



Credit Valley Hospital

**CVH-2D Inpatient Mental Health
Spruce Suite Renovation**

PROJECT MANUAL

VOLUME 1 OF 2

SPECIFICATIONS

Divisions 1-13

Stantec Architecture Ltd.

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Project No.: 140019504

Issued for Bid

2024.05.31

Project Directory

1.1 Document Responsibility

- .1 Refer to Project Manual, Section 00 01 10 - Table of Contents, for indication of document responsibility (DR). Abbreviations for entity responsible for document preparation are as follows:
 - .1 A - Denotes documents prepared by Architect.
 - .2 E - Denotes documents prepared by Electrical Engineer.
 - .3 H - Denotes documents prepared by Architectural Hardware Consultant.
 - .4 M - Denotes documents prepared by Mechanical Engineer.

1.2 Project Directory

- .1 Architect (the *Consultant*):
Stantec Architecture Ltd.
200 – 835 Paramount Drive
Stoney Creek, Ontario
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Tel: 905-385-3234

- .2 Mechanical Engineer:

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Toronto, Ontario
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Tel: 416-644-0246

- .3 Electrical Engineer:

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25 York Street
Toronto, Ontario
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Project Directory

.4 Architectural Hardware Consultant:

Spyder SC

26 Dale Crescent
Bradford West Gwillimbury, Ontario
L0L 1L0

Tel: 647-271-6489

Contact: Cameron Gibson
Email: cameron.gibson@spydersc.com

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Summary of Work

PART 1 - GENERAL

1.1 Section Includes

- .1 *Contract Documents* conventions.
- .2 *Contract Documents* for construction purposes.
- .3 Law, notices, permits and fees.
- .4 Documents at the *Place of the Work*.
- .5 Use of premises and the *Place of the Work*.
- .6 Items supplied by *Owner*.
- .7 Electronic files.

1.2 *Contract Documents* Conventions

- .1 The *Contract Documents* have been arranged into various divisions, sections, drawings, and schedules for the purpose of presenting the *Work* in a logical and organized form and to enable ease of reference and interpretation, and are not intended to be an arrangement of precise and independent *Subcontractors*, or jurisdiction of responsibility for the various parts of the *Work*.
 - .1 The *Contractor* shall be solely responsible for coordinating the execution of the *Work* of this *Contract* in accordance with the requirements of the *Contract Documents*.
 - .2 The *Consultant* and *Owner* 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, nor to establish subcontract limits between Sections or Divisions of the *Work*.
 - .3 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 The *Specifications* are written in the imperative mood and in streamlined form. The imperative language is directed to *Contractor*, unless stated otherwise.
- .3 Complete sentences by reading "shall", "*Contractor* shall", "shall be", and similar phrases by inference. Where a colon (:) is used within sentences and phrases, read the words "shall be" by inference.
- .4 Fulfill and perform indicated requirements whether stated imperatively or otherwise.
- .5 When used in the context of a *Product*, read the word "provide" to mean "supply and install to result in a complete installation ready for its intended use".

Summary of Work

- .6 Named *Products* alternates or equals, indicated by the phrases "or approved alternate by XYZ Manufacturing" or "or approved equal by XYZ Manufacturing", shall be interpreted to mean that named *Product* alternate or equal, if selected for use in lieu of indicated or specified *Product*, meets or exceeds performance, appearance, general arrangement, dimensions, availability, code and standards compliance, and colour of specified *Product*. Be responsible for costs and modifications associated with the inclusion of named *Product* alternate or equal at no additional cost to the *Owner*.
- .7 The use within the *Contract Documents* of the words "include" or "including" or variations thereof is not limiting.
- .8 The use within the *Contract Documents* of the words "make good" or "making good" shall mean that, when a finish or material has been altered, the material or finish shall be repaired or replaced, and refinished to match existing quality and appearance to acceptance of *Consultant*, and that repaired or replaced and refinished *Work* shall not be discernible from existing materials or finishes when judged by the *Consultant* from a viewing distance of 1830 mm (6'), and that such work is included in the *Contract Price*.
- .9 Where a component, device, item, or part of materials or equipment is referred to in the singular number, such reference shall require the provision of as many components, devices, items, or parts of material or equipment necessary to complete the *Work*.
- .10 Reference standards:
 - .1 "Reference standards" means consensus standards, trade association standards, guides, and other publications expressly referenced in *Contract Documents*.
 - .2 Where an edition or version date is not specified, referenced standards shall be deemed to be the latest edition or revision issued by the publisher at the time of bid closing, except as follows:
 - .1 If a particular edition or revision date of a specified standard is referenced in an applicable code or other regulatory requirement, the edition or version referenced in the applicable code or other regulatory requirement shall apply.
 - .3 The *Contract Documents* may specify, indicate, or schedule requirements that exceed the requirements of the building code, other applicable codes, requirements of authorities having jurisdiction, and standards cited in the *Contract Documents*. In such cases, the requirements specified, indicated, or scheduled in the *Contract Documents* shall govern.
 - .4 If compliance with two or more reference standards is specified and the standards establish different or conflicting requirements, comply with the most stringent requirement. Refer uncertainties to *Consultant* for clarification.

Summary of Work

1.3 **Contract Documents for Construction Purposes**

- .1 Owner shall supply *Contractor* with a complete set of *Contract Documents* in electronic form before commencement of the *Work*.

1.4 **Laws, Notices, Permits, and Fees**

- .1 The building code - Ontario Regulation 332/12, including amendments, shall govern the *Work*.
- .2 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*.
- .3 Owner shall apply and pay for the building permit. The *Contractor* shall pick up building permit from the municipal department having jurisdiction at the *Place of the Work*. Obtain and pay for all other permits, licenses, deposits and certificates of inspection as part of the *Work*.
- .4 Arrange for inspection, testing and acceptance of the *Work* required by the authorities having jurisdiction. Be responsible for necessary preparations, provisions and pay costs.
- .5 Obtain permits required to execute work on municipal rights of way. Obtain damage deposits for sidewalks, roads and services, unless otherwise indicated.
- .6 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 The *Contractor* shall provide to the chief building official or the registered code agency, where a registered code agency is appointed under the Ontario Building Code Act in respect of the construction to which the notice relates, the required notices set out in Division C – Part 1 Sentence 1.3.5.1(2) and Sentence 1.3.5.2 of the Ontario Building Code, O. Reg. 332/12 as amended. The *Contractor* shall be present at each site inspection by an inspector or registered code agency as applicable under Division C – Part 1 Sentence 1.3.5.2 of the building code.
 - .1 It is the responsibility of the *Contractor* to schedule notifications to the chief building official or the registered code agency such that the inspection pertaining to the notifications can be made within the time frame as required under Division C – Part 1 Sentence 1.3.5.3 of the Ontario Building Code, O. Reg. 332/12 as amended, 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.

Summary of Work

1.5 Documents at the *Place of the Work*

- .1 Maintain at the *Place of the Work*, one copy of each of following:
 - .1 *Contract Documents* including drawings, specifications, addenda, and other modifications to the *Contract*.
 - .2 'Reviewed' or 'Reviewed as Noted' submittals.
 - .3 Construction and submittal schedules.
 - .4 *Supplemental Instructions*, proposed *Change Orders*, *Change Orders*, and *Change Directives*.
 - .5 RFI responses and RFI log.
 - .6 Field test reports and independent testing reports.
 - .7 *Consultant's* field review reports and deficiency reports.
 - .8 Manufacturer's field review reports.
 - .9 Reports by authorities having jurisdiction.
 - .10 Building and other applicable permits, and related permit documents.
 - .11 Daily log including:
 - .1 Weather (precipitation, high and low temperatures, wind, and visibility).
 - .2 Number of workers actively working at the *Place of the Work* by each subcontract.
 - .3 *Subcontractors* working at the *Place of the Work*.
 - .4 Parts of the *Work* being worked on.
 - .5 Working hours worked at the *Place of the Work*.
 - .6 Activities with intermittent progress.
 - .7 Time lost and explanation for such time lost.
 - .8 Difficulties (work scheduled to start but did not with the reason why, delays, labour inefficiencies, labour shortage, weather).
 - .9 *Products* and materials delivered.
 - .10 Equipment mobilized and/or demobilized.
 - .11 Demolition conditions.
 - .12 Start and finish date of each part of the *Work*.
 - .12 As-built drawings recording as-built conditions, instructions, changes for structure, equipment, wiring, plumbing, and the like, as called for in Section 01 78 00 and Divisions 21, 22, and 23 and Divisions 26, 27, and 28, prior to being concealed.

Summary of Work

- .2 Make above material available to *Consultant* upon request.

1.6 Use of Premises and the *Place of the Work*

- .1 Except as otherwise specified, *Contractor* has unrestricted use of *Place of the Work* from time of *Contract* award until *Ready-for-Takeover*.
- .2 Confine *Construction Equipment*, *Temporary Work*, storage of *Products*, waste products and debris, and all other construction operations to limits required by laws, ordinances, permits, and *Contract Documents*, whichever is most restrictive. Do not unreasonably encumber *Place of the Work*.

1.7 Not In Contract Items and Items Supplied by Owner

- .1 NIC (Not In *Contract*) shall be used to designate various items of equipment that require coordination for installation although are not provided as part of the *Work*.
- .2 SBO (Supplied by *Owner*) shall be used to designate various items of equipment that will be supplied by the *Owner* for installation by the *Contractor* as part of the *Work*.
 - .1 *Owner* Responsibilities:
 - .1 Order and pay for items supplied by *Owner* not already in *Owner's* possession.
 - .2 Arrange and pay for delivery of items supplied by *Owner* F.O.B. the *Place of the Work*, within time frames required by *Contractor's* progress schedule. If delivered sooner than required by *Contractor's* latest progress schedule submitted to *Owner*, arrange and pay for delivery to a temporary storage location and subsequent delivery to the *Place of the Work*.
 - .3 Advise *Contractor* in writing of the value of items supplied by *Owner* for *Contractor's* insurance purposes.
 - .4 Arrange and pay for delivery to *Contractor* of reviewed *Shop Drawings*, *Product* data, samples, and manufacturer's installation instructions.
 - .5 Inspect deliveries jointly with *Contractor*.
 - .6 Submit claims for transportation damage.
 - .7 Arrange for replacement of damaged, defective or missing items identified at time of delivery.
 - .8 Arrange for manufacturer's field services.
 - .9 Arrange for delivery of manufacturer's warranties to *Contractor* for inclusion in operation and maintenance manual.
 - .2 *Contractor* Responsibilities:

Summary of Work

- .1 Designate in progress schedule, time frames for delivery of items supplied by *Owner* to the *Place of the Work* and for receipt of related submittals. If the *Place of the Work* is not ready to receive delivery of items supplied by *Owner* within the time frame indicated in the latest progress schedule submitted to *Owner*, arrange and pay for delivery to a temporary storage location and subsequent delivery to the *Place of the Work*.
- .2 Review all required submittals and notify *Consultant* of any observed discrepancies or anticipated problems.
- .3 Ensure that course of construction insurance is adequate to cover items supplied by *Owner*.
- .4 Receive and unload items supplied by *Owner* at the *Place of the Work*.
- .5 Inspect deliveries jointly with *Owner*. Record and notify *Owner* and *Consultant* of shortages and visibly damaged or defective items.
- .6 Handle items supplied by *Owner* at the *Place of the Work*, including uncrating and storage. Dispose of waste materials and debris.
- .7 Take appropriate precautions to protect items supplied by *Owner* from loss or damage.
- .8 Repair or replace items damaged at the *Place of the Work*.
- .9 Assemble, install, connect, adjust, and finish items supplied by *Owner* as specified.
- .10 Arrange for inspections required by authorities having jurisdiction as specified.
- .11 Arrange for or perform testing as specified.
- .12 Workmanship warranty for installation.

1.8 Electronic Files

- .1 In the event that the *Contractor*, a *Subcontractor*, or a *Supplier* requests AutoCAD files from the *Consultant*, the *Consultant* will be allowed to use their discretion whether or not they will provide them. The *Consultant* may charge a fee for providing the electronic files and/or require a copyright waiver to be signed, also at the *Consultant's* discretion.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Allowances

PART 1 - GENERAL

1.1 Section Includes

- .1 Cash allowances.

1.2 Cash Allowances

- .1 Expenditure of cash allowances:
 - .1 The *Owner*, through the *Consultant*, will provide the *Contractor* with documentation required to permit pricing of a cash allowance item.
 - .2 The *Owner*, through the *Consultant*, may request the *Contractor* to disclose originals of all bids, quotations, and other price-related information received from potential *Suppliers* or *Subcontractors*.
 - .3 The *Owner*, through the *Consultant*, will determine by whom each cash allowance item will be performed and for what amount. Obtain *Owner's* prior written approval in the form of a *Change Order* before entering into a subcontract, amending an existing subcontract, or before performing by own forces, work that is covered by a cash allowance. Upon issuance of the *Change Order*, the *Contractor's* responsibilities for a cash allowance item shall be the same as for other work of the *Contract*.
- .2 Cash allowances are for supply and installation unless otherwise specified.
- .3 Amount of each cash allowance does not include *Contractor's* overhead and profit, and other related costs, which shall be included in the *Contract Price* and not in the cash allowance.
- .4 Cash allowances for supply only:
 - .1 Amount of each cash allowance includes:
 - .1 Cost of *Products* as invoiced by the *Supplier*, including delivery and applicable taxes but excluding Value Added Taxes.
 - .2 Amount of each cash allowance does not include costs of the following items, which costs shall be included in the *Contract Price* and not in the cash allowance:
 - .1 Unloading, handling and storage at the *Place of the Work*.
 - .2 Installation and all other related costs.
- .5 Cash allowances for install only:
 - .1 Amount of each cash allowance includes:
 - .1 Unloading, storing, handling of *Products* at the *Place of the Work*.
 - .2 Installation, finishing, and commissioning of *Products*.
 - .3 Applicable taxes and duties (excluding Value Added Taxes).
 - .2 Amount of each cash allowance does not include costs of the following items, which costs shall be included in the *Contract Price* and not in the cash allowance:

Allowances

- .1 Net cost of *Products*.
- .2 Delivery to the *Place of the Work*.
- .6 Cash allowances for supply and install:
 - .1 Amount of each cash allowance includes:
 - .1 All costs to provide the specified *Products*, including supply, installation, and related costs, excluding Value Added Taxes.
 - .2 *Subcontractor's* and sub-*Subcontractor's* overheads and profits related to the cash allowance.
 - .7 Cash allowances for services:
 - .1 Amount of each cash allowance includes:
 - .1 All costs related to the services, excluding Value Added Taxes.
 - .2 *Subcontractor's* and sub-*Subcontractor's* overheads and profits related to the cash allowance.
 - .8 List of cash allowances
 - .1 The *Contract Price* includes a total cash allowance of \$137,500.00 which covers the following items:
 - .1 Independent Inspection and Testing: \$15,000.00
 - .2 Final coordination to suit *Owner's* supplied equipment: \$7,500.00
 - .3 Unforeseeable site conditions: \$100,000.00
 - .4 Final coordination of hardware and related life safety and electrical services: \$7,500.00
 - .5 Wireless Survey: \$7,500.00

PART 2- PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Substitution Procedures

PART 1 – GENERAL

1.1 Section Includes

- .1 Substitution procedures.
- .2 Submission requirements for proposed substitutions.

