administrative Requirements

3.1. Coordination: Coordinate work of this section with installation of mechanical and electrical components and with other construction activities affected by work of this section.

3.1.1. Review with affected installers those locations of facility services lines and equipment within ceiling plenum that prevent installation of hangers at spacings compliant with limitations established in referenced standards. Arrange for each affected mechanical or electrical installer to provide necessary number of additional structural support points for ceiling installer.

3.2. Preinstallation Meeting: Convene one week before starting work of this section.

3.3. Sequencing: Schedule work of affected trades to minimize or eliminate installation conflicts and rework.

3.3.1. Supply hanger clips during steel deck erection. Supply additional hangers and inserts as required.

3.3.2. Ensure that acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved. Do not install acoustical units until after interior wet work is dry.

4. Submittals

4.1. See Section 013000 - Administrative Requirements for submittal procedures.

4.2. Shop Drawings: Indicate grid layout and related dimensioning.

4.3. Product Data: Provide data on suspension system components and acoustical units.

4.4. Samples: Two samples 6” by 6” inches in size indicating material and finish of acoustical units.

4.5. Samples: Two samples each,6” inches long of suspension system main runner, cross runner, and perimeter molding.

5. Quality Assurance

5.1. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience and approved by manufacturer.

6. Field Conditions

6.1. Maintain uniform temperature of minimum 60 degrees F (16 degrees C), and maximum humidity of 40 percent before, during, and after acoustical unit installation.

PART 2 | PRODUCTS

7. Ceiling Assemblies

7.1. Acoustical Ceiling Assembly Type (ACT):

7.1.1. Acoustical Units: Halcyon Acoustical Panels by CGS

.1 Panel Size: 24” x 48”

.2 Panel Edge: SQ edge.

.3 Color: Flat White 050

.4 Characteristics: Noise Reduction Coefficient = 0.9, Warranty: Yes.

.5 Or approved equal by consultant

7.1.2. Suspension Grid: Donn Brand DX/DXL 15/16” Suspension System

.1 Color: Flat White 050

.2 Or approved equal by consultant.

7.2. Ceiling Performance Requirements

7.2.1. Design for maximum deflection of [1/360] of span.

7.2.2. Products:

.1 USG Corporation; Centricitee DXT 9/16 Inch Suspension System: www.usg.com/ceilings/#sle.

.2 Or Approved equal by Consultant.

8. Accessories

8.1. Touch-Up Paint for Exposed Surfaces: Type and color to match acoustical units and suspension system grid and trim elements.

9. Fabrication

9.1. Shop fabricate ceiling[None - N/A] components to the greatest extent possible.

9.2. Fabricate components to allow access to ceiling plenum as required.

PART 3 | EXECUTION

10. Examination

10.1. Verify existing conditions before starting work.

10.2. Verify that layout of hangers will not interfere with other work.

10.3. Verify that field measurements are as indicated on shop drawings.

10.4. Start of installation constitutes acceptance of project conditions.

11. Preparation

11.1. Coordinate the location of hangers with other work.

11.2. Provide hanger clips during steel deck erection. Provide for anticipated additional hangers and inserts as required.

11.3. Install ceiling system after major above-ceiling work is complete.

11.4. Acclimate wood ceiling materials by removing from packaging in installation area a minimum of 72 hours prior to installation.

12. Installation - Suspension System

12.1. Install suspension system in accordance with ASTM C636/C636M and manufacturer's instructions and as supplemented in this section.

12.2. Install hangers and inserts coordinated with overhead work. Provide additional hangers and supports as required.

12.3. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

12.4. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.

12.5. Where ducts, facility services, or equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

12.6. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

12.7. Support fixture loads using supplementary hangers located within 6 inches (152 mm) of each corner, or support components independently.

12.8. Do not eccentrically load system or induce rotation of runners.

12.9. Edge Moldings: Install at intersection of ceiling and vertical surfaces and penetrations, using components of maximum length; set level. Provide edge moldings at junction with other ceiling finishes. Miter corners. Provide preformed edge closures to match bullnosed cornered partitions.

12.9.1. Use longest practical lengths.

12.9.2. Overlap and rivet corners.

12.10. Install light fixture boxes constructed of gypsum board above light fixtures in accordance with fire rated assembly requirements and light fixture ventilation requirements if required in rate assembly.

13. Installation - Acoustical Units

13.1. Install acoustical units in accordance with manufacturer's instructions.

13.2. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

13.3. Fit edge trim neatly against abutting surfaces.

13.4. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

13.5. Cutting Acoustical Units:

13.5.1. Cut to fit irregular grid and perimeter edge trim.

13.5.2. Make field cut edges of same profile as factory edges.

13.6. Lay acoustical insulation for a distance of 48 inches (1219 mm) either side of acoustical partitions as indicated.

13.7. Install hold-down clips on acoustical units within 20 ft (6 m) of an exterior door.

14. Tolerances

14.1. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet (3 mm in 3 m).

14.2. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: Two degrees.

15. Cleaning

15.1. Clean and touch up minor finish damage. Remove and replace components that cannot be successfully cleaned and repaired.

****END OF SECTION****

PART 1 | GENERAL REQUIREMENTS

1. Related Sections

1.1. Division One, General Requirements is part of this Section and shall apply as if repeated here.

1.2. Examine the Specifications and Drawings for the work of other Sections regarding the provisions for prime and finish coats. Paint or finish all materials installed throughout the project which are required to be painted and which are left unfinished or unpainted by other Sections. The only exception to this requirement is where the drawings, specifications, or schedules state positively and explicitly that a surface is not be finish painted.