1.2 Definition

- .1 In this Section "Substitution" means a *Product*, a manufacturer, or both, not originally specified in *Contract Documents* by proprietary name but proposed for use by *Contractor* in place of a *Product*, a manufacturer, or both, specified by proprietary name.

1.3 Substitution Procedures

- .1 Proposals for substitutions of *Products* and materials must be submitted in accordance with procedures specified in this section.
- .2 *Contractor* may propose a Substitution wherever specifications include the phrases "or equal", "or approved equal", "Substitutions: in accordance with Section 01 25 00", or words conveying this intent. Where specifications do not include such language, *Contractor* proposed substitutions shall not be permitted.
- .3 Do not order or install any substitution without a *Supplemental Instruction* or *Change Order*.
- .4 Provided a proposed Substitution submission includes all of the information specified in this Section under Submission Requirements For Proposed Substitutions, *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*.
- .5 *Consultant* may recommend to *Owner* acceptance of a Substitution proposed by *Contractor* if satisfied that:
 - .1 The proposed substitute *Product* is the same type as, is capable of performing the same functions as, interfaces with adjacent work the same as, and meets or exceeds the standard of quality, performance and, if applicable, appearance and maintenance considerations, of the specified *Product*.
 - .2 The proposed substitute manufacturer has capabilities comparable to the specified manufacturer.
 - .3 The Substitution provides a benefit to *Owner*.
- .6 Failure to order a specified *Product* or to order a *Product* by a specified manufacturer in adequate time to meet construction progress schedule shall not be considered a valid reason to propose a Substitution. Refer to Section 01 60 00, paragraph 1.2 "Availability of Products".
- .7 If *Owner* accepts a Substitution, the change in the *Work* will be documented in the form of either a *Supplemental Instruction* or *Change Order* as specified in Section 01 26 00.

Substitution Procedures

- .8 If a Substitution is accepted in the form of a *Supplemental Instruction* or *Change Order*, *Contractor* shall not revert to an originally specified *Product* or manufacturer without *Consultant's* prior written acceptance.

1.4 Submission Requirements for Proposed Substitutions

- .1 Include with each proposed Substitution the following information:
- .1 Identification of the Substitution, including *Product* name and manufacturer's name, address, telephone numbers, and web site.
 - .2 Reason(s) for proposing the Substitution.
 - .3 A statement verifying that the Substitution will not affect the *Contract Price* and *Contract Time* or, if applicable, the amount and extent of a proposed increase or decrease in *Contract Price* and *Contract Time* on account of the Substitution.
 - .4 A statement verifying that the Substitution will not affect the performance or warranty of other parts of the *Work*.
 - .5 Manufacturer's *Product* literature for the Substitution, including material descriptions, compliance with applicable codes and reference standards, performance and test data, compatibility with contiguous materials and systems, and environmental considerations.
 - .6 *Product* samples as applicable.
 - .7 A detailed comparison of the physical properties and performance characteristics of the specified *Product* and the Substitution, with any significant variations clearly highlighted.
 - .8 Availability of maintenance services and sources of replacement materials and parts for the Substitution, as applicable, including associated costs and time frames.
 - .9 If applicable, estimated life cycle cost savings resulting from the Substitution.
 - .10 Details of other projects and applications where the Substitution has been used.
 - .11 Identification of any consequential changes in the *Work* to accommodate the Substitution and any consequential effects on the performance of the *Work* as a whole. A later claim for an increase to the *Contract Price* or *Contract Time* for other changes in the *Work* attributable to the Substitution will not be considered.
 - .12 Confirmation of proposed substitution delivery, in writing by *Product* manufacturer.
 - .13 Compliance with the building codes and requirements of authorities having jurisdiction.
 - .14 Copy of manufacturer's warranty for any *Product* or system for which an extended warranty has been specified, along with copy of manufacturer's warranty for specified *Product* or system with differences highlighted.
- .2 Substitutions submitted on *Shop Drawings* without following requirements of this section prior to submission of the affected *Shop Drawings* will cause the *Shop Drawings* to be rejected.

Substitution Procedures

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

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Contract Modification Procedures

PART 1 - GENERAL

1.1 Section Includes

- .1 Schedule of labour rates.
- .2 *Supplemental Instructions*.

1.2 Schedule of Labour Rates

- .1 Prior to the first application for payment, submit for the *Consultant's* review a schedule of labour rates for all trades and classifications of trades, such as journeymen, apprentices, and foremen that will be employed in the *Work*. Provide a breakdown of payroll burden component of labour rates.
- .2 Labour rates shall reflect the salaries, wages, and benefits paid to personnel in the direct employ of the *Contractor*, *Subcontractors*, and sub-*Subcontractors*, stated as hourly rates, that will be used when:
 - .1 Preparing price quotations for *Change Orders*.
 - .2 Determining the cost of work attributable to *Change Directives*.
- .3 Labour rates stated in the schedule of labour rates shall be consistent with rates that will actually be paid, and payroll burden costs that will actually be incurred, in the normal performance of the *Work*, during regular working hours. Labour rates shall not include any additional overhead and profit component.
- .4 Where collective agreements apply, the labour rates shall not exceed those established by collective agreement.
- .5 Obtain the *Owner's* written acceptance of the schedule of labour rates before submitting the first *Change Order* quotation.
- .6 Accepted schedule of labour rates will be used solely for evaluating *Change Order* quotations and cost of performing work attributable to *Change Directives*.
- .7 The *Contractor* may request amendments to the accepted schedule of labour rates if changes in the labour rates that will actually be paid, or payroll burden cost that will actually be incurred, in the normal performance of the *Work* can be demonstrated. Obtain the *Owner's* written acceptance of such changes.

1.3 Supplemental Instructions

- .1 The *Consultant* may issue *Supplemental Instructions* to provide clarifications to the *Contract Documents*, provide additional information, or make minor variations in the *Work* not involving adjustment in the *Contract Price* or *Contract Time*.

Contract Modification Procedures

- .2 If the *Contractor* considers a *Supplemental Instruction* to require an adjustment in *Contract Price* or *Contract Time*, the *Contractor* shall promptly notify the *Consultant* and the *Owner* in writing and shall not proceed with any work related to the *Supplemental Instruction* pending receipt of a *Change Order*, a *Change Directive*, or, in accordance with the dispute resolution provisions of the General Conditions of *Contract*, a Notice in Writing of a dispute and instructions to proceed.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Payment Procedures

PART 1 - GENERAL

1.1 Section Includes

- .1 Schedule of values.
- .2 Cash flow projection.
- .3 Workers' compensation clearance.
- .4 Payment for *Products* stored off site.

1.2 Schedule of Values

- .1 Prior to the first application for payment, submit for *Consultant's* review an initial schedule of values. Modify the initial schedule of values if and as requested by *Consultant*. Obtain *Consultant's* written acceptance of the initial schedule of values prior to the first application for payment.
- .2 Together with the first and all subsequent applications for payment, submit updated versions of the schedule of values to indicate the values, to the date of application for payment, of work performed and *Products* delivered to *Place of the Work*.
- .3 Provide the schedule of values in an electronic spreadsheet format acceptable to *Consultant* and *Owner* and that includes the following:
 - .1 Identifying information including title and location of the *Work*, name of *Contractor*, number and date of application for payment, and period covered by the application for payment.
 - .2 A work breakdown structure based on *Contractor*, *Subcontractor*, and sub-*Subcontractor* work, systems description, Specification sections, or material and labour breakdown, as appropriate.
 - .3 Provisions for approved unit price work, assignable contracts, *Change Orders*, and allowances, so that the breakdown amounts indicated in the schedule of values aggregate to the current total *Contract Price*. Also provide for indicating the estimated value of *Change Directives* within the schedule of values, separately from the current total *Contract Price*.
 - .4 Line items identifying full costs for the following:
 - .1 Preparation of coordination and interference drawings in accordance with the requirements of Section 01 31 00, with a value not less than 0.5% of the *Contract Price* or \$10,000.00, whichever is greater.
 - .2 Preparation and submission of closeout submittals in accordance with the requirements of Section 01 78 00, with a value not less than 0.5% of the *Contract Price* or \$10,000.00, whichever is greater.
 - .3 Preparation and submission of the deficiency list in accordance with the requirements of Section 01 77 00.
 - .5 For each item in the work breakdown structure, provide as a minimum the following information, under headings as indicated:

Payment Procedures

- .1 Breakdown Amount: A dollar amount, including an appropriate pro rata portion of *Contractor's* overhead and profit.
- .2 Performed to Date: The value of *Work* performed and *Products* delivered to *Place of the Work* up to the date of the application for payment, stated as a percentage of the *Contract Price* and in dollars.
- .3 Previously Performed: The value of *Work* performed and *Products* delivered to the *Place of the Work* for which payment has been previously certified, stated in dollars.
- .4 Current Period: The value of *Work* performed and *Products* delivered to *Place of the Work* for which *Contractor* is currently applying for payment, stated in dollars.
- .5 Balance to Complete: The value of *Work* not yet performed and *Products* not yet delivered to *Place of the Work*, stated in dollars.

1.3 Cash Flow Projection

- .1 Prior to the first application for payment submit, for *Consultant's* review, a forecast of approximate monthly progress payments for each month of the *Contract Time*.
- .2 Submit revised cash flow forecasts monthly. Submit additional revised cash flow forecasts when there are significant changes in rate of progress of the *Work* or significant changes in the *Contract Price* as determined by the *Consultant*. Submit additional revised cash flow forecasts when requested by *Consultant*.

1.4 Workers' Compensation Clearance

- .1 Submit Certificate of Clearance from the Workplace Safety and Insurance Board (WSIB) with each application for payment.

1.5 Payment for Products Stored Off Site

- .1 *Owner* may, due to extraordinary circumstances and at *Owner's* sole discretion, make payments for *Products* delivered to and stored at a location other than *Place of the Work*, subject to:
 - .1 A request submitted by *Contractor* in writing, with appropriate justification.
 - .2 Whatever conditions *Owner* or *Consultant* may establish for such payments, as required to protect *Owner's* interests.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Project Management and Coordination

PART 1 - GENERAL

1.1 Section Includes

- .1 Building dimension, templates, built-ins, and coordination.
- .2 Coordination and interference drawings.
- .3 Superintendent.
- .4 Discrepancies and clarifications.
- .5 Request for interpretation (RFI) procedures.

1.2 Building Dimension, Templates, Built-ins, and Coordination

- .1 Take necessary dimensions for the proper execution of the *Work*. Assume complete responsibility for the accuracy and completeness of such dimensions, and for coordination.
- .2 Verify dimensions at the *Place of the Work* before commencing *Shop Drawings*. Before fabrication commences report discrepancies to *Consultant* in writing. Incorporate accepted variances on shop drawings and as-built records.
- .3 Supply forms, templates, anchors, sleeves, inserts and accessories required to be fixed to or inserted in the *Work* and set in place or instruct separate *Subcontractors* as to their location.
- .4 Supply items to be built in, as and when required together with templates, measurements, shop drawings and other related information and assistance.
- .5 Pay the cost of extra work and make up time lost as a result of failure to provide necessary information and items to be built in.
- .6 Verify that the *Work*, as it proceeds, is executed in accordance with dimensions and positions indicated which maintain levels and clearances to adjacent work, as set out by requirements of the *Contract Documents*, and ensure that work installed in error is rectified before construction resumes.
- .7 Check and verify dimensions referring to interfacing of services. Verify such dimensions with interconnected portions of the *Work*.
- .8 Do not scale directly from drawings. Obtain clarification from *Consultant* if there is ambiguity or lack of information.
- .9 Details and measurements of any work which is to fit or to conform with work installed shall be taken at the *Place of the Work*.
- .10 Prepare and submit setting drawings, templates and other information necessary for the location and installation of material, holes, sleeves, inserts, anchors, accessories, fastenings, connections and access panels.
- .11 *Subcontractors* shall direct related *Subcontractors* on site of specific locations required for sleeves and openings.