2. Referenced Standards

2.1. SSPC Steel Structures Painting Council, "Steel Structures Painting Manual, Vol. 2"

2.2. ASTM D523-89 Test Method for Specular Gloss

2.3. CAN/CGSB-1.2-M89 Boiled Linseed Oil

2.4. CAN/CGSB-1.4-92 Petroleum Spirits Thinner

2.5. CAN/CGSB-1.5-M91 Low Flash Petroleum Spirits Thinner

2.6. CAN/CGSB-1.68-M91 Solvent Type Primer-Sealer for Interior Wall

2.7. CAN/CGSB-1.76-M91 Interior and Exterior Heat Resistant Enamel

2.8. CAN/CGSB-1.100-M89 Interior Latex Type, Flat Paint

2.9. CAN/CGSB-1.119-M89 Primer-Sealer, Wall, Interior Latex Type

2.10. CAN/CGSB-1.143-M90 Heat Resistant Aluminum Enamel, Silicone Alkyd

2.11. CAN/CGSB-1.181-92 Ready Mixed Organic Zinc-Rich Coating

2.12. CAN/CGSB-1.188-M90 Emulsion Type Filler Masonry Block

2.13. CAN/CGSB-1.195-M90 Interior Semi-gloss Latex Paint

2.14. CAN/CGSB-1.209-93 Low Sheen Latex Interior Paint

2.15. CGSB 85-GP-16M Painting Galvanized Steel

2.16. CGSB 85-GP-32M Painting Concrete Floors

2.17. CAN/CGSB-85.100-93 Painting

2.18. ECP Environmental Choice Program

2.19. ECP-07-89 Water-borne Surface Coatings

2.20. ECP-12-89 Solvent-borne Paints

2.21. OPCA Ontario Painting Contractors Association

2.22. ULC Underwriters' Laboratories of Canada

2.23. CAN/ULC-S102-M88 Standard Method of Test for Surface Burning

2.24. Characteristics of Building Materials and Assemblies

3. Submittals

3.1. Samples

3.1.1. Submit samples of every colour required in accordance with the requirements of specification Section 01 30 00, Submittals. 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.

3.1.2. Colours shall match those specified in the Material and Colour Schedule. Colours selected for work of this Section shall be based on products manufactured by Sherwin Williams.

3.1.3. 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 shall be as approved by the Consultant.

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

3.1.5. Submit opaque paint samples in triplicate on 4” x 8” (100 mm x 200 mm) draw down cards on black and white. Submit samples of stains and clear finishes in triplicate on 2" x 4" x 3/8” thick (50 mm x 100 mm x 10mm) piece of wood of same species as scheduled to receive stain or clear finish.

3.2. 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. The list shall bear the manufacturer's official certification that the materials listed thereon are the best quality made by the company.

3.3. Extra Materials: supply Owner with one (1) clearly identified sealed 4 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 in the building.

4. Product Delivery, Storage, and Handling

4.1. Storage and Safety Precautions: store containers of paint, varnish, thinner, and other volatile materials in well-ventilated designated room under lock and key, where they will not be exposed to excessive heat or direct rays of the sun. Keep containers tightly closed when not in actual use. Remove used cloths from building every night, and when not in use. Take precautions against spontaneous combustion by burning, drenching in water, or placing in air-tight covered metal containers. Provide warning signs where toxic materials and explosive solvents are used. Provide CO2 fire extinguisher of 9 kg. capacity in this room while area is used for paint storage.

4.2. Ventilation: ventilate, heat and maintain storage area at minimum temperature of 10 deg C (50 deg F) and protected from direct rays of sun.

4.3. Protection: Protect the work of other trades from damage. Post signs at freshly-painted surfaces immediately following their completion. Any soiling of concrete pavement attributable to this section due to spillage, mixing of material, or any other cause whatsoever,

to be entirely reinstated under this Section at no expense to the Owner.

5. Job Conditions

5.1. Environmental Temperature: do not paint or finish in unclean or improperly ventilated areas. Maintain ambient and substrate temperatures and humidity conditions within acceptable limits as recommended by paint manufacturer. Maintain adequate ventilation at all times to control excessive humidity.

5.2. Protection:

5.2.1. Provide metal pans or adequate tarpaulins to protect floors in areas assigned for the storage and mixing of paints.

5.2.2. Use sufficient drop cloths and protective coverings for the full protection of floors, furnishings, and work not being painted. Protect mechanical, electrical, and special equipment hardware, all other components of the building which do not require painting from paint spotting and other soiling during the painting process.

5.2.3. Leave above areas clean and free from evidence of occupancy upon completion of painting.

5.2.4. Protect paint materials from fire and freezing.

5.2.5. Keep waste rags in metal drums containing water, and remove from building at end of each working shift.

5.3. Lighting: provide a minimum of 161 lux lighting on surfaces to be painted.

PART 2 | PRODUCTS

6. Materials

6.1. Paint

6.1.1. Highest grade, first line quality product of the manufacturer. Painting and finishing materials shall comply with or exceed CAN2-85-100 for Premium Grade Work and complying with the specified generic formula guide in accordance with the manufacturer's recommendations.

6.1.2. Refer to Material and Colour Schedule for colours. Paints are identified as (PT). Colours will be selected from Para Paints Canada Inc. and shall be matched by paint supplier. The following manufacturers are acceptable:

.1 Benjamin Moore Paints

.2 Colour Your World

.3 General Paint Ltd.

.4 Dulux Paints Canada (Glidden)

.5 Para Paints Canada Inc.

.6 PPG Canada Inc.

.7 Pratt and Lambert Inc.

.8 Sherwin-Williams Company of Canada Limited

.9 Sico Inc.

.10 Alternate approved by Consultant

6.1.3. The Consultant reserves the right to refuse any paint or finishing material if in his opinion it is incapable of matching specified colours or is not suitable or adequate for the use which it is proposed.

6.1.4. Paint and finishing materials for each procedure listed in Finish Schedule shall be products of single manufacturer.

6.1.5. Paint products shall meet or exceed requirements of ECP-07 Guidelines for water based paints and ECP-12 Guidelines for solvent based paints. In addition, paint products shall meet or exceed applicable performance standards issued by CGSB or other such standards approved by accredited standards writing organizations.

6.1.6. Paint shall have excellent flowing and brushing properties. Paint shall cure free of sags, runs, wrinkles to yield desired finish specified.

6.1.7. Sheen shall be as selected by Consultant.

6.1.8. Stain: pigmented type conforming to CAN/CGSB-1.145-M90, Solvent-Based, pigmented stain, in colour selected by Consultant.

6.1.9. Polyurethane Varnish: unless specified otherwise interior grade, oil modified conforming to CAN/CGSB-1.175-M89. Sheen shall be as selected by Consultant.

PART 3 | EXECUTION

7. Inspection

7.1. Verify moisture content of surfaces with electronic moisture metre. Do not proceed without written directions if moisture reading is higher than 12-15%.

7.2. Ensure temperature of surfaces to be finished is between 10 and 20 deg C (50 and 68 deg F). Proceed with work only when surfaces and conditions are satisfactory for production of a first-class job. Report to Consultant, in writing, any surfaces which are found to be unsatisfactory. Commencement of work shall imply acceptance of substrate surfaces.

7.3. Remove dust, grease, rust, and extraneous matter from all surfaces, except that rust occurring on items specified to be primed under other Sections shall be removed and work re-primed under those Sections.

8. Preparation

8.1. Concrete and Masonry:

8.1.1. Test surfaces for alkalinity with pink litmus paper or other standard industry method.

8.1.2. Where extreme alkalinity occurs, wash surface with 4% solution tetrapotassium pyrophosphate where latex base paint is to be used, and with zinc sulphate solution where other paint bases are to be used.

8.1.3. Etch normal concrete surface to receive alkyd paint with commercial muriatic acid solution (1 part to 20 parts water by volume). Follow with complete rinsing with clean water.

8.1.4. Rub down surfaces of different textures and remove mortar spots and sharp edges with a

scraper. Patch where required. Fill masonry and concrete surfaces with primer/block filler to fill all holes and pores.

8.2. Gypsum Board: inspect to ensure joints are completely filled and sanded smooth. Inspect surfaces for "nail popping", screw heads not recessed and taped, breaks in surface or other imperfections and have repaired as required. Fill small nicks or holes with patching compound and sand smooth.

8.3. Unprimed Ferrous Metal Surfaces: clean with power tools to SSPC-SP3 specifications before application of the primer coat.

8.4. Galvanized and Pre-Primed Surfaces:

8.4.1. New Metal With Wipe Coated Galvanizing: thoroughly clean to remove all grease, oil, dirt and all other contaminants which may be present on the surface. Mineral spirits or Xylol are acceptable solvents to use for this purpose - that is, to remove grease, oil, dirt and similar contaminants. Remove scale by wire brushing.

8.4.2. Weathered Metal With Wipe Coated Galvanizing: for old and weathered galvanized and pre-primed metal, thorough surface preparation is essential – to ensure that all contaminants have been removed from the surface and pretreat as for New Metal.

8.4.3. Spangled Type Galvanizing: treat with vinyl wash primer to provide proper bond for paint finish.

8.5. Hardware: remove finish hardware, switch plates and accessories, removable trim, grilles, etc; mask any that are not removable. Re-install these when paint is thoroughly dry and clean them. Do not clean hardware with solvent. Prime-painted hardware items shall be painted to match the surface on which they are installed.

8.6. Pre-primed Pumps, Motors, and Similar Equipment: prior to painting pre-primed pumps, motors, and similar equipment, remove paint protective coating such as silicone, to ensure good paint adhesion.

9. Protection

9.1. Provide scaffolding, staging, platforms and ladders, as required for execution of work. Erect scaffolding to avoid interference with work of other trades. Comply with Occupational Health and Safety Act.

9.2. Provide drop cloths or adequate plastic sheets to protect floors in areas assigned for storage and mixing of paints.

9.3. Mask and cover all surrounding surfaces to provide neat, clean, true juncture lines, and to keep paint from adjacent surfaces. Upon completion, remove masking and clean adjacent surfaces free of overspray spatters, drips, smears and overspray.

9.4. Mask labels and specification plates occurring on equipment to be painted and ULC labels on doors and frames.

9.5. Remove finish hardware, electrical switch and outlet covers to protect from paint splatter. Mask items not removable. Use sufficient drop cloths and protective coverings for full protection of floors, furnishings, mechanical, electrical and special equipment, all other components of building which do not require painting or to be removed, from paint spotting and other soiling. Re-install items when paint is dry. Clean any components that are paint

spotted or soiled.

9.6. Keep waste rags in covered metal drums containing water and remove from building at end of each day.

10. Prohibit traffic, where possible, from areas where painting is being carried out and until paint is cured. Post “wet paint” or other warning signage during and on completion of work.

10.1. When handling solvent coating materials, wear approved vapour/particulate respirator as protection from vapours. Dust respirators do not provide protection from vapours.

10.2. Protect and keep sprinkler heads free of paint.

11. Workmanship

11.1. Apply work using skilled tradesmen working under direction of a capable foreman, and according to manufacturer's specifications; in a workmanlike manner; with suitable clean equipment in good condition; in dust-free and under adequate illumination and suitable conditions for production of best results; evenly, uniform in sheen, colour and texture, free from brush marks, sags, crawls, runs, or other defects detrimental to appearance or performance; and in a manner to prevent spattering or spilling over finished surfaces.

11.2. Mix paint on site and use unadulterated, except where specified otherwise in manufacturer's directions.

11.3. Use same brand of paint for primer, intermediate, and finish coats.

11.4. Do not apply succeeding coats until preceding coat is dry and hard.

11.5. Lighten preceding coats 25% white (tint white coats) from the colour called for in the Colour and Material Schedule.

11.6. It is generally intended that material be applied by brush or roller. Except as specified otherwise, spray painting will be permitted in areas where advantageous, but Consultant shall be consulted and shall approve each area before spray painting commences. Consultant may at any time prohibit the use of spray painting for such reasons during application as carelessness, poor masking, or protective measures, paint fogs drifting into prepainted surfaces or other finishes, disturbance to other trades, or failure to obtain a dense, even, opaque finish.

11.7. All ferrous metals and hollow metal doors, frames and screens shall be spray painted.

11.8. Sand lightly between coats with No. 00 sandpaper.

11.9. Do not apply last coat of varnish on stained wood surfaces until all gloss varnish applications have been inspected and approved by the Consultant.

12. Application

12.1. Note: In addition to specific notes included in this specification refer to Material and Colour Schedule for additional requirements. Provide finish uniform in sheen, colour and texture, free from streaks, shiners and brush or roller marks or other defects.

12.2. Follow manufacturer's preparation and application instructions.

12.3. Paint all exposed surfaces where specifically noted on Room, Material and Finish Schedule.

12.4. Unless specifically noted, do not paint stainless steel, chrome, baked enamel, plastic

laminate, solid phenolic plastic, glass, tile, porcelain enamel, ceramic surfaces, equipment name or specification plates, fire resistance labels, washroom fixtures, manhole and catch basin covers, floors or sprinkler heads. Make good paint finish on items where painted surfaces have become marred or defaced.

12.5. Examine the Drawings and Specifications for the work of other sections regarding the provisions for prime and finish coats. Paint or finish all materials installed throughout the project which are required to be painted and which are left unfinished or unpainted by other sections. The only exception to this requirement is where the Drawings, specifications or schedules state positively and explicitly that a surface is not to be finish painted.

12.6. In areas where painting is not called for, painting is not required, with the following exceptions, which require paint: plywood backboards, all other exposed wood and hollow metal doors and frames. Colours selected by Consultant.

12.7. Paint interior of all pipe and duct spaces, visible through grilles and slots in suspended acoustic tile ceiling grid, black matte finish. Paint interior of lighting coves and valances, including interior of angles supporting louvres, white.

12.8. Paint glazing rebates and stops of hollow metal sections before glass is installed.

12.9. Paint convectors, grilles, conduit, pipes, ducts, hangers, brackets, panels, access panels, exposed steel, concrete inserts, bus ducts, and other articles on or near finished surface shall to match the colour of the surface on which the article appears, except where noted otherwise on Schedules.