Project Management and Coordination

1.3 Coordination and Interference Drawings

- .1 The *Contractor* shall be responsible for preparing and submitting to the *Consultant* for review, a consolidated set of installation coordination/interference drawings for the building showing how the building systems (including, but not limited to, domestic heating and cooling piping, air distribution systems, air control boxes, reheat coils, fire protection piping, electrical distribution, fire alarm systems, lighting, communication cabling, security cabling) will fit together above ceiling areas and in exposed ceiling, to allow ceiling heights required by the *Contract Documents* and by maintenance and control access.
 - .1 Each *Subcontractor* whose work is affected by the information presented on the coordination and interference drawings shall sign-off on the drawings prior to submission to the *Consultant* and thereby agrees to coordinate their parts of the *Work* to preserve the coordination and interference guidelines represented by the coordination and interference drawings.
- .2 Prepare sleeve drawings for work of Divisions 21, 22, and 23, and Divisions 26, 27, and 28 showing size and location of penetrations through load bearing elements. Submit sleeving drawings in electronic form to *Consultant* for review not less than 10 *Working Days* prior to construction of affected work.
- .3 Prepare embedded conduit drawings, showing size and location of penetrations through load bearing elements. Submit embedded conduit drawings in electronic form to *Consultant* for review not less than 10 *Working Days* prior to construction of affected work.
- .4 Prepare insert setting drawings for work to be cast into concrete and/or mortared into masonry elements. Submit insert setting drawings in electronic form to *Consultant* for review not less than 10 *Working Days* prior to construction of affected work.
- .5 Coordinate placement of equipment to ensure that components will be properly accommodated within spaces provided prior to commencement of *Work*. In areas where equipment and services are exposed care shall be taken to organize and layout services in an organized and orderly manner. Where possible services are to run parallel or at right angles to one another as required. *Consultant* may request that service layout be reconfigured to suit sightline concerns during the coordination drawings review phase. These drawing changes are to be executed at no additional cost to the *Owner*.
- .6 Take complete responsibility for remedial work that results from failure to coordinate the *Work* prior to fabrication and installation.
- .7 Ensure that accesses and clearance required by jurisdictional authorities and/or for easy maintenance of equipment are provided in layout of equipment and services.
 - .1 Indicate required access points, clearances, and sizes for equipment and pieces of equipment required in the *Work*. Note areas where access is compromised by interferences with other services for review by the *Consultant*. Do not proceed with installation of equipment in such compromised areas until a proposed means of providing access has been accepted by the *Consultant*.
- .8 Prepare and circulate coordination, interference and sleeving drawings prior to placing orders for equipment and materials.

Project Management and Coordination

- .9 Coordination and interference drawings shall be circulated for mark-ups by *Subcontractors* responsible for work of Divisions 3, 5, 6, 9, 11, 13, 14, Divisions 21, 22, and 23, and Divisions 26, 27, and 28, as applicable.
- .10 Coordinate preparation and submission of coordination and interference drawings with *Shop Drawings*.
- .11 Show cross sections in key areas, as required, and as defined by *Consultant*. Show re-bar, structural elements, piping, air handling and heating systems distribution, sprinkler system distribution, lighting, gypsum board wall and ceiling assemblies, acoustical isolation, *Products* and systems involving life safety, conveying systems, electrical distribution.
- .12 Show ductwork as 2 lines. Show cross sections in key areas, as required, and as directed by *Consultant*. Show re-bar, structural elements, air handling and heating systems distribution, gypsum board wall and ceiling assemblies, acoustical isolation, *Products* and systems involving life safety, conveying systems, and electrical distribution.
- .13 Coordination and interference drawings shall be produced in uniform scale on media that will allow overlays to be assembled. Upon incorporation of details, drawings shall be submitted to *Consultant* for review. Areas of conflict or interference shall be resolved in a mutually agreed manner between *Subcontractors* and resubmitted on coordination and interference drawings until accepted by *Consultant*.

1.4 Superintendent

- .1 Provide superintendent and necessary supporting staff personnel who shall be in attendance at the *Place of the Work* while *Work* is being performed, with proven experience in erecting, supervising, testing and adjusting projects of comparable nature and complexity.
- .2 The *Contractor* shall appoint superintendent at the *Place of the Work* who shall have overall authority at the *Place of the Work* and shall speak for the *Contractor* and represent the *Contractor's* interest and responsibilities at meetings at the *Place of the Work* and in dealings with the *Consultant* and the *Owner*.

1.5 Discrepancies and Clarifications

- .1 Advise *Consultant* of discrepancies discovered in requirements of the *Contract Documents* and request clarification in written form.
- .2 Advise *Consultant* when clarifications are required pertaining to meaning or intent of requirements of *Contract Documents* and request clarification from *Consultant* in written form.
- .3 Do not proceed with related work until written clarification is provided by *Consultant*.
- .4 Failure to notify *Consultant* shall result in *Contractor* incurring responsibility for resulting deficiencies and expense at no additional cost to the *Owner*.
- .5 Written requirements issued by *Consultant* for the purpose of clarification, implicitly supersede applicable and relevant aspects of the *Contract Documents* irrespective of whether or not these documents are explicitly or specifically cited in clarification requests or clarification requirements.

Project Management and Coordination

1.6 Request for Interpretation - RFI

- .1 A request for interpretation (RFI) is a formal process used during the *Work* to obtain an interpretation of the *Contract Documents* pursuant to GC 2.2.6 through GC 2.2.9 (inclusive).
 - .1 An RFI shall not constitute notice of claim for a delay.
- .2 Submittal procedures:
 - .1 RFI form:
 - .1 Submit RFI on "Request for Interpretation" in form acceptable to the *Consultant*, an example of which is appended to this section. The *Consultant* shall not respond to an RFI except as submitted on this form.
 - .2 Where RFI form does not provide sufficient space for complete information to be provided thereon, attach additional sheets as required.
 - .3 Submit with RFI form necessary supporting documentation.
 - .2 Submit RFI form as follows:
 - .1 Submit RFIs sufficiently in advance of affected parts of the *Work* so as not to cause delay in the performance of the *Work*. Costs resulting from failure to do this will not be paid by the *Owner*.
 - .2 RFIs shall be submitted only to the *Consultant*.
 - .3 RFIs shall be submitted only by *Contractor*. RFIs submitted by *Subcontractors* or *Suppliers* shall not be accepted.
 - .4 Number RFIs consecutively in one sequence in order submitted.
 - .5 Submit one distinct RFI per RFI form.
 - .3 RFI log:
 - .1 Maintain log of RFIs sent to and responses received from the *Consultant*, complete with corresponding dates.
 - .2 Submit updated log of RFIs with each progress draw submittal.
 - .4 *Consultant* shall review RFIs from the *Contractor* submitted in accordance with this section, with the following understandings:
 - .1 *Consultant's* response shall not be considered as a *Change Order* or *Change Directive*, nor does it authorize changes in the *Contract Price* or *Contract Time* or changes in the *Work*.
 - .2 Only the *Consultant* shall respond to RFIs. Responses to RFIs received from entities other than the *Consultant* shall not be considered.
 - .5 Allow 5 *Working Days* for review of each RFI by the *Consultant*.
 - .1 *Consultant's* review of RFI commences on date of receipt by the *Consultant* of RFI submittal and extends to date RFI returned by *Consultant*.

Project Management and Coordination

- .2 When the RFI submittal is received by *Consultant* before noon, review period commences that day; when RFI submittal is received by *Consultant* after noon, review period begins on the next *Working Day*.
- .3 If, at any time, the *Contractor* submits a large enough number of RFIs such that the *Consultant* cannot process these RFIs within 5 *Working Days*, the *Consultant*, will confer with the *Contractor* within 1 *Working Day* of receipt of such RFIs, and the *Consultant* and the *Contractor* will jointly prepare an estimate of the time necessary for processing the RFIs and determine the order of priority between the RFIs submitted. The *Contractor* shall accommodate such necessary time at no increase in the *Contract Time* and at no additional cost to the *Owner*.
- .6 Undertake a review of the *Contract Documents* to determine that the matter in question relating to the interpretation of the *Contract Documents* cannot be resolved by direct reference to the *Contract Documents*. Describe this review in detail on the RFI form. RFI submittals that lack a detailed review description, or where the detail provided is insufficient, in the sole opinion of the *Consultant*, shall not be reviewed by the *Consultant* and shall be rejected.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Contractor's Request for Interpretation

Consultant's Supplemental Instructions

Date	# of Pages
To	From
Co.	Co.
Phone #	Phone #
Fax #	Fax #
Email	Email

Project:	_____	RFI No.:	_____
Owner:	_____	Date of Request:	_____
To:	_____	Contractor:	_____
	(Consultant's Representative)		
Project No.:	_____	Contractor's Representative:	_____
Consultant's Fax No.:	_____	Fax No.:	_____

Interpretation Requested: (Description of request for interpretation and references to relevant portions of *Contract Documents*)

Attachments: _____

Requested by: _____

Consultant's Supplemental Instruction:

Attachments: _____

Reply By: _____

The work shall be carried out in accordance with these *Supplemental Instructions* issued in accordance with the *Contract Documents* without change in *Contract Price* or *Contract Time*. Prior to proceeding with these instructions, indicate acceptance of these instructions as being consistent with the *Contract Documents* by returning a signed copy to the *Consultant*.

Supplemental Instruction Issued:	Supplemental Instruction Accepted:
By: _____	By: _____
Consultant _____ Date _____	Contractor _____ Date _____
Cc: <input type="checkbox"/> Owner <input type="checkbox"/> Consultant <input type="checkbox"/> Contractor	<input type="checkbox"/> Field <input type="checkbox"/> Other: _____

Mechanical and Electrical Coordination

PART 1 - GENERAL

1.1 General

- .1 The work of this Section shall include for coordination between mechanical and electrical work, and mechanical and electrical relationship with the work of other Sections.

1.2 Mechanical and Electrical Work Coordinator

- .1 The mechanical and electrical work coordinator shall be arranged by and paid for by the *Contractor* and shall be a person or firm technically qualified and experienced in field coordination for the type of mechanical and electrical work required for this *Project*. The mechanical and electrical work managers shall have minimum 10 years field experience working on hospital projects.

1.3 Submittals

- .1 Submit coordination drawings and schedules prior to shop drawings, product data, and samples.

1.4 Coordination

- .1 Conduct regular meetings with all related *Subcontractors*, and other concerned parties as necessary to establish and maintain coordination and scheduling, and to resolve any matters in dispute.
- .2 Participate in progress meetings. Report on progress of work to be adjusted under coordination requirements, and any needed changes in schedules.
- .3 Transmit minutes of meetings to concerned parties.

1.5 Coordination Documents

- .1 Prepare coordination drawings of installation for efficient use of available space, for proper sequence of work, and to resolve conflicts.
- .2 Prepare master schedule to record responsibilities under each Section of Divisions 01 through each of the specifications of actions which directly relate to mechanical and electrical work.
- .3 Maintain documents throughout construction period, recording changes due to modifications and adjustments.
- .4 After acceptance of original and revised documents, reproduce and distribute copies to each concerned party.
- .5 Prepare facility shutdown schedule and submit to *Owner*.

1.6 Coordination of Submittals

- .1 Review shop drawings, product data, and samples for compliance with *Contract Documents* and for coordination of work of all Sections of the specifications, prior to submitting to *Consultant*, in accordance with Section 01 33 00. Coordination includes but is not limited to:

Mechanical and Electrical Coordination

- .1 Check field dimensions and clearances, relation to available spaces, and anchor bolt settings.
- .2 Check compatibility with equipment and work of other sections, electrical characteristics, and control requirements.
- .3 Check motor voltages and control characteristics.
- .4 Coordinate controls and interlocks, voltages and wiring of pneumatic switches, and relays.
- .5 Coordinate locations of mechanical and electrical ceiling access panels in Integrated Ceiling system and other suspended ceilings.
- .6 Coordinate locations of mechanical and electrical ceiling access panels in Integrated Ceiling system and other suspended ceilings.
- .7 Review the effect of any changes on work of other Sections.
- .8 Verify and coordinate maintenance of Record Documents.

1.7 Coordination of Substitutions and Modifications

- .1 Review proposals and requests from *Subcontractors*. Check for compliance with *Contract Documents* and for compatibility with work and equipment of other Sections.

1.8 Observation of Work

- .1 Observe *Work* for compliance with *Contract Documents*.
- .2 Maintain a list of observed deficiencies and defects; promptly submit to *Consultant*.

1.9 Documentation

- .1 Observe and maintain a record of tests; record:
 - .1 Specifications Section number, product or equipment, and name of *Subcontractor*.
 - .2 Testing agency and name of inspector.
 - .3 Name of manufacturer's representative present.
 - .4 Date, time, and duration of tests.
 - .5 Type of test, and results.
 - .6 Retesting required.

1.10 Equipment Start-Up

- .1 Observe and participate in equipment start-up and adjustments; record time and date of start-up, and results.
- .2 Observe and participate in equipment start-up and adjustments; record time and date of start-up, and results.
- .3 Observe and participate in all equipment demonstrations to the *Owner*; record times and record additional information required in Operation and Maintenance Manuals.

Mechanical and Electrical Coordination

1.11 Inspection and Acceptance of Equipment

- .1 Prior to inspection, verify that equipment is tested and operational, clean, and in specified condition.
- .2 Assist with the *Consultant's* inspections and prepare list of items to be completed or corrected.

1.12 Commissioning

- .1 Coordinate the commissioning requirements for the architectural, mechanical and electrical Divisions. Prepare a commissioning schedule for each Division. Issue all completed test forms to the *Consultant* on a monthly basis.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Project Meetings

PART 1 - GENERAL

1.1 Section Includes

- .1 Project meeting requirements.

1.2 Administrative

- .1 The *Contractor* shall schedule meetings as specified herein.
 - .1 Such scheduling shall be in consultation both with the *Owner* and with the *Consultant*.
- .2 The *Contractor* shall prepare agendas for meetings specified herein.
 - .1 Agendas shall include, as a minimum, the agenda items specified in the *Contract Documents*.
- .3 The *Contractor* shall distribute written notice of each meeting specified herein, complete with meeting agenda, 5 *Working Days* in advance of meeting date to the *Consultant* and the *Owner* and other affected parties.
- .4 The *Contractor* shall chair and record the minutes of meetings specified herein.
 - .1 *Contractor* shall distribute copies of minutes to the *Owner*, the *Consultant*, and all others in attendance within 3 *Working Days* after date of meeting.
- .5 Representatives of parties attending meetings shall be authorized to act on behalf of the parties they represent.
- .6 *Subcontractors* and *Suppliers* shall attend meetings only when directed by the *Consultant*, or when specifically called for in the *Contract Documents*.
- .7 The *Contractor* shall prepare, and distribute to the *Consultant* and the *Owner* 4 days in advance of next progress meeting date, the following:
 - .1 Monthly progress reports containing updated construction schedule, submittal logs, requests for interpretation logs, and budget.

1.3 Contract Start-Up Meeting

- .1 Within 5 days after award of *Contract*, request a meeting of parties in *Contract* to discuss and resolve administrative procedures and responsibilities prior to the commencement of the *Work*.
- .2 Attendees at *Contract* start-up meeting shall include the following:
 - .1 *Contractor*.
 - .2 *Contractor's* site superintendent(s).
 - .3 *Contractor's* waste management coordinator.
 - .4 *Consultant*.
 - .5 *Owner*.
 - .6 *Integrated testing coordinator*.

Project Meetings

- .7 Independent inspection and testing company.
- .3 Agenda to include the following:
 - .1 *Owner's* guidelines and policies.
 - .2 Appointment of official representative of participants in the *Project*.
 - .3 Status of permits, fees and requirement of authorities having jurisdiction. Action required.
 - .4 Establishing a schedule for progress meetings.
 - .5 Requirements for *Contract* modification and interpretation procedures, including, but not limited to: requests for interpretation, contemplated change orders, *Change Orders*, *Change Directives*, *Supplemental Instructions*, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.
 - .6 Submittal requirements and procedures.
 - .7 Schedule of submission of samples, colour chips, and items for *Owner's* and/or *Consultant's* consideration.
 - .8 Construction schedule and progress scheduling.
 - .9 Delivery schedule of specified equipment.
 - .10 Requirements for infection prevention and control.
 - .11 Appointment of independent inspection and testing agencies or firms.
 - .12 Requirements for notification for reviews. Allow a minimum of 48 hours' notice to *Consultant* for review of the *Work*.
 - .13 Requirements for *Temporary Work*.
 - .14 Requirements for firestopping coordination and preparation of firestopping manual (refer to Section 01 33 00).
 - .15 Security requirements at and for the *Place of the Work*.
 - .16 *Owner* supplied *Products*.
 - .17 Integrated fire protection and life safety systems testing requirements and procedures (refer to Section 01 91 26).
 - .18 As-built documents.
 - .19 Operation and maintenance manuals.
 - .20 Take-over procedures, acceptance, warranties.
 - .21 Publication to be used for publishing certificate of substantial performance.
 - .22 Progress claims, administrative procedures, holdbacks.
 - .23 Insurances, transcripts of policies.
 - .24 *Contractor's* safety procedures.
 - .25 Cleaning area for vehicles.

Project Meetings

- .26 Certificate of Clearance from the Workplace Safety and Insurance Board (WSIB).

1.4 Pre-Installation Meetings

- .1 During the course of the *Work* prior to *Substantial Performance of the Work*, schedule pre-installation meetings as required by the *Contract Documents* and coordinated with the *Consultant*.
- .2 As far as possible, pre-installation meetings shall be scheduled to take place on the same day as regularly scheduled progress meetings.
- .3 Attendees at pre-installation meetings shall include the following:
 - .1 *Contractor*.
 - .2 *Subcontractors* affected by the work for which the pre-installation meeting is being conducted.
 - .3 *Consultant*.
 - .4 Infection control representative.
 - .5 Manufacturer's representatives, as applicable.
 - .6 Independent inspection and testing company, as applicable.
- .4 Agenda to include the following:
 - .1 *Owner's* guidelines and policies.
 - .2 Appointment of official representatives of participants in the *Project*.
 - .3 Review of existing conditions and affected work, and testing thereof as required.
 - .4 Review of installation procedures and requirements.
 - .5 Review of environmental and site condition requirements.
 - .6 Review of infection prevention and control procedures.
 - .7 Schedule of the applicable portions of the *Work*.
 - .8 Schedule of submission of submittals, samples, mock-ups, and items for *Consultant's* consideration.
 - .9 Requirements for *Temporary Work*.
 - .10 Requirements for notification for reviews. Allow a minimum of 48 hours' notice to *Consultant* for review of the *Work*.
 - .11 Requirements for inspections and tests, as applicable. Schedule and undertake inspections and tests.
 - .12 Delivery schedule of specified equipment.
 - .13 Special safety requirements and procedures.
 - .14 Publication to be used for publishing certificate of substantial performance.

Project Meetings

1.5 Progress Meetings

- .1 During the course of the *Work* prior to *Substantial Performance of the Work*, schedule regular progress meetings to occur every other week.
- .2 Attendees at progress meetings shall include the following:
 - .1 *Contractor*.
 - .2 *Contractor's* site superintendent(s).
 - .3 *Consultant*.
 - .4 *Owner*.
- .3 Agenda to include the following:
 - .1 *Owner's* guidelines and policies.
 - .2 Review, approval of proceedings of previous meeting.
 - .3 Review of items arising from proceedings.
 - .4 Review of progress of the *Work* since previous meeting and *Contractor's* monthly progress report.
 - .5 Field observations, problems, conflicts.
 - .6 Update construction schedule.
 - .7 Problems that impede compliance with construction schedule.
 - .8 Review of off-site fabrication delivery schedules.
 - .9 Review material and equipment delivery dates/schedule.
 - .10 Corrective measures and procedures to regain construction schedule.
 - .11 Revisions to construction schedule.
 - .12 Progress, schedule, during subsequent period of the *Work*.
 - .13 Review submittal schedules.
 - .14 Review status of submittals.
 - .15 Review of infection prevention and control procedures.
 - .16 Maintenance of quality standards.
 - .17 Pending changes and substitutions.
 - .18 Review of *Contract* modifications and interpretations including, but not limited to: requests for interpretation and log, contemplated change orders, *Change Orders*, *Change Directives*, and *Supplemental Instructions* for effect on construction schedule and on *Contract Time*.
 - .19 Review of status of as-built documents.
 - .20 Other business.

Project Meetings

1.6 Pre-Takeover Meeting

- .1 30 days prior to application for *Substantial Performance of the Work*, schedule a pre-takeover meeting.
- .2 Agenda to include the following:
 - .1 Review, approval of proceedings of previous meeting.
 - .2 Review of items arising from proceedings.
 - .3 Review of procedures for *Substantial Performance of the Work*, completion of the *Contract*, and handover of the *Work*.
 - .4 Field observations, problems, conflicts.
 - .5 Review of outstanding *Contract* modifications and interpretations including, but not limited to: requests for interpretation and log, contemplated change orders, *Change Orders*, *Change Directives*, and *Supplemental Instructions* for effect on construction schedule and on *Contract Time*.
 - .6 Problems which impede *Substantial Performance of the Work*.
 - .7 Review of procedures for deficiency review. Corrective measures required.
 - .8 Review of arrangements for hydro, heating, and other services.
 - .9 Review of integrated fire protection and life safety systems testing requirements and procedures (refer to Section 01 91 26).
 - .10 Progress, schedule, during succeeding period of the *Work*.
 - .11 Review submittal requirements for warranties, manuals, and all demonstrations and documentation required for *Substantial Performance of the Work*.
 - .12 Review of keying and hardware requirements.
 - .13 Review of status of as-built documents and record drawings.
 - .14 Status of commissioning and training.
 - .15 Review *Contractor's* deficiency list and status.
 - .16 Cleaning for occupancy.
 - .17 Other business.

1.7 Post-Construction Meeting

- .1 Prior to application for completion of *Contract*, schedule a post-construction meeting. 5 *Working Days* prior to date for meeting, *Consultant* shall confirm a date for meeting based on evaluation of completion requirements.
- .2 Agenda to include the following:
 - .1 Review, approval of proceedings of previous meeting.
 - .2 Confirmation that no business is arising from proceedings.
 - .3 Confirmation of completion of the *Contract*, and handover of reviewed documentation from the *Consultant* to the *Owner*.

Project Meetings

- .4 Confirmation of completion of contemplated change orders, *Change Orders*, *Change Directives*, and *Supplemental Instructions*.
- .5 Problems that impede *Contract* completion.
- .6 Identify unresolved issues or potential warranty problems.
- .7 Confirmation of completion of deficiencies.
- .8 Corrective measures required.
- .9 Confirmation of arrangements for hydro, heating and other services.
- .10 Confirm submittal requirements for warranties, manuals, and demonstrations and documentation for *Contract* completion are in order.
- .11 Review of procedures for communication during post-construction period.
- .12 Handover of reviewed record documents by the *Contractor* to the *Owner*.
- .13 Submission of final application for payment.
- .14 Review and finalize outstanding claims, pricing, and allowance amounts.
- .15 Status of commissioning and training.
- .16 Demobilization and the *Place of the Work* restoration.
- .17 Review of requests for interpretation log.
- .18 Other business.

1.8 Special Meetings

- .1 *Owner* and/or *Consultant* reserves the right to require special meetings which may be held on short notice and at which attendance by *Contractor* and representatives of affected *Subcontractors* and *Suppliers* is mandatory. *Contractor* shall keep detailed and accurate meeting notes and distribute copies within 3 *Working Days* to all in attendance and those affected by agreements made at such meetings.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Construction Sequencing

PART 1 - GENERAL

1.1 Summary

- .1 General Requirements: Conform with requirements of all Sections of Division 01, and the General Requirements as it applies to the work of this Section.

1.2 Related Sections

- .1 Mechanical and Electrical specifications.

1.3 Summary

- .1 Work of this *Contract* is divided into 5 phases as indicated in Phasing Plans. Each phase will be following the other.
- .2 Each phase start date shall be indicated in the construction schedule.
- .3 The Phasing Plans indicate a conceptual construction sequence and the relationship between phases. This information is provided to the *Contractor* as a basis of information from which the *Contractor* shall develop the construction schedule.
- .4 Detailed schedule and look ahead schedules will be required to coordinate sequencing with equipment manufacturers and *Owner's* facilities. Reference Section 01 32 00. Full coordination with the *Owner* is required regarding work at the site. Follow hospital's policies and procedures.
- .5 The Hospital will remain in full operation throughout the construction of the work. While the *Owner* will entertain other phasing sequences proposed by the *Contractor*, the sequence provided herein shall be used for the purpose of establishing a construction schedule and shall set a minimum level of performance for any other proposal. The Phase sequence shown on the phasing plans shall be the governing sequence unless agreed to in writing by the *Owner*.
- .6 The phase sequence does not describe the construction process in its entirety or describe all construction consequences of the phase sequence. It remains the *Contractor's* sole responsibility to schedule all aspects of the construction within the general requirements described herein.
- .7 All areas of renovations shall be fully separated from the *Owner* occupied spaces by permanent or temporary hoarding. Partitions shall be in accordance with the requirements indicated in most recent version of CSA Z317.13 and the *Owner's* Infection Control Policy.
- .8 Prior to commencement of work, prepare temporary exiting plan, submit to and obtain approval from local building department. At discretion of building department officials and the *Owner*, shared exits may be acceptable.
- .9 The *Work* for each phase may include *Work* outside the boundaries shown on the phasing drawings to complete construction and ensure proper functioning of all building systems for that area.

Construction Sequencing

- .10 See *Owner's* policies and procedures and Section 01 35 13 for hours of operation of existing hospital and hours when the *Contractor* is permitted to work. In conjunction with the requirements in the specifications, at all times coordinate with the *Owner* to review access to areas and hours of *Work*.
- .11 Nothing in this specification shall be construed as infringing on *Contractor's* right and responsibility to control the *Work*, including the sequence of construction operations, in accordance with the General Conditions of the *Contract*.

1.4 General Sequencing Requirements

- .1 Take all necessary measures to conform to the requirements of local authorities for maintaining fire safety during construction.
- .2 Complete all preparatory work to the satisfaction of the *Owner* and in accordance with the *Contract Documents* before commencing the actual on-site construction work.
 - .1 Perform all work in or adjacent to occupied areas in such a manner to ensure:
 - .1 The continuous and uninterrupted use of all occupied areas, including the applicable mechanical and electrical systems serving these areas.
 - .2 Protection of personnel in occupied areas from the hazards and dust associated with a construction environment.
 - .3 The work areas are to be kept clear, clean and free of loose debris, construction materials and partially installed work which would create a safety hazard or interfere with patient and personnel duties and traffic. *Contractor* shall sweep the areas clean at the end of each work day and make every effort to keep dust and noise to a minimum at all times.
 - .2 Incorporate the sequence of *Work* into the *Construction Schedule*.
 - .3 Maintain the Fire Alarm zones and sprinkler zones during construction to the satisfaction of the authority having jurisdiction.
 - .4 Include for testing, commissioning and balancing/rebalancing of central systems in phases and sequences to suit the phased occupancy.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Construction Progress Documentation

PART 1 - GENERAL

1.1 Section includes

- .1 Construction progress schedule.
- .2 Submittals schedule.
- .3 Inspection and testing schedule.
- .4 Schedule management.
- .5 Recording actual site conditions on as-built documents.
- .6 Digital photographs.

1.2 Summary

- .1 This Section specifies *Contractor's* responsibilities for preparation and submission of schedules and other documentation related to tracking construction progress.
- .2 The schedule shall:
 - .1 Show actual progress versus planned progress.
 - .2 Demonstrate that scheduling issues are being proactively identified and addressed in a timely manner, and that planned progress is being maintained as closely as possible.

1.3 Schedule Format

- .1 Construction Schedule shall to be developed utilizing Microsoft Project or Primavera Project Planner
- .2 Include horizontal time scale identifying the first *Working Day* of each week.
- .3 Include a separate bar for each trade, work package, or operation.
- .4 Format for listings: The chronological order of the start of each item or part of the *Work*.
- .5 Identification of listings: By systems description.

1.4 Construction Progress Schedule

- .1 Format and content:
 - .1 Include the complete sequence of construction activities, including provision for climate and weather.
 - .2 Provide a work breakdown structure identifying key activities, work packages, and major milestones at a sufficient level of detail to effectively manage construction progress, including:
 - .1 Long delivery *Products*.
 - .2 Dates for the commencement and completion of inspection and testing.
 - .3 Preparation and review of mock-ups.