12.10. Identification paint schedule as follows:

12.10.1. Fire protection system: red, alkyd enamel.

12.10.2. Systems posing safety hazards: yellow, alkyd enamel.

12.10.3. Safe systems: green, alkyd enamel.

12.11. Do not paint circuit breakers, switches, and receptacles, or similar electrical components.

12.12. Paint surfaces where mirrors will be directly applied to prevent moisture bleed throughwall.

12.13. For finished interior wood that is to be painted, apply one coat of approved best grade white interior trim primer, reduced with thinners in accordance with manufacturer's printed directions, to ALL surfaces of wood as soon as material is delivered and before it is built in. Use brushes for applying material to interior wood.

12.14. Paint entire plane of areas exhibiting incomplete or unsatisfactory coverage and of areas which have been cut and patched. Patching not acceptable.

12.15. Do not paint over ULC labels on doors and frames and over identification labels on mechanical and electrical equipment.

13. Disposal of Paint Waste

13.1. Be responsible for removal and disposal of material and waste generated by this Section.

13.2. Remove empty and partly used containers from Site and recycle or disposed of as Hazardous Waste in accordance with local municipal, provincial and federal environmental regulations. Provide proof of such action in form of receipts of tipping fees, disposal fees or bills of lading, as applicable.

13.3. Remove from Site peripheral items, such as clean up solvents, paint brushes, rags, and similar items and dispose of where necessary in accordance with local municipal, provincial and federal environmental regulations

13.4. Do not rinse off of latex paints from brushes and rags under running water tap. While work is ongoing, whether using latex or alkyd products, rinse off all brushes and rags in container with appropriate solvent (water or paint thinner). Leave such container in well lit and well ventilated area , away from any flammable conditions. Dispose of emulsion created in accordance with local municipal, provincial and federal environmental regulations.

14. Interior Finish Schedule

14.1. The following Formulae are intended to provide completely opaque surfaces, typical unless scheduled otherwise for clear or semi-transparent finishes. If surfaces are not completely opaque, apply additional coats at no additional cost to the Owner.

14.2. Coordinate with Consultant before painting any surface not included in the formulae as listed.

14.2.1. Interior Paint Legend:

.1 I.PNT.01 SW 9561 Guild Grey' , Satin by Sherwin Williams.

.2 I.PNT.02 SW 9624 'Winsome Grey' , Satin Finish by Sherwin Williams.

14.2.2. Gypsum Board Wall Surfaces:

.1 One (1) coat of primer - sealer,

.2 Two (2) coats of interior 100% acrylic latex enamel (PT-1) Dulux Diamond eggshell finish or (PT-5) Dulux Kitchen & Bath eggshell finish

.3 Refer to Room Finish Schedule.

14.2.3. Exposed Gypsum Board Ceilings, Coves and Bulkheads:

.1 One (1) coat of primer - sealer,

.2 Two (2) coats of interior 100% acrylic latex, (PT-1) Dulux Diamond eggshell finish or (PT-2) Dulux Diamond matt finish or (PT-5) Dulux Kitchen & Bath eggshell finish.

.3 Refer to Room Finish Schedule.

14.2.4. Metal Surfaces (if not shop primed):

.1 One (1) coat of interior acrylic rust inhibitive enamel primer. Acceptable product:

.2 Equivalent to “DevFlex Primer No. 4020” as manufactured by Devoe High Performance Coatings.

.3 Two (2) coats of interior 100% acrylic enamel, semi-gloss finish. Acceptable product:

.4 Equivalent to “DevFlex No. 4216” as manufactured by Devoe High Performance Coatings.

14.2.5. Ferrous Metal Surfaces (if shop primed):

.1 Touch-up only with same paint as that applied in the shop

.2 Two (2) coats of interior 100% acrylic enamel, semi-gloss finish. Acceptable product:

.3 Equivalent to “DevFlex No. 4216” as manufactured by Devoe High Performance Coatings.

14.2.6. Hot Ferrous Metal under 185 deg C - (400 deg F):

.1 (Valve bodies, strainers and other items on high temperature lines if exposed)

.2 Two (2) coats heat resistant enamel containing not less than 40% solids by volume aluminum flakes.

14.3. Insulated and Non-insulated Pipes, Ducts, Conduit, Valve Fittings, Equipment and Ancillary Items where “Exposed” in Completed Work:

14.3.1. Insulated Work:

.1 One (1) coat of latex primer – sealer,

.2 Two (2) coats of interior alkyd enamel, eggshell finish.

14.3.2. Non-Insulated Work :

.1 One (1) coat of structural steel primer,

.2 Two (2) coats of interior alkyd enamel, eggshell finish.

14.4. Prepare surfaces as required by applying proper primers on the surface to which paint is to be applied. For surfaces above ceilings, paint surfaces after all services have been installed and prior to ceiling installation.

15. Painted Stair and Millwork Details

15.1. Spray paint finish for all metal components.

15.2. Paint to be matte finish.

15.3. No pitting, gouges or rough finish.

15.4. All steel to be sanded

15.5. Smooth finish to the touch.

****END OF SECTION****

SECTION 10 28 00
WASHROOM ACCESSORIES

PART 1 | GENERAL REQUIREMENTS

1. Scope

1.1. Provide washroom accessories as noted on the drawings and as per the following schedule;

1.1.1. WOMENS' W/C 102

.1	mirror (M-2)	1
.2	toilet tissue dispenser (TTD)	1
.3	paper towel dispenser (PTD)	1
.4	paper towel disposal (WR)	1
.5	grab bars (GB-1, GB-2)	1 set
.6	soap dispenser (SD)	1
.7	Single coat hook (CH-1)	1
.8	18"x5" Shelf (SH)	1

1.1.2. MEN'S W/C 103

.1	mirror (M-2)	2
.2	toilet tissue dispenser (TTD)	2
.3	paper towel dispenser (PTD)	1
.4	paper towel disposal (WR)	1
.5	grab bars (GB-1, GB-2)	1 set
.6	soap dispenser (SD)	2

1.2. Include materials and fitments required for the operation of any unit furnished, in the manner, direction and performance shown on the shop drawings and specified herein.

2. Submittals

2.1. Provide submittals in accordance with Section 01 33 00.

2.2. Shop Drawings: Show and describe in detail, materials, finishes, dimensions, details of connections and fastenings, elevations, plans, sections, metal gauges, hardware and any other pertinent information.

2.3. Coordinate the work of this section with the placement of internal wall reinforcement.

2.4. Submit manufacturer's catalogue cut of each component required.

2.5. Submit a washroom accessories schedule indicating accessories required, showing model number, finish and mounting height on a room by room basis.

3. Delivery, Storage and Handling

3.1. Coordinate deliveries to comply with construction schedule and arrange ahead for off the

ground, under cover storage location.

3.2. Materials will be carefully checked, unloaded, stored and handled to prevent damage. Protect materials with suitable nonstaining waterproof coverings. Unsatisfactory materials to be removed from the site.

3.3. Store materials in original, undamaged containers or wrappings with manufacturer's seals and labels intact.

3.4. Adequately protect the structure and work of other sections during delivery, storage, handling and execution of the work of the section.

3.5. Provide tools, plant and other equipment required for the proper execution of the work of this section.

4. Warranty

4.1. At no cost to Owner, replace mirrors should defects in silvering occur within from date of Substantial Performance a period of five (5) years.

Part 2 | Products

5. Manufacturers

5.1. Basis-of-Design Products: Products named in this section were used as the basis-of-design for the project; additional manufacturers offering similar products may be incorporated into the work of this section provided they meet the performance requirements established by the named products and provided they submit requests for substitution in accordance with Section 01 33 00 Submittal Procedures.

5.2. Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include; but are not limited to, the following:

5.2.1. Zurn

5.2.2. American Standard

5.2.3. Bobrick

5.2.4. Bradley Corp.

5.3. Install specified product as indicated on drawings.

6. Washroom Accessories

6.1. Soap Dispenser (SD): By Owner. Surface mounted soap dispenser units to be supplied by the Owner and installed by the Contractor.

6.2. Toilet Tissue Dispenser (TTD): Surface mounted toilet tissue dispenser to be supplied by the Owner and installed by the Contractor.

6.3. Paper Towel Dispenser (PTD): Paper towel dispensers shall be supplied by the Owner and installed by the Contractor.

6.4. Waste Receptacle (WR): Surface mounted paper towel disposal to be satin finish, type 304 stainless steel, 12.75 gal (48.3 l) capacity, 15 1/8” w x 23” h x 8 1/2” d, with linermate, model no B-277 ConturaSeries by Bobrick.

6.5. Mirror Type 2 Barrier Free (M-2): Mirrors (M-2) Surface mounted Barrier Free Fixed Position Tilt

Mirror gapless fit mirror to be Type 304 polished stainless steel #8 architectural bright finish with all-welded construction. Unit size to be approximately 24” (610 mm) wide x 36” (910mm) high. Acceptable Products Bobrick Model No. B-293 2436.

6.6. Grab Bars (GB#): Install at heights and locations shown on drawings. Equip water closet compartments designated for the handicapped with grab bars in conformance with the Ontario Building Code and as follows.

6.6.1. GB1 to be Bobrick model 6806.99, one (1) bar 2’-0” (610mm) long x 1 1/2” (38mm) dia., horizontally on wall behind water closet.

6.6.2. GB2 to be Bobrick model 6898.99, one (1) L-shaped bar with 30” (762mm) long horizontal, 30” (762mm) long vertical component, 1 1/2” (38mm) dia., mounted on wall adjacent to the water closet.

6.6.3. Grab bars to have concealed non-corrosive anchorage systems of types approved by Consultant. Grab bar material and anchorage to withstand downward force of 2.2 kN (500 lbs.).

6.6.4. Fabricate grab bars with minimum 16 gauge (1.6mm) thick, 1-1/2” (38mm) diameter peened surface tubular stainless steel with welded concealed flanges.

7. Fabrication

7.1. Fabricate work true to dimensions, square and plumb.

7.2. Thickness of metal to be adequate for the various conditions, and intended uses.

7.3. Finished work to be free from warping, open seams, weld marks, rattles and other defects. Drilling to be reamed and exposed edges finished smooth.

7.4. Fastenings to be concealed or theft proof type where possible. Exposed fastenings to be neatly executed and to be of the same material and finish as the base metal on which they occur.

PART 3 | EXECUTION

8. Examination

8.1. Take site measurements to ensure that work is fabricated to fit surrounding construction around obstructions and projects in place, or as shown on drawings, and to suit service locations.

9. Installation

9.1. Securely fasten accessories plumb, true, square, straight, level, and accurately and tightly fitted together and to surrounding work. Install in locations shown and specified herein. Mounting heights as shown or in accordance with the OBC in the case of barrier-free accessories.

9.2. Work to include anchor bolts, bolts, washers and nuts, lag screws, expansion shields, toggles, straps, sleeve brackets, clips, and other items necessary for secure installation, as required by loading and by Jurisdictional Authorities.

9.3. Attach work at wood by screws through countersunk holes in metal.

9.4. Attach work to masonry with lead plugs and non-corrosive fastenings, to support load with a safety factor of 3. Perform drilling necessary to install the work.

9.5. Insulate between dissimilar metals or between metals and masonry or concrete with bituminous paint, to prevent electrolysis.

9.6. Co-ordinate installation with the work of other trades adjacent to accessories to achieve the reveals or other edge conditions shown, where their front faces are flush with the finished wall surfaces.