Construction Progress Documentation

- .4 *Owner* decisions for cash allowances.
- .5 Shutdown or closure activities.
- .6 Delivery of items supplied by *Owner*.
- .7 *Owner* performed work.
- .8 Demonstration and training activities.
- .9 Dates for the commencement and completion of each major element of the *Work* parallel to the sections of the specifications.
- .10 Dates for *Ready-for-Takeover* and *Substantial Performance of the Work*.
- .11 Dates for delivery of *Products*, equipment, finish items, factory-finished manufactured items. Show last dates for order, shipment, and delivery in order to meet construction schedule.
- .3 Show projected percentage of completion for each item as of the first *Working Day* of each week.
- .2 Submission:
 - .1 Submit initial schedule to *Owner* and *Consultant* within 10 *Working Days* after *Contract* award.
 - .2 Submit schedule in pdf format to *Consultant* using the *Consultant's* document management system.
 - .3 *Consultant* will review format and content of initial schedule and request necessary changes, if any, within 10 *Working Days* after receipt.
 - .4 If changes are required, resubmit finalized initial schedule within 5 *Working Days* after return of review copy.
 - .5 Submit updated progress schedule to *Owner* and *Consultant* at each regularly scheduled progress meeting in accordance with Section 01 31 19. In addition to requirements specified in Section 01 32 00 for each submission of construction schedule, include a written report on the activities completed in the week preceding the progress meeting, and a summary indicating the activities planned to be undertaken in the 2 weeks subsequent to the progress meeting, including human resource loading.
 - .6 Submit updated progress schedule to *Owner* and *Consultant* with each application for progress payment, indicating actual and projected start and finish dates with report date line and progress. Submit more frequently if requested by *Owner* or *Consultant*.
 - .7 At each date of submission of construction schedule, indicate progress of each activity.
 - .1 Show changes occurring since previous submission of the construction schedule:
 - .1 Major changes in scope.
 - .2 *Change Orders* and *Change Directives*.

Construction Progress Documentation

- .3 Activities modified since previous submission.
- .4 Revised projections of progress and completion.
- .5 Other identifiable changes.
- .2 Include a narrative report to define:
 - .1 Problem areas, anticipated delays, and the impact on the schedule.
 - .2 Corrective action recommended and its impact on the schedule.
- .3 Include cash flow projection with minimum look ahead as directed by the *Consultant*.

1.5 Submittals Schedule

- .1 Format and content:
 - .1 Prepare a detailed schedule of submittals required by the *Contract Documents*, including samples required for testing, and including those for items supplied by *Owner*.
 - .2 Provide a separate line for each required submittal, organized by *Specifications* section names and numbers, and further broken down by individual *Products* and systems as required.
 - .3 Indicate dates for submitting, review time, resubmission time, float time, and last date for meeting construction schedule.
 - .4 Schedule submissions of submittals well in advance of scheduled dates for installation, to provide lead time for reviews and possible resubmissions and for placing orders and securing delivery so as to avoid delays in the *Work*.
 - .5 Make provisions in schedule for at least 10 *Working Days* for *Consultant's* review of submittals. When submittals have to be reviewed by one or more of *Consultant's* subconsultants, add 5 more *Working Days* for a total 15 *Working Days* review period.
 - .6 If the *Consultant* requires resubmission of submittals, allow for an additional 10 *Working Days* review for each resubmission.
 - .7 If, at any time, the *Contractor* submits a large enough number of submittals such that the *Consultant* cannot process these submittals within 10 *Working Days*, the *Consultant*, in consultation with the *Contractor* within 3 *Working Days* of receipt of such submittal, will provide the *Contractor* with an estimate of the time necessary for processing same. The *Contractor* shall accommodate such necessary time at no increase in the *Contract Time* and at no additional cost to the *Owner*.
 - .8 Changes in the construction schedule shall maintain the minimum review periods for the *Consultant's* review specified above.
- .2 Submission:
 - .1 Submit initial schedule to *Consultant* within 15 *Working Days* after *Contract* award.
 - .2 Submit schedule in pdf format to *Consultant* using the *Consultant's* document management system.

Construction Progress Documentation

- .3 *Consultant* will review format and content of initial schedule and request necessary changes, if any, within 10 *Working Days* after receipt.
- .4 *Consultant* will review submittal schedule and advise *Contractor* if volume and timing of submittals will permit review of and response to submittals within timeframes specified under Section 01 32 00. *Consultant* may require modifications to submittals schedule in order to allow adequate time for review of submittals. Adjust submittals schedule and construction schedule as required to comply with *Consultant's* needs.
- .5 If changes are required, resubmit finalized schedule within 5 *Working Days* after return of review copy.
- .6 Submit updated submittals schedule monthly to the *Consultant* or more frequently as directed by the *Consultant*.
- .7 Schedule shall be accompanied by a checklist, correlated to each of the schedule of submittals, the construction schedule, and the schedule of inspections and tests, listing the following:
 - .1 *Shop Drawings*.
 - .2 *Samples*.
 - .3 *Mock-ups*.
 - .4 *Reviews, tests and inspections by:*
 - .1 *Manufacturers*.
 - .2 *Authorities having jurisdiction*.
 - .3 *The Owner*.
 - .4 *The Consultant*.
 - .5 *Independent inspection and testing companies*.
 - .5 *Demonstration and training*.

1.6 Inspection and Testing Schedule

- .1 Prepare schedule for inspection and testing by advance discussion with the selected independent inspection and testing company to determine the time required for the independent inspection and testing company to perform its tests and to issue each of its findings, and allow for required time in the construction schedule.
- .2 Refer to Section 01 45 00 for additional requirements for inspection and testing scheduling.

1.7 Schedule Management

- .1 A schedule submitted as specified and accepted by *Consultant* shall become the baseline schedule and shall be used as the baseline for updates.

Construction Progress Documentation

- .2 At each regular progress meeting, review and discuss current construction progress and submittals schedules with *Consultant* and *Owner*, including activities that are behind schedule and planned measures to regain schedule slippage in key areas on or near the critical path.
- .3 Activities considered behind schedule are those with start or completion dates later than the dates shown on the baseline schedule.

1.8 Recording Actual Site Conditions on As-Built Documents

- .1 *Owner* will provide 1 set of *Contract Documents* to the *Contractor* for as-built documentation purposes. Record information and maintain as-built documents in clean, dry and legible condition.
- .2 Clearly label each drawing as “AS-BUILT DRAWING” and each specification “AS-BUILT SPECIFICATION” and each schedule “AS-BUILT SCHEDULE”. Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .3 Accurately document as-built conditions and deviations from *Contract Documents* as the *Work* progresses.
- .4 Mark changes in red ink.
- .5 Document actual construction including:
 - .1 Field changes of dimensions/details.
 - .2 Changes by *Change Orders*, *Change Directives*, and *Supplemental Instructions*.
 - .3 References to *Shop Drawings*, where *Shop Drawings* show more detail.
 - .4 Locations of interior mechanical and electrical equipment and distribution.
 - .5 In specification as-builts: Document as-built *Products*, including manufacturer, manufacturer’s model or system number.
- .6 Do not use as-built drawings for construction purposes.

1.9 Digital Photographs

- .1 Provide photographic documentation in digital format and in accordance with procedures and submission requirements specified in this section.
 - .1 No other photographs of the *Place of the Work* or of any portion of the *Work* will be permitted without written approval of the *Owner*.
- .2 Equipment: Provide photographs using minimum 10 megapixel digital camera.
- .3 Submit the required photographs to the *Consultant* and to the *Owner*.
- .4 Output: Supply date stamped maximum resolution colour photos to *Consultant* in JPEG format, on USB Flash Drive or via file transfer.
- .5 Number of photos required:

Construction Progress Documentation

- .1 Prior to construction: Provide necessary number of photographs, as required to document existing conditions and verify damage to adjacent property that may have existed prior to construction or demolition work: Minimum 50 photos.
- .2 Provide minimum of 15 photographs weekly.
- .3 Completion: When each phase of the *Work* is completed, arrange to take final photographs of each phase from a minimum of 8 points of view.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Submittal Procedures

PART 1 - GENERAL

1.1 Section Includes

- .1 Administrative requirements.
- .2 Submission procedures.
- .3 Certificates and Certification Submittals
- .4 *Product* data sheets.
- .5 *Shop Drawings*.
- .6 Engineered Judgements.
- .7 Project firestopping manual and coordination.
- .8 Samples.

1.2 Administrative Requirements

- .1 Submit submittals as requested by the *Contract Documents*, as specified herein, and in accordance with the submittals schedule prepared in accordance with Section 01 32 00.
- .2 In addition to submittals specifically requested by the *Contract Documents*, submit other submittals as may be reasonably requested by the *Consultant*, or as are required to coordinate the *Work* and to provide the *Owner* with choices available, within the scope of *Contract Documents*.
- .3 Where required by authorities having jurisdiction, provide submittals to such authorities for review and approval.
- .4 Make submittals with reasonable promptness and in an orderly sequence so as to cause no delay in the *Work*. Be solely responsible for delays, make up time lost, and pay added costs incurred because of not making submittals in due time to permit proper review by *Consultant*.
- .5 Once submitted, a submittal shall not be re-submitted until original submission has been reviewed by *Consultant* and returned to *Contractor*.
- .6 Submittals that contain substitutions will be rejected. Substitutions are permitted only in accordance with Section 01 25 00.
- .7 Do not proceed with work affected by a submittal, including ordering of *Products*, until relevant submittal has been reviewed by *Consultant*.
- .8 Prepare submittals using Imperial units.
- .9 *Contractor's* responsibility for deviations in submittal from requirements of *Contract Documents* is not relieved by *Consultant's* review of submittal, unless *Consultant* gives written acceptance of specific deviations.
- .10 Keep copies of reviewed submittals at the *Place of the Work* in an organized condition. Only submittals that have been reviewed by the *Consultant* and are marked with *Consultant's* review stamp, as applicable, are permitted at the *Place of the Work*.

Submittal Procedures

- .11 The *Work* shall conform to reviewed submittals subject to the requirements of this section. Remove and replace materials or assemblies not matching reviewed submittals at no increase in the *Contract Time* and at no additional cost to the *Owner*.
- .12 *Contractor's* review of submittals:
 - .1 Review submittals for conformity to *Contract Documents* before submitting to *Consultant*. Submittals shall bear stamp of *Contractor* and signature of a responsible official in *Contractor's* organization indicating in writing that such submittals have been checked and coordinated by *Contractor*. Review shall be performed by qualified personnel who have detailed understanding of those elements being reviewed and of the conditions at the *Place of the Work* proposed for installation.
 - .2 Check and sign each submittal and make notations considered necessary before submitting to *Consultant* for review. Where submittal is substantially and obviously in conflict with requirements of *Contract Documents*, reject submittal without submitting to *Consultant* and request resubmission. Note limited number of reviews of each submittal covered under *Consultant's* services as specified below.
 - .3 Assume sole responsibility for any conflicts occurring in the *Work* that result from lack of comparison and coordination of submittals required for the *Work*.
 - .4 Assume sole responsibility for dimensions to be confirmed and correlated at the *Place of the Work* for information that pertains to fabrication processes or to techniques of construction and installation, and for coordination of the *Work*.
 - .5 Submittals that have not been reviewed, checked, and coordinated by *Contractor* prior to submission to *Consultant*, or that do not bear the stamp and signature of *Contractor* as described above, will be stamped "REVISE AND RESUBMIT" and returned.
 - .6 No changes to the *Work* or the *Contract Documents* shall be made by way of submittals.
 - .1 Changes to the *Work* shall only be made following procedures specified for changes in the *Work*.
 - .2 Submittals that include changes to the *Work* or the *Contract Documents* shall be stamped "REVISE AND RESUBMIT" and returned.
- .13 *Consultant's* review of submittals:
 - .1 Review of submittals by *Consultant* is for the sole purpose of ascertaining conformance with the general design concepts and the general intent of the *Contract Documents*. This review shall not mean that *Consultant* approves the detail design inherent in the submittals, responsibility for which shall remain with the *Contractor*. Such review shall not relieve the *Contractor* of responsibility for errors or omissions in the submittals, nor of responsibility for meeting requirements of *Contract Documents*.

Submittal Procedures

- .2 As part of their scope of work, *Consultant* shall review *Shop Drawings* no more than twice. Should three or more reviews be required due to reasons of *Contractor* omissions causing resubmission requests, then *Contractor* shall reimburse the *Consultant* for time expended in these extra reviews. Time shall be invoiced to the *Owner* (to be deducted from monies due to the *Contractor* and paid to *Consultant* by *Owner*) at rates recommended by *Consultant's* professional association and disbursements shall be invoiced at *Consultant's* cost. The *Contractor* shall cover directly costs and administration associated with courier services and the like for these extra *Shop Drawings* reviews.
 - .3 *Consultant's* review and markings on submittals do not authorize changes in the *Work* nor in the *Contract Time*, and shall be accommodated at no additional cost to the *Owner*. If, in the opinion of the *Contractor*, the *Consultant's* markings on submittals constitute a change in the *Work* or will effect a change in the *Contract Time*, then the *Contractor* shall so notify the *Consultant* in writing and request an interpretation following the procedures for requests for interpretation in accordance with Section 01 31 00. If the *Consultant* finds that the *Consultant's* markings on submittals do constitute a change in the *Work* or will effect a change in the *Contract Time*, then a *Change Order* will be prepared therefore. The time taken to process such a request for interpretation shall not, in and of itself, constitute a change in the *Work* nor an increase the *Contract Time*.
 - .4 Submittals that are not required by the *Contract Documents* or not requested by the *Consultant* will not be reviewed by the *Consultant* and will be marked 'NOT REVIEWED' by the *Consultant* and returned to the *Contractor*.
- .14 Engineered submittals:
- .1 Submittals for items required to be sealed by professional engineer (engineered) shall be duly prepared, sealed, and signed under the direct control and supervision of a qualified professional engineer licensed in the jurisdiction in which the *Place of the Work* is located, having in force professional liability insurance with minimum coverage limit of \$2,000,000 per claim and annual aggregate.
 - .2 Include with engineered submittal, proof of insurance identifying insurer, policy number, policy term, and limit of liability, on duly signed letterhead and / or certificates of insurance.
 - .3 Design includes seismic design, life safety, sizing of supports, anchors, framing, connections, spans, and as additionally required to meet or exceed requirements of applicable codes, standards, regulations, authorities having jurisdiction, and design requirements of the *Contract Documents*.
 - .4 Engineered submittals shall include design calculations, complete with references to codes and standards used in such calculations, supporting the proposed design represented by the submittal.