9.7. Install accessories in rooms as scheduled herein. Exact locations to be confirmed by Architect at later date.

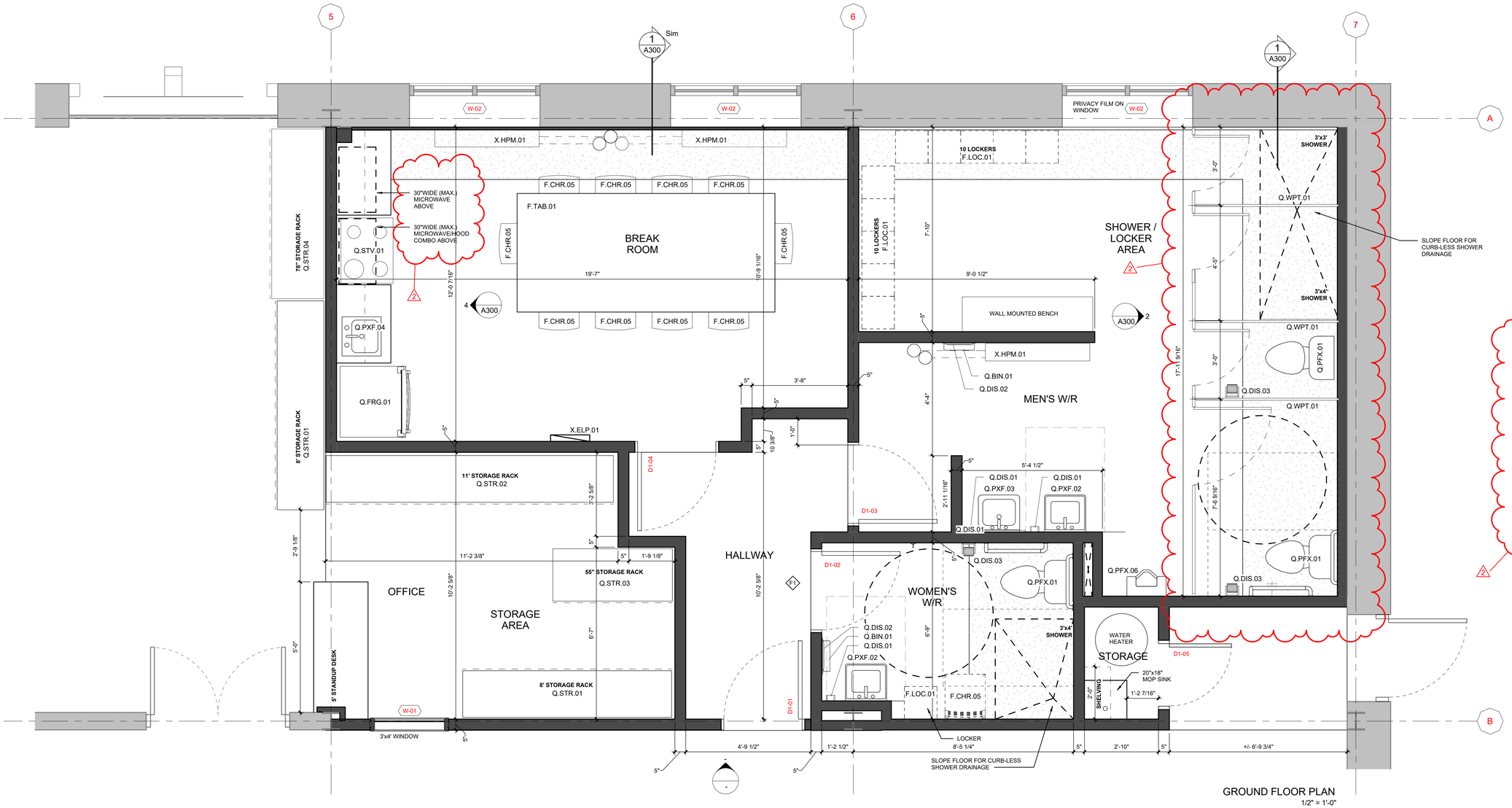
10. Cleaning and Adjustment

10.1. Upon completion of work or when directed, remove traces of protective coatings or paper.

10.2. Test mechanisms, hinges, locks and latches and where necessary, adjust, lubricate and ensure that accessories are in perfect working order.

****END OF SECTION****

Appendix “B”



GROUND FLOOR PLAN
1/2" = 1'-0"

SYMBOL LEGEND

CENTRELINE SYMBOL

BUILDING SECTION — A / A4-1

WALL SECTION — A / A4-1

X.YYY.00 — CONSTRUCTION NOTE TAG
- NOTE NUMBER
- CONSTRUCTION TYPE

X.YYY.00 — MATERIAL FINISH NOTE TAG
- FINISH NUMBER
- FINISH TYPE

X.YYY.00 — ASSEMBLY NOTE TAG
- ASSEMBLY NUMBER
- ASSEMBLY TYPE

D1-01 — DOOR TAG
- DOOR NUMBER
- LEVEL WHERE DOOR IS LOCATED

W-01 — WINDOW TAG
- WINDOW NUMBER

DRAWING NOTES

F.CHR.05	STACKABLE DINING CHAIR
F.LOC.01	STORAGE LOCKERS. HALF-SIZE STACKED
F.TAB.01	55"W x 119" TABLE
Q.BIN.01	RECESSED GARBAGE BIN
Q.DIS.01	SOAP DISPENSER
Q.DIS.02	RECESSED PAPER TOWEL DISPENSER
Q.DIS.03	TOILET PAPER DISPENSER
Q.FRG.01	33"W REFRIDGERATOR, SS FINISH
Q.PFX.01	TOILET W/ FLUSH TANK
Q.PFX.06	URINAL
Q.PXF.02	BARRIER-FREE SINK. WALL MOUNT
Q.PXF.03	SINK. WALL MOUNT
Q.PXF.04	KITCHEN SINK. SINGLE BASIN
Q.STR.01	21 1/2"Wx96"L STORAGE RACKING
Q.STR.02	21 1/2"Wx132"L STORAGE RACKING
Q.STR.03	24"Wx55"L STORAGE RACKING
Q.STR.04	24"Wx78"L STORAGE RACKING
Q.STV.01	30"W 4 COIL RANGE W/ OVEN, SS FINISH
Q.WPT.01	TOILET PARTITIONS. PHENOLIC 72" PANEL @ 9" AFF, HEADRAIL MOUNT, SS HARDWARE, PANEL COLOUR SELECTED BY OWNER
X.ELP.01	ELECTRICAL PANEL
X.HPM.01	MECHANICAL UNIT. FLOOR MOUNT

DOOR HARDWARE ABBREVIATIONS

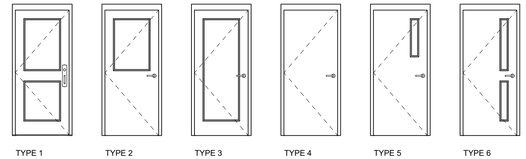
ADO	AUTOMATIC DOOR OPENER	KP	KICKPLATE	PBL	PUSH BUTTON / KEYPAD LOCK
BFO	BARRIER FREE DOOR OPERATOR	LH	LEVER HANDLE	PP	PUSH PLATE
CR	CARD READER / SWIPE	LK	LOCKSET	RR	REMOTE DOOR RELEASE
DB	DEADBOLT	MAG	MAGNETIC LOCK	SC	SELF-CLOSING HARDWARE
DM	DUMMY SET	PA	PASSAGE SET	STP	WALL STOP
ES	ELECTRIC STRIKE	PDH	POCKET DOOR HARDWARE	TD	TIME DELAY
EX	EXIT DEVICE / PANIC HARDWARE	PDPA	POCKET DOOR PASSAGE SET	WS	WEATHER SEALED
FB	FLUSH BOLT	PDPR	POCKET DOOR PRIVACY SET	UNI	UNIVERSAL WASHROOM KIT
HO	HOLD OPEN DEVICE	PR	PRIVACY SET		
HOB	HOLD OPEN DEVICE W/ BUMPER	PH	PULL HANDLE		
KEY	KEYED ENTRY	PB	PUSH BAR		

WINDOW SCHEDULE

No.	WIDTH	HEIGHT	HEAD HEIGHT	QTY	COMMENTS
GROUND FLOOR					
W-01	36"	48"	7' - 0"	1	FIXED INTERIOR WINDOW.
W-02	60"	68"	10' - 0"	3	EXISTING WINDOW. REPAIR PATCH WINDOW CASEWORK AND SILL. SILL TO TRANSITION SMOOTHLY INTO WALL PANEL TRIM. APPLY 3M PRIVACY FILM TO WINDOW IN MENS WASHROOM

DOOR & WINDOW NOTES
IT IS THE OWNER'S CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE FOLLOWING ITEMS PRIOR TO ORDERING
- COLOUR OF WINDOWS & DOORS
- DIRECTION OF SWING FOR OPERABLES
- GRID PATTERN (IF APPLICABLE)
- GLASS STYLE IN DOORS (IF APPLICABLE)
- DRYWALL RETURN THICKNESS

*WINDOW HEAD HEIGHT TO MATCH EXTERIOR DOOR HEIGHT



DOOR LEGEND
1/4" = 1'-0"

DOOR SCHEDULE

XXX X	FROM	TO	DOOR TYPE	DOOR WIDTH	DOOR HEIGHT	DOOR MATERIAL	DOOR FINISH	DOOR GLASS	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	FIRE RATED	RATING	HARDWARE / COMMENTS
GROUND FLOOR														
D1-01	WORKSHOP	HALLWAY	TYPE 2	36"	84"	H.MTL	I.PNT.02	VISION		H.MTL	I.PNT.02			PH, PB, KP, STP, SC
D1-02	WOMEN'S W/R	HALLWAY	TYPE 4	36"	84"	H.MTL	I.PNT.02			H.MTL	I.PNT.02			PR, STP, KP, ES, LK, LH, BFO, BARRIER-FREE DOOR
D1-03	MEN'S W/R	HALLWAY	TYPE 4	36"	84"	H.MTL	I.PNT.02			H.MTL	I.PNT.02			PH, PB, KP, STP
D1-04	HALLWAY	BREAK ROOM	TYPE 2	36"	84"	H.MTL	I.PNT.02	VISION		H.MTL	I.PNT.02			PA, LH, STP
D1-05	STORAGE	WORKSHOP	TYPE 2	32"	83"	H.MTL	I.PNT.02			H.MTL	I.PNT.02			LK, LH, KP

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TRUE NORTH
PROJECT NORTH

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PROJECT STATUS
ISSUED FOR TENDER