Submittal Procedures

- .5 Professional engineer responsible for the preparation of engineered submittals shall undertake periodic field review, including review of associated mock-ups where applicable, at locations wherever the work as described by the engineered submittal is in progress, during fabrication and installation of such work, and shall submit a field review report after each visit. Field review reports shall be submitted to the *Consultant*, to authorities having jurisdiction as required, and in accordance with the building code.
- .6 Field reviews shall be at intervals as necessary and appropriate to the progress of the work described by the submittal to allow the engineer to be familiar with the progress and quality of such work and to determine if the work is proceeding in general conformity with the *Contract Documents*, including reviewed shop drawings and design calculations.
- .7 Upon completion of the parts of the *Work* covered by the engineered submittal, the professional engineer responsible for the preparation of the engineered submittal and for undertaking the periodic field reviews described above, shall prepare and submit to the *Consultant* and authorities having jurisdiction, as required, a letter of general conformity for those parts of the *Work*, certifying that they have been provided in accordance with the requirements both of the *Contract Documents* and of the authorities having jurisdiction over the *Place of the Work*.
- .8 Costs for such field reviews and field review reports and letters of general conformity are included in the *Contract Price*.

1.3 Submission Procedures

- .1 Coordinate each submittal with requirements of the *Work* and *Contract Documents*. Individual submittals shall include related information.
- .2 Distribute copies of submittals to parties whose work is affected by submittals except *Consultant* and *Owner* before final submission for review by *Consultant*.
- .3 Accompany submittals with transmittal letter containing:
 - .1 Date.
 - .2 *Project* title and number.
 - .3 *Contractor's* name and address.
 - .4 *Contractor's* review stamp.
 - .5 Identification and quantity of each submittal.
 - .6 Other pertinent data.
- .4 Each submittal shall be identified numerically by relevant *Specifications* section number with a numeric indicator for multiple submittals by that section followed by revisions number, for example 04 05 19-01-R0.
- .5 Submit original PDF documents only: scanned documents shall not be accepted.
 - .1 PDF submittals shall be bookmarked and linked to a Table of Contents or cover letter identifying the contents of the submission.

Submittal Procedures

- .6 Make any changes in submittal that *Consultant* may require, consistent with *Contract Documents*, and resubmit as directed by *Consultant*.
- .7 Notify *Consultant*, in writing, when resubmitting, of any revisions other than those requested by *Consultant*.
- .8 After *Consultant's* review, distribute copies to affected parties.

1.4 Certificates and Certification Submittals

- .1 Certificates and certifications submittals: Provide a statement that includes signature of entity responsible for preparing certification.

1.5 Product Data Sheets

- .1 Submit *Product* data sheets as follows:
 - .1 1 copy digitally as a bookmarked PDF to *Consultant* using the *Consultant's* document management system.
- .2 Submit *Product* data sheets as called-for by the *Contract Documents* or as the *Consultant* may reasonably request where shop drawings will not be prepared due to a standardized manufacture of a *Product*. Manufacturers' catalogue cuts will be acceptable in such cases, providing that they are 213 mm x 275 mm (8-1/2" x 11") originals, and that they indicate choices including sizes, colours, model numbers, options and other pertinent data, including installation instructions. Submissions showing only general information are not acceptable.
 - .1 In addition, submit written requirements for handling and storage and handling in accordance with Section 01 60 00.
- .3 Where requirements of *Contract Documents* are more stringent than design proposed on *Product* data sheets, the requirements of the *Contract Documents* take priority.
- .4 Upon completion of review by *Consultant*, 1 marked set of *Product* data sheets will be returned to *Contractor* in digital format for reproduction and distribution.
- .5 Retain 1 complete set of reviewed *Product* data sheets for issuance as part of closeout submittals in accordance with Section 01 78 00.

1.6 Shop Drawings

- .1 Submit *Shop Drawings* as follows:
 - .1 1 copy digitally as a bookmarked PDF to *Consultant* using the *Consultant's* document management system.
- .2 Lettering on *Shop Drawings* shall be not less than 3 mm (1/8") high.
- .3 Reproduction of construction *Drawings* to serve as background for *Shop Drawings* is not permitted.
- .4 Where requirements of *Contract Documents* are more stringent than design proposed on *Shop Drawings*, the requirements of the *Contract Documents* take priority.
- .5 *Consultant* markings and resulting action required:

Submittal Procedures

- .1 *Shop Drawings* requiring no changes will be marked 'REVIEWED', and shall be submitted for as-built drawings purposes.
- .2 *Shop Drawings* requiring several changes will be marked 'REVIEWED as NOTED' and shall be revised and submitted for as-built drawings purposes.
- .3 *Shop Drawings* requiring substantial changes will be marked 'REVISE AND RE-SUBMIT' and shall be revised and resubmitted until *Consultant* stamps *Drawings* with 'REVIEWED' or 'REVIEWED as NOTED'.
- .6 *Shop Drawings* size shall be multiple of 213 mm and 275 mm (8-1/2" and 11") excluding 38 mm (1-1/2") binding margin and not larger than 838 mm x 1117 mm (33" x 44"). Leave minimum 150 mm x100 mm (6" x 4") clear space for *Consultant's* comments.
- .7 Upon completion of review by *Consultant*, 1 marked set of *Shop Drawings* will be returned to *Contractor* in digital format for reproduction and distribution.
- .8 Retain 1 complete set of reviewed *Shop Drawings* for issuance as part of closeout submittals in accordance with Section 01 78 00.
- .9 Submit copies of reviewed *Shop Drawings* to authorities having jurisdiction as required.
- .10 *Shop Drawings* shall include:
 - .1 Fabrication and erection dimensions.
 - .2 Plans, sections, elevations, arrangements and sufficient full size details which indicate complete construction, components, methods of assembly as well as interconnections with other parts of the *Work*.
 - .3 Design calculations for items that require design calculations.
 - .4 Clear definition of the division of responsibility for the work described thereon. No *Products*, items or equipment, or description of work, shall be indicated to be supplied, or work to be done, "By Others" or "By Purchaser". *Shop Drawings* marked with either of these phrases shall be rejected without having been reviewed by the *Consultant*.
 - .5 Location and type of exposed anchors, attachments and locations and types of fasteners, including concealed reinforcements to accept mounted fasteners.
 - .6 Adhesives, joinery methods and bonding agents.
 - .7 Kinds and grades of materials, their characteristics relative to their purpose, detailed description of finishes and other fabrication information.
 - .8 Configurations, types and sizes required; identify each unit type on drawing and on *Product*.
 - .9 Descriptive names of equipment and mechanical and electrical characteristics when applicable.
 - .10 Data verifying that superimposed loads will not affect function, appearance and safety or work shown on shop drawings, as well as other interconnected work.
 - .11 Assumed design loadings, dimensions of elements and material *Specifications* for load-bearing members.

Submittal Procedures

- .12 Proposed chases, sleeves, cuts and holes in structural members.
- .13 Wall thicknesses of metals.
- .14 Location and types of welds. For structural welds use AWS symbols and clearly show net weld lengths and sizes.
- .15 Materials, gauges, and sizes being supplied including connections, attachments, reinforcement, anchorage and locations of exposed fastenings.
- .16 Installation instructions and details for *Products* to be installed by separate *Subcontractors*, including function of each part.
- .17 A list of *Products* covered by, or included on, the shop drawing. List of *Products* shall be complete and show manufacturer's name, *Product* name, generic description, standard certification where specified, manufacturer's complete installation data and precautions against wrong installation, operation and maintenance.
- .18 Refer to individual sections of the *Specifications* for more particular requirements for *Shop Drawings*.
- .19 Compatibility statement: Include with each *Shop Drawings* a statement that each *Product* and material indicated on the *Shop Drawings* is compatible with each *Product* and material with which it comes into contact.

1.7 Engineered Judgements

- .1 When an engineered judgement is required by authorities having jurisdiction, such engineered judgement shall be prepared as an engineered submittal in accordance with Section 01 33 00.

1.8 Project Firestopping Manual and Coordination

- .1 The *Contractor* shall assign a firestopping and smoke seal firestopping coordinator to coordinate the firestopping details and systems required in the *Work*. Applicator shall designate a single individual as *Project* foreperson who shall be present at the *Place of the Work* throughout the *Work*.
- .2 Firestopping manual:
 - .1 *Contractor* and firestopping and smoke seal coordinator shall prepare a preliminary fire stopping manual, inclusive of all firestopping systems in the *Work*, to be submitted to the *Consultant* prior to the installation of any firestopping and smoke seal work.
 - .2 Manual shall include:
 - .1 Project key plans of each level, with enlarged key plans at areas where required, which identify and tag each anticipated penetration and fire stopping location and type (i.e. multiple metallic pipes through gypsum board wall assembly; single metallic pipe through concrete floor assembly, and the like).
 - .2 *Product* data sheets: data and installation instructions for *Products* providing descriptions sufficient for identification at the *Place of the Work*.

Submittal Procedures

- .1 Materials list of *Products* proposed for use in the *Work*; complying with listed systems designs.
- .2 Listing agency's detailed drawing showing joint assemblies and firestopping materials, identified with listing agency's name and number or designation, fire rating achieved, and date of listing.
- .3 Manufacturers' installation instructions and recommendations.
- .3 *Shop Drawings*:
 - .1 Submit drawings indicating fire resistance rated assembly number, required temperature, hose stream, and flame rating, material thicknesses, installation methods and materials of firestopping and smoke seals, primers, supports, damming materials as applicable, reinforcements, anchorages, fastenings and methods of installation for each condition to be encountered.
 - .2 Designate on *Shop Drawings* static through penetrations and dynamic joint systems, relative positions, expansion and control joints in rated slabs and walls, and firestopping details.
 - .3 Engineered *Shop Drawings*; for engineering judgements:
 - .1 Where *Project* conditions require modification to an accredited third party testing agency's listed system design to address a particular firestopping condition that is not covered by a listed system, submit engineered shop drawings detailing the modifications to the listed system design as an engineering judgment or equivalent fire-resistance-rated assembly, for each *Project* location and condition.
 - .2 Submit the manufacturer's engineering judgment identification number and *Shop Drawings* details prepared by a professional engineer. The engineering judgment submittal shall include both *Project* name, *Project* location, and *Subcontractor's* name who will install firestop system as described in engineering judgement *Shop Drawings*.
 - .3 Provide complete details of specific application of listed system and its modifications upon which the engineered judgement is based upon.
 - .4 For perimeter fire barrier systems:
 - .1 Submit engineered *Shop Drawings* for engineering judgements covering perimeter fire barrier systems. Identify each cladding assembly type in contact with each perimeter fire barrier system.
 - .4 Fire resistance rating test listings for firestopping and smoke seal systems.
- .3 Firestopping manual shall be submitted within 4 weeks of *Contract* award.
- .4 Prior to concealment of firestopping conditions above a ceiling or by another assembly or finish, the *Contractor* shall submit an updated firestopping manual including as-built drawings that identify firestopping conditions and penetrations.
- .3 Closeout submittals:
 - .1 Submit closeout submittals in accordance with Section 01 78 00.

Submittal Procedures

- .2 Submit the following certification documents with closeout submittals:
 - .1 Manufacturer's certification: Submit manufacturer's certification that installed firestopping and smoke seal *Products* are suitable for the use indicated and comply with specified requirements.
 - .2 Installation certification: Installer shall submit certification that all joint firestopping system installations are completed and that installations comply with listed systems designs.
 - .3 As-built copy of the firestopping manual.

1.9 Samples

- .1 Except where a different amount is specified, submit a minimum of 3 samples. Otherwise submit the number of samples specified.
- .2 Deliver samples to the following location with expenses, including carrying costs, prepaid, unless otherwise instructed:
 - .1 *Consultant's* office.
 - .2 Owner's Representative Office.
- .3 Identify samples or assemblies by *Project* number and name, name of *Consultant*, *Contractor* and *Subcontractor*, and date of submission. Identify location, specified material reference and any other pertinent information. Show construction by layered method if necessary, clearly displaying textures and patterns.
- .4 Where a required colour, pattern or texture has not been specified, submit full range of available *Products* meeting other specified requirements.
- .5 *Consultant* selection from samples is not intended to change the *Contract Price* or *Contract Time*. If a selection would affect the *Contract Price* or *Contract Time*, notify *Consultant* in writing prior to proceeding with the *Work*.
- .6 Resubmit samples until written acceptance is obtained from *Consultant*.
- .7 Reviewed and accepted samples will establish the standard against which installed *Work* will be reviewed.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Special Project Procedures for Healthcare Facilities

PART 1 - GENERAL

1.1 Section Includes

- .1 General scope and responsibility.
- .2 Temporary ventilation.
- .3 Existing facilities.
- .4 Existing services.
- .5 Dust tight partitions and enclosures.
- .6 Infection prevention and control procedures.
- .7 Protection of the existing building.
- .8 Emergency and fire protection.
- .9 Missing patient search.

1.2 General Scope and Responsibility

- .1 For the purposes of this section:
 - .1 The words “worker” or “workers” shall mean the *Contractor*, *Contractor’s* staff or employees, *Subcontractors*, *Subcontractor’s* staff or employees, *Suppliers*, *Supplier’s* staff or employees, or anyone engaged for the *Work*, directly or indirectly, by the *Contractor*, unless specifically noted otherwise.
 - .2 The working day of the healthcare facility is from 7:00 a.m. to 5:00 p.m. every day of the week.
- .2 Conform to the *Owner’s* Trillium Health Partners – Contractor Service Provider Orientation & Safety Handbook. In case of conflict between the *Owner’s* construction procedures and safety manual and the remainder of the *Contract Documents*, the *Owner’s* construction procedures and safety manual shall govern.
- .3 Operational limitations:
 - .1 The existing building will remain in full use and occupancy throughout the *Work*, except for such parts of the building that have been vacated for the *Work*.
 - .2 *Contractor’s* use of the *Place of the Work* is limited to permit regular use of *Owner’s* facilities to continue with the least amount of interference possible.
 - .3 In consultation with, and to acceptance of, the *Consultant* in the presence of the *Owner*, designate an entrance and a circulation route that workers shall use to access the *Place of the Work* through occupied areas of the existing building, including the use of specified elevators at specific times.
 - .4 Hours of Work:

Special Project Procedures for Healthcare Facilities

- .1 Execute work in existing building at times approved by *Consultant* and as mutually agreeable to the *Owner*, in a manner not to inconvenience building occupants or hinder their use of the building. Include for certain work as scheduled with the *Owner* to be done outside standard hours of work.
- .2 Work shall be completed to meet the *Owner's* prescribed dates and permitted hours of work.
- .3 The cost of premium time shall be included in the *Work*. No claim for additional cost due to work being done during premium time will be allowed.
- .4 Whenever the *Contractor* contemplates entering any occupied areas, of the building, to carry out work or to obstruct or take out of use, any area of the building, he shall make such request to the *Owner* in writing a minimum of 10 *Working days* before he intends to do the work.
- .5 Execute work as quietly as possible in and around existing building at all times.
- .6 For areas of *Work* requiring full access for hospital staff during normal hospital business hours, ensure all ceiling areas are enclosed with no obstructions to mechanical and electrical devices in the ceiling in order to maintain appropriate infection control.
- .7 Notify *Owner* 72 hours in advance prior to any work outside of the hoarded area and in the existing building.
- .8 Noisy Work:
 - .1 Submit a two-week look ahead schedule of the work being performed along with a noise rating on a scale out of "10" for the work being conducted each day.
 - .2 Hours when noisy work can be performed shall be verified with the *Owner* prior to commencement. Noisy work shall be included in the look ahead schedule.
- .5 Deliveries and Waste Removal:
 - .1 Loading Dock Deliveries and waste removal are to occur between the hours of 5:00 am and 7:00 am or between the hours of 7:00 pm and 9:00 pm. If a delivery is needed outside of these specified days, the *Contractor* shall coordinate with *Owner*. All deliveries must be completed using the *Owner's* Loading Dock/Elevator, using routes through building as approved by *Owner*.
 - .2 Transport waste in containers with tightly fitting lids or cover waste with a wet sheet. Do not transport waste through occupied areas of existing building.
 - .3 Remove waste as it is created. Debris shall be contained and covered if it cannot be removed immediately.
 - .4 Remove waste at the end of each *Working Day* through construction access routes.
 - .5 All tools and equipment must be thoroughly cleaned before transporting them through the hospital.

Special Project Procedures for Healthcare Facilities

- .6 If an alternate elevator or route is required, a request must be submitted to the *Owner's* Project Team for approval. Once submitted the *Owner's* Project Manager will coordinate time with the appropriate *Owner* stakeholders. Once approved the *Owner's* Project Manager will review times and required path for the movement of material.
- .7 Hours that *Contractor* can move material and debris through hospital between area of work and loading area: between 7 pm and 5 am daily. All bins shall be covered and floors cleaned after movement.
- .4 Dust tight enclosure and partition doors or flaps and entrance doors to the *Place of the Work* shall remain closed.
- .5 Areas of the existing building adjacent to the *Place of the Work* or areas affected by the *Work*, including circulation and access routes, shall be maintained in a clean state equivalent to the level of cleanliness maintained in the existing building, and as follows:
 - .1 Clean and HEPA vacuum the *Place of the Work* and areas surrounding the *Place of the Work* daily or more frequently as required.
 - .2 Provide tack mats at access doors to the *Place of the Work* so that workers can remove dust and debris from their footwear when exiting the *Place of the Work*. Replace or clean daily, or more frequently as required.
 - .3 Wet mop floor areas in vicinity of access doors to the *Place of the Work* daily, or more frequently as required.
 - .4 HEPA vacuum carpeted areas daily or more frequently as required.
 - .5 Wet clean carpets in accordance with manufacturer's recommendations once work in such areas is complete.
 - .6 Final cleaning shall be in accordance with Section 01 74 00.
- .6 Document condition of the existing building in areas immediately adjacent to the *Place of the Work* by means of construction photographs in accordance with Section 01 32 00.
 - .1 Photos are not permitted to be taken outside of hoarded areas.
- .7 Workers shall remove dust from body and clothing by vacuum cleaning prior to traversing patient care areas.
- .8 In areas designated by the *Owner*, workers shall be required to wear protective clothing as directed by the *Owner*. Protective clothing shall be removed upon exiting designated areas.
- .9 Cellular phones for personal use shall not be used in the existing building.
- .10 Walkie-talkies shall not be used in the existing building without the express, written approval of the *Owner*.
- .11 Safety clearances are required before any cutting, welding, core drilling, or open flame work is done. A request in writing to the *Owner* must be made and approved a minimum of 1 *Working Day* prior to commencing such work.

Special Project Procedures for Healthcare Facilities

1.3 Temporary Ventilation

- .1 Provide temporary ventilation in accordance with Section 01 51 00 supplemented as follows:
 - .1 Provide negative pressure air ventilation as described below.
 - .2 Ensure quality of intake air to existing building through existing intake louvres is not compromised by dust or noxious or odorous fumes.

1.4 Use of Existing Facilities

- .1 Badges:
 - .1 In accordance with Trillium Health Partners – Contractor Service Provider Orientation & Safety Handbook, security badges are required for all *Contractor's* personnel. In addition to requirements of THP Procedures, *Contractor* shall be responsible for initial charge as dictated by hospital.
- .2 Restrict access, material deliveries, execution of work, operations and procedures to designated locations and times and do not deviate from designated procedures without prior acceptance by the *Consultant* in the presence of the *Owner*.
- .3 Periodically review proposed construction operations with the *Consultant* in the presence of the *Owner* and cooperate as required to ensure that *Owner's* interests and requirements are not unduly compromised with regard to the normal operation and function of occupied areas on the existing building.
- .4 While working in the existing hospital, workers shall not remain in areas in which they are working for meals and breaks. Workers shall not be permitted to have meals or take breaks in the existing hospital. Meals shall and breaks shall be taken in the site office, or away from the *Place of the Work*.
- .5 Traffic through existing occupied areas of the hospital shall be kept to a minimum. Travel within existing occupied areas of the hospital shall be via the most direct route that does not pass through patient wards or sensitive areas.
- .6 Noise, dust and debris, and odours shall be minimized to ensure hospital staff and patients in adjacent areas are disturbed as little as possible. Corrective action to cease or limit disagreeable annoyances to hospital staff and patients shall be implemented immediately upon notification by the *Consultant* or the *Owner*.
- .7 Use of *Owner's* waste management containers and garbage bins shall not be permitted.
- .8 Use of existing elevators shall be permitted to transport garbage to the loading dock garbage bin.
 - .1 The *Owner* will be designating which elevator will be used and will allow exclusive use for short durations. A schedule will be provided showing availability.
- .9 Existing fire protection equipment:
 - .1 Existing fire protection equipment, such as fire extinguishers and hoses, shall only be used in an emergency situation.
 - .2 Do not remove existing fire protection equipment.

Special Project Procedures for Healthcare Facilities

- .3 If any existing fire protection equipment is used or interfered with in any way, the *Owner's* fire equipment inspector shall be retained to inspect, test, recharge, and otherwise repair such equipment at no additional cost to the *Owner*.

1.5 Dust Tight Partitions and Enclosures

- .1 Dust tight partitions and enclosures and construction anterooms shall be in accordance with CAN/CSA Z317.13-17 – Infection Control during Construction, Renovation and maintenance of Health Care Facilities and in accordance with Trillium Health Partners – Contractor Orientation & Safety Handbook. In case of conflict between the Contractor Orientation & Safety Handbook and requirements of paragraph 1.5 of this Section, this Section shall govern.
- .2 Dust tight partitions:
- .1 *Provide* dust tight partitions to localize dust generating activities, and for the protection of workers, hospital staff, patients, the public, and finished areas of the *Work*.
- .2 Dust tight partitions are temporary, weather tight, dust, tight, and lockable partitions between occupied areas of the existing hospital and areas where the *Work* is being performed, and include treatment of joints, cracks, and openings in partitions to prevent dust from entering occupied areas of the hospital.
- .3 Dust tight partitions shall be assemblies with 1-hour fire resistance rating complete with doors and frames having 3/4-hour fire resistance ratings.
- .4 Construct dust tight partitions as follows:
- .1 *Provide* 92 mm (3-5/8") steel studs at 400 mm (16") on centre, with 2 rows of bracing between studs and additional bracing for gypsum board finish. Steel studs shall be in accordance with Section 09 22 00.
- .2 *Provide* fire resistance rated tarpaulins fastened to studs on the side of the partition opposite to the occupied areas of the hospital. Lap joints 100 mm (4") minimum, and seal laps and perforations dust tight with 75 mm (3") wide plastic film tape.
- .3 *Provide* 1 layer of 12.7 mm (1/2") thick square edge fire resistant gypsum board over both side of partition. Seal joints with 75 mm (3") wide plastic film tape. Gypsum board and installation shall be in accordance with Section 09 29 00.
- .4 *Provide* felt gaskets around perimeter of partitions.
- .5 Paint sides of partitions exposed to occupied areas of the existing building in accordance with Section 09 91 00, colour as to later selection by the *Consultant*.
- .3 Dust tight enclosures:
- .1 Where minor isolated alteration work occurs in the existing building and a dust tight partition is not feasible, *Provide* a mobile containment system, extending floor to ceiling.

Special Project Procedures for Healthcare Facilities

- .2 Mobile containment system shall be fabricated of an adjustable aluminum frame, vinyl enclosure with pressure porthole, wheel base platform, and disposable plastic liner, and sized as required.
- .3 *Provide* HEPA filter vacuum device and manometer and connect to pressure porthole. HEPA units will be current and certified at all times.
- .4 *Acceptable Product:* Kontrol Kube Topsider or Kontrol Kube Topsider Jr., as manufactured by Fiberlock Technologies Inc., or approved alternate.
- .4 Work shall also include temporary ventilation, ducted directly to the exterior, of interior areas of the existing building where noxious or odorous fumes exist, so that building occupants are unaffected by the work. Provide negative air ventilation in all work areas complete with a HEPA filter and exhausted to the exterior. Ensure that ducting to the exterior is sufficiently distant from air intakes. It is imperative that proper sealing and means are in place to ensure that positive pressure is maintained in the hospital and negative pressure is maintained in the construction area, all in accordance with Trillium Health Partners – Contractor Orientation & Safety Handbook and CSA Z317.13- 17.
- .5 Maintain and relocate dust tight partitions and enclosures until dust generating work is complete, or until directed otherwise in writing by the *Consultant* in consultation with the *Owner*.
- .6 *Provide* “Construction Zone” signage outside dust tight partitions and enclosures, manufactured by signage company, with minimum 75 mm (3”) letters.

1.6 Infection Prevention and Control Procedures

- .1 Infection prevention and control procedures shall be in accordance with CAN/CSA Z317.13-17, and Health Canada document “Construction-Related Nosocomial Infections in Health Care Facilities”.
- .2 Training:
 - .1 Provide workers with training in infection prevention and control procedures.
 - .2 Training shall be provided a specialized infection prevention and control consultant approved by the *Owner*.
 - .3 The *Contract Price* includes the cost for the required number of training sessions to adequately cover the duration of the *Project*.
 - .4 Proof of successful completion of such training shall be submitted to the *Owner* in the form of a certificate issued by the infection prevention and control consultant providing the training. Training certificate shall be submitted before a worker undertakes any work at the *Place of the Work*.
- .3 Preconstruction Procedures:
 - .1 Before construction begins in areas adjacent to occupied parts of the building, including floors above and below the construction area, and including the systems serving those areas; conduct an assessment with the *Owner* with regard to the risks posed to the occupants; and determine appropriate preventive measures to be taken.

Special Project Procedures for Healthcare Facilities

- .2 *Contractor* shall prepare a Preventive Measures Analysis in accordance with requirements of CSA Z317.13-17 for each occupied area as indicated in CSA Z317.13-17, Preventive Measures Analysis.
- .3 Submit a copy of Preventive Measures Analysis to the *Owner*, for each occupied part of the building for each population risk group.
- .4 Construction Procedures:
 - .1 *Contractor* shall implement Preventive Measures I, II, III or IV as required in Preventive Measures Analysis in accordance with requirements of CSA Z317.13-17, before construction, during construction and after construction. The Preventive Measures required is Level IV unless otherwise indicated.
- .5 The *Owner* specialized infection prevention and control consultant shall assess the risks related to the *Project* utilizing the Risk Assessment and Preventative Measures Checklist contained in Health Canada Document "Construction-Related Nosocomial Infections in Health Care Facilities". The determination of risk will guide the need for barriers and other infection prevention and control measures required in the *Work*. The *Owner* will advise the *Contractor* of the results of the assessment. The specialized infection prevention and control consultant shall advise the *Owner* and the *Contractor* of the results of the assessment.
 - .1 The *Consultant* shall have no authority or role under the *Contract* with regard to infection prevention and control procedures.
- .6 Field review of the *Work* and on-going infection prevention and control procedures shall be undertaken on a regular basis by the specialized infection prevention and control consultant in the presence of the *Contractor*. Procedures for such field reviews shall be the same as those for inspection and testing in accordance with Section 01 45 00.
- .7 At Pre-Construction meeting, convened in accordance with Section 01 31 19, review infection prevention and control procedures. The specialized infection prevention and control consultant shall attend the Pre-Construction meeting. Subjects to be reviewed include, but are not limited to, the following:
 - .1 General information on infection prevention and control procedures.
 - .2 Identification of patient populations that may be at risk.
 - .3 Prevention measures for essential services that may be disrupted.
 - .4 The integrity of the facility's exterior structure, spatial separations, ventilation and water supplies for any infection control problems.
 - .5 Methods for dust containment and removal of construction debris.
 - .6 Traffic patterns for construction workers and supply delivery routes to minimize risks to patients, staff and visitors.
 - .7 The need for increased filter changes during the *Work*.
 - .8 The need to close down dampers temporarily to reduce circulation of contaminated air or fumes.
 - .9 Systems that can provide the required air exchange rates and pressure relationships in critical areas near construction activity.