ISSUED DATE
March 31, 2025

REVISIONS

1	Addendum 1 - Design Update	2025.05.21
2	Addendum 2 - Design Update	2025.08.27

CLIENT
Ontario Northland

PROJECT
ONTC Wheelhouse

555 Oak Street East, North Bay, ON

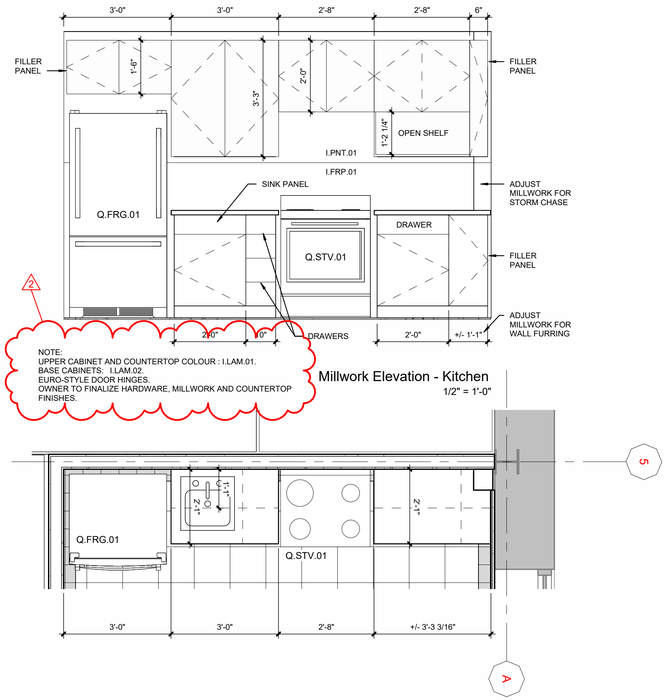
PROJECT NUMBER
Project No. 2025-013

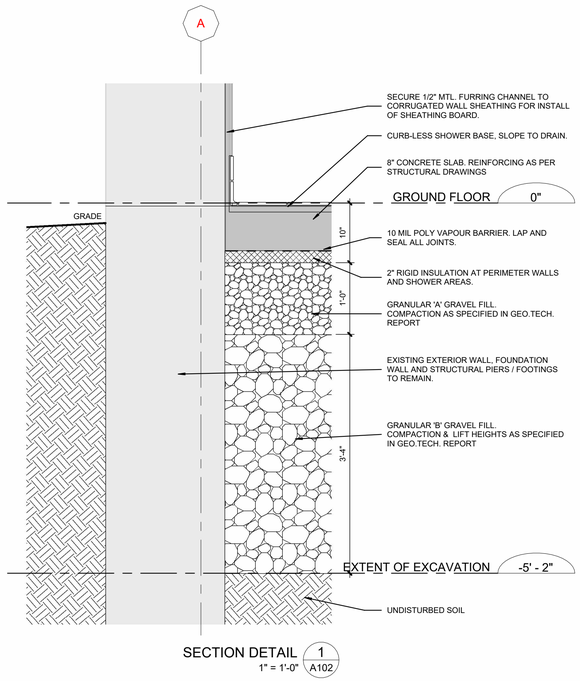
DRAWN BY / CHECKED BY
Author / Checker

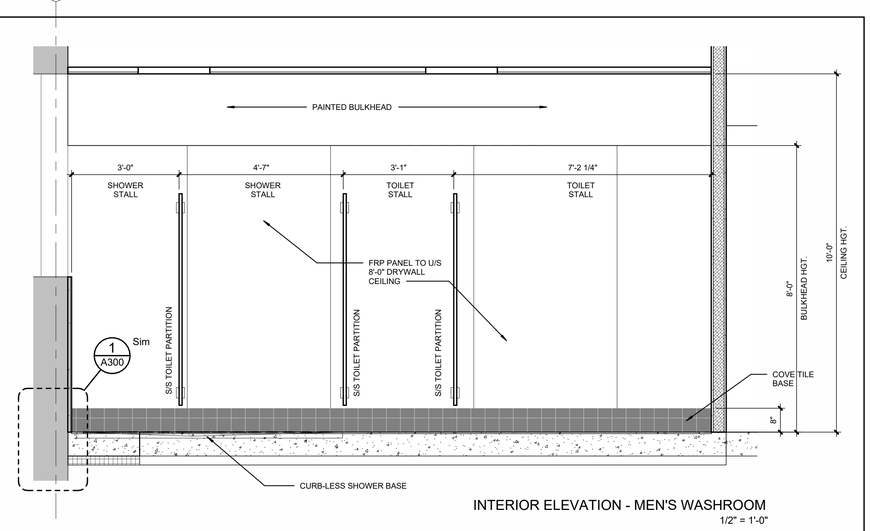
SCALE
As indicated

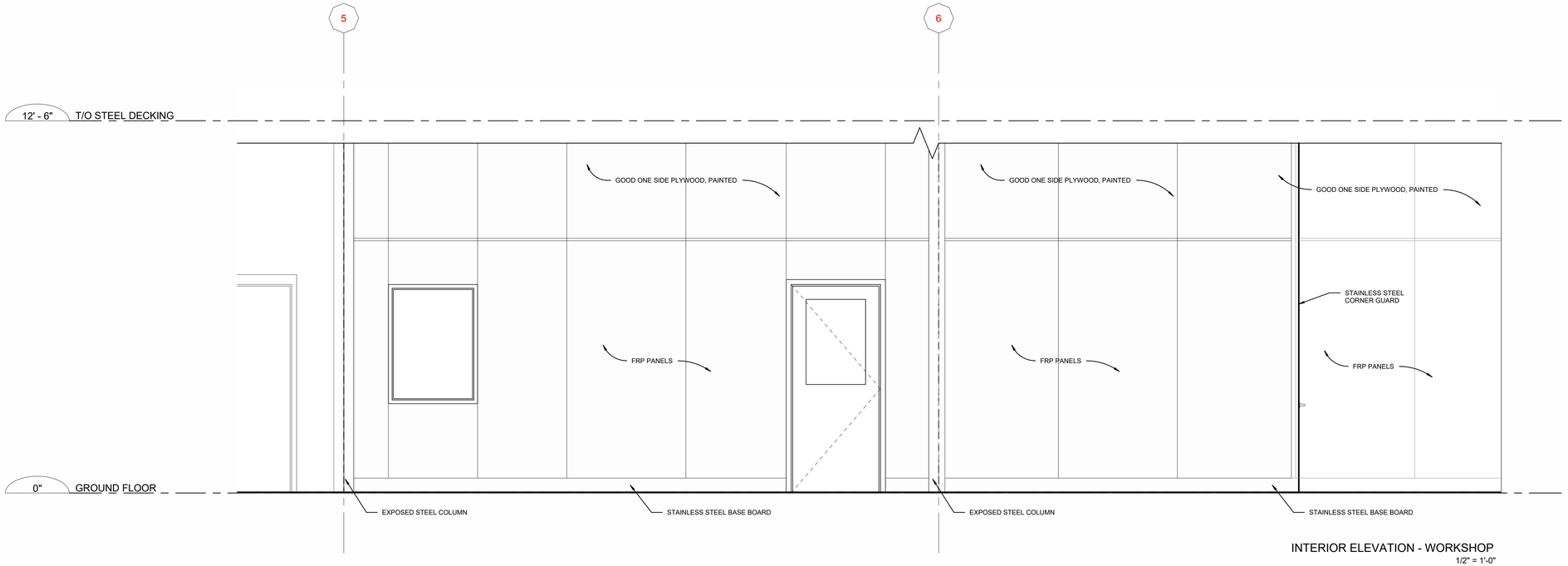
CONTENTS
GROUND FLOOR PLAN

SHEET NUMBER
A102









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CLIENT
Ontario Northland

PROJECT
ONTC Wheelhouse

555 Oak Street East, North Bay, ON

PROJECT NUMBER
Project No. 2025-013

DRAWN BY / CHECKED BY
DRWN / CHK

SCALE
As indicated

CONTENTS
INTERIOR ELEVATIONS & DETAILS

SHEET NUMBER
A300

Appendix “C”

hadrian®

Headrail Braced with Stainless Steel Hardware
ELITE PLUS
Solid Phenolic Black Core Toilet Partitions

Material Specification

1.01 Construction

Doors, panels and pilasters shall be certified CLASS B black core solid phenolic. The Material is made of Decorative surface papers impregnated with melamine resins, pressed over kraft paper core sheets impregnated with phenolic resin and bonded together under high pressure and high temperatures. No sightline interlocking doors and pilaster are standard to provide ultimate privacy. Material is ideal for toilet partition installations, especially in high abuse and high moisture environments.

1.02 Doors

Shall be 19mm (3/4”) thick by 1829mm (72”) high with no sightline rebate and 45 degree chamfered edges. Doors are pre-drilled for latch and hinges for easy installation. Doors are preinstalled with 2 rubber bumpers that are secured with a press fit and adhesive for a soft quite close.

1.03 Panels

Shall be 13mm (1/2”) thick by 1829mm (72”) high straight cut with 45 degree chamfered edges.

1.04 Pilasters

Shall be 19mm (3/4”) thick, with a finished height of 2083mm (82”) with no sightline rebate and 45 degree chamfered edges. Hinge holes are pre-drilled for easy installation.

1.05 Headrail

Shall be 25mm (1”) by 44mm (1.75”) extruded anodized aluminum with anti-grip design. Wall thickness to be 1.5mm (0.060”) and shall be securely attached to wall and pilasters with manufacturer’s fittings in such a way as to make a rigid installation. All joints in headrail shall be made at a pilaster.

1.06 Pilaster Fastening Method

Pilasters shall be securely and rigidly fastened to the floor with 76mm (3”) high 304 #4 brushed stainless steel anchor shoes.

1.07 Hardware & Fittings

Doors are installed with heavy duty 11-gauge stainless steel surface mounted hinges with easy adjustable cams for self-closing operation. Hinges shall be fastened to door and pilaster with stainless steel #12-11 x Length, 48° profile trilobular thread, twin lead, with a pan head - TR27 drive. Indicator latch shall be of brushed nickel zamac. Stainless steel continuous channels or stirrup brackets are used at the panel to wall, panel to pilaster, and pilaster to wall connections. Inswing doors shall be fitted with a stamped 304 stainless steel door hook, #4 brushed combined coat hook and bumper. Outswing doors shall be fitted with a #4 brushed stainless steel flat coat hook. Fasteners are stainless steel #12-11 x Length, 48° profile trilobular thread, twin lead, with a pan head - TR27 drive.

1.08 Finish

Doors, panels and pilasters shall be certified CLASS B black core solid phenolic. Color shall be as selected from Hadrian’s color card.