Special Project Procedures for Healthcare Facilities

- .10 Schedule of field reviews by the specialized infection prevention and control consultant.
- .8 Vacuum cleaners:
 - .1 Vacuums shall be commercial grade complete with HEPA filters.
 - .2 HEPA filter shall be changed as recommended by the manufacturer or required by use. Maintain a filter change log at the *Place of the Work*, available for review by the *Owner*.
- .9 The following precautions, as a minimum, shall be taken when working on existing walls, ceilings, floor spaces, ducts and piping systems as the dust and dirt collected in these areas may contain disease causing germs:
 - .1 Prior to work being done or the removal of ceiling tiles, or opening of ceiling access hatches, erect floor to ceiling dust tight partitions and enclosures as described above to completely enclose the area where such work is being performed.
 - .2 Remove acoustical ceiling panels keeping horizontal, and vacuum clean the panels immediately prior to removal.
 - .3 Existing air ducts, conduits, and spaces above the ceiling shall be vacuum cleaned prior to the start of work in such areas.
 - .4 Remove dust tight partitions and enclosures when work is finished or prior to the start of hospital working day, and remove marks left by tape or studs, and enclose ceiling areas with no obstructions to mechanical and electrical devices in the ceiling space.
 - .5 Vacuum clean interior of dust tight partitions and enclosures prior to their removal.
 - .6 Vacuum clean area enclosed by dust tight partitions and enclosures after removal of the dust tight partitions and enclosures.
- .10 Negative pressurization
 - .1 Areas where work is being undertaken shall be isolated from occupied areas of the hospital using dust tight partitions and enclosures as described above.
 - .2 The *Place of the Work* will be maintained under negative pressure at all times in relation to the occupied areas of the existing building to prevent dust and airborne pathogens from entering the occupied areas of the existing building.
 - .3 Negative pressure shall be achieved through the use of dedicated (window or otherwise) exhaust units or, if direct access cannot be achieved, by HEPA filtered recirculation units that transfer filtered air from the *Place of the Work* into the occupied areas. Exhaust points will be reviewed with the *Owner* to ensure that the exhaust air from the *Place of the Work* is not affecting pedestrian routes and is not re-entrained back into the existing building through fresh air intakes.
 - .4 *Provide* construction exhaust/HEPA units and remove at the completion of the *Work*.

Special Project Procedures for Healthcare Facilities

- .5 Air systems serving only the *Place of the Work* will be shut down and all supply, return and exhaust openings shall be sealed to prevent dust and construction debris from entering the air system. As a further precaution, the air system will be reviewed at the end of the *Work* to determine if cleaning is required.
- .6 Supply and return air ducts entering the *Place of the Work* are to be fitted with a pre-filter unit and sealed within the *Place of the Work* near point of entry or exit prior to the start of disruptive activity to prevent dust and construction debris from entering the air system. As a further precaution, the air system will be reviewed at the end of the *Work* to determine if cleaning is required.
- .7 During construction, the seal only on the supply air duct may be removed after demolition and clean-up to permit ventilation within the construction area provided no other means is available.

1.7 Existing Services

- .1 Service interruptions:
 - .1 Connection or disconnection of services that will interfere with the operation of the *Owner's* facilities shall not be done without the prior written acceptance of the *Consultant* in the presence of the *Owner* and during the times designated by the *Owner*. Premium charges associated with such work shall be included in the *Contract Price*.
 - .2 Provide at least 30 *Working Days* prior written notice to the *Consultant* and the *Owner* of requirement or intention to interrupt services, and obtain written permission of the *Consultant* in the presence of the *Owner* prior to commencing such interruption.
 - .3 In no instance shall interruptions affect the entire existing building.
 - .4 Comply with Trillium Health Partners – Contractor Orientation & Safety Handbook for utility interruption requirements.
 - .5 As far as possible, coordinate interruptions with the *Owner's* regular maintenance of building services and systems.
 - .6 Areas adversely affected by changes in air flows outside the construction areas as a result of a required shut-down of portions of the existing HVAC system within the construction areas are to be re-balanced to comfortable levels as advised by the *Consultant*.
- .2 Should existing services be interrupted in breach of the above, make good immediately and provide protection against further such disruptions. Costs resulting from such interruptions and for making good shall be the responsibility of the *Contractor* at no additional cost to the *Owner*.

1.8 Protection of the Existing Building

- .1 Protection requirements shall be in accordance with Section 01 50 00, as supplemented herein.
- .2 Keep *Place of the Work* safe and secure, denying access to unauthorized personnel.

Special Project Procedures for Healthcare Facilities

- .3 Protect existing work from damage. Make good any damage caused. The onus is on the *Contractor* to substantiate that damage existed prior to commencement of the *Work*.
- .4 Do not overload the existing structure due to the *Work*.
- .5 Take special measures to protect existing work from damage when moving heavy loads or equipment. Protect areas used as passageways or through which materials are moved. Use resilient tired conveyances only when moving materials and equipment inside building. *Provide* coverings as required to protect existing work from damage.
- .6 Separate exterior access, work and storage areas from *Owner* occupied existing areas, with fencing and hoarding. Rearrange fencing/hoarding as *Work* progresses to suit extent and configuration of the *Work*.
- .7 *Provide* guards, barricades and other temporary protection to prevent injury to persons.
- .8 Protect existing building components and contents from damage by weather, when executing *Work* affecting integrity of the building envelope. *Provide* temporary insulated and air tight weatherproof closures to protect openings made in existing building envelope. Make good existing building components and contents damaged by weather resulting from inadequate temporary protection measures.

1.9 Emergency and Fire Protection

- .1 *Provide* and maintain ready access to fire protection equipment, in accordance with Section 01 50 00.
- .2 Immediately implement any request or instruction made by the hospital's fire marshal.
- .3 *Provide* temporary fire resistant closures at existing areas openings exposed to construction areas for the *Work* to maintain fire and life safety of existing building.
- .4 *Contractor* shall coordinate the work with the *Owner* in order to ensure no disruption to the existing fire detection and annunciation systems. Failure to provide such coordination shall result in the *Contractor* incurring the responsibilities and expenses associated with disruption to the existing fire detection and annunciation systems at no additional cost to the *Owner*.
 - .1 Provide fire watch when existing fire detection and annunciation systems are not operational or on bypass.
 - .2 Provide bypass/shutdown request to *Owner*. *Contractor* will advise THP facilities management for bypass and reinstatement of utilities.
 - .3 Whenever a changeover time occurs, which is an outage time of at least a portion of the fire alarm system, the municipal fire department shall be notified of the temporary shutdown and alternative measures shall be devised.
- .5 *Contractor* shall coordinate the work with the *Consultant* in the presence of the *Owner* in order to prevent unapproved disruptions to the existing sprinkler system, standpipe system, or other fire protection systems.
 - .1 Where temporary shut-down is necessitated, such shut down shall be in accordance with the requirements of authorities having jurisdiction and the Ontario Fire Code.

Special Project Procedures for Healthcare Facilities

- .6 Obtain 'Hot Work Permit' from *Owner Consultant* prior to hot work operation, which may cause the building's fire alarm system to be activated or create an unwarranted fire risk condition. The prevention of fires and false fire alarms caused by hot work operations is the primary goal of this procedure. Gas hoses, backflow preventers, fire resistive tarpaulins, curtains and other cutting and welding equipment must be in good repair before the permit is issued.
 - .1 'Hot Work' is defined as work using open flames or sources of heat that could ignite materials in the work area.
- .7 Fire separations:
 - .1 Maintain the integrity of fire separations, fire protection systems, and fire rated assemblies.
 - .2 Make good fire separations, fire protection, and fire rated assemblies compromised as a result of the *Work*.
- .8 Maintaining existing building exit facilities:
 - .1 Maintain exit facilities serving the existing building.
 - .2 Where an exit is blocked-off or deleted as a result of the *Work*, an alternative exit shall be *Provided* that is acceptable to the *Consultant*, the *Owner*, and authorities having jurisdiction.
 - .3 Where it is necessary for access to be gained to an exit through the *Place of the Work*, the access shall be clearly defined and protected so that it is separated from construction areas by a smoke tight fire separation equivalent to a minimum of 1 hour fire resistance rating, unless otherwise indicated.
- .9 Intersecting corridors:
 - .1 *Provide* temporary fire separations between existing corridors on occupied floor areas and new corridors under construction.
 - .2 Construct temporary fire separations out of steel studs and gypsum board to provide a construction equivalent to a minimum of 1 hour fire resistance rating, unless otherwise indicated.
 - .1 Firestopping and smoke sealant: in accordance with Section 07 84 00.
 - .2 Steel studs: in accordance with Section 09 22 00.
 - .3 Gypsum board: in accordance with Section 09 29 00.
 - .3 Where access is required, the doorway shall be protected by a door of solid core wood or hollow steel construction.
 - .4 Finish hardware equivalent to a minimum of 1 hour fire resistance rating, unless otherwise indicated.
- .10 Fire department access:
 - .1 Do not obstruct access route designated for fire department equipment.

Special Project Procedures for Healthcare Facilities

- .2 If it is necessary that existing access routes be obstructed or deleted, alternative access routes acceptable to the fire department and in accordance with the requirements of the *Contract Documents* and authorities having jurisdiction shall be *Provided* prior to commencement of work that will obstruct or delete existing access.
- .11 Combustible materials:
 - .1 Stockpiling of combustible materials adjacent to or inside the existing building shall not be acceptable.
 - .2 Store highly combustible or volatile materials separately from other materials and, under no circumstances, within the building. Limit volume of supply on the site to minimum required for 1 day's operations.
- .12 Temporary protection of openings in fire separations:
 - .1 Openings in existing floor assemblies and vertical fire rated assemblies required by the *Work*, shall be temporarily protected with materials as required to maintain continuity of the required fire resistance rating for existing fire rated assembly.

1.10 Missing Patient Search

- .1 In the event that the *Owner* is required to undertake a missing patient search, the *Contractor* shall undertake a detailed search of the *Place of the Work*, under the direction of the *Owner*.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Abbreviations and Acronyms

PART 1 - GENERAL

1.1 List of Abbreviations and Acronyms

- .1 The following abbreviations and acronyms referred to throughout the Contract Documents shall be deemed to mean its non-abbreviated meaning as indicated herein. Abbreviations and acronyms throughout the Contract Documents may be indicated in upper or lower case.
- .2 Refer to other Sections of the Specifications and Drawings for additional abbreviations and acronyms.

AB	Acoustic Baffle
ACI	American Concrete Institute
AC/PNL	Acrylic Panel
ACT	Acoustic Ceiling Tile
ACTR	Activity Room
AD	Access door (hinged)
ADD	Addendum
ADJ	Adjustable
ADL	Aids Daily Living
ADO/M	Automatic Door Operator - Motion Detector Operation
ADO/P	Automatic Door Operator - Push Plate Operation
ACS	Adult Change Station
AF	Access Flooring
AFF	Above Finished Floor
AGG	Aggregate
A/HK	Apron Hook
ALUM	Aluminum
ALC/D	Alcohol Dispenser
AMP	Acoustic Metal Panel
AMHR	Anti-Microbial Hand Rinse
ANN/PNL	Annunciator Panel
ANOD	Anodized
ANSI	American National Standards Institute
AP	Access Panel (non-hinged)
APPROX	Approximate
AR	Accent Rail
ASB	Asbestos
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWMAC	Architectural Woodwork Manufacturers Association of Canada
AWP	Acoustic Wall Panel
BACS	Building Automatic Control System
B/BD	Backer Board
BEDG	Bedroom General
BEDS	Bedroom Special
B/PL	Base Plate

Abbreviations and Acronyms

BH/CON	Bushhammered Concrete
BHD	Bulkhead
BK/BD	Black Board
BL	Bed Locator
BLDG	Building
BN	Bullnose
BOL	Bollard
BPR	Bed Pan Rack
BR	Bedroom
BRK	Brick
BSMT	Basement
CARP	Carpet
CB	Catch Basin
CK/BD	Chalkboard
CEM	Cement
CEM/BD	Cementitious Board
CEM/FIN	Cement Finish
CEM/PLAS	Cement Plaster
CER/T	Ceramic Tile
CG	Corner Guard
CGSB	Canadian General Standards Board
CHR	Change Room
CH/RL	Chair Rail
CIR	Circulation
CJ	Construction Joint
CK/BD	Chalkboard
CK/T	Cork Tile
CL	Centre Line
CLG	Ceiling
CLR	Colour
CLR/CON	Coloured Concrete
CLR/GL	Clear Glass
CLWG	Clear Wired Glass
CMU	Concrete Masonry Unit
COL	Column
COMM	Communication
COMP/T	Composite Tile
CONC	Concrete
CON/FL	Concrete Floor
CONSTR	Construction
CONT	Continuous
CR	Crash Rail
CRCI	Contractor Removed, Contractor Installed
CSCI	Contractor Supplied, Contractor Installed
CR/HR	Crash Hand Rail
CRK	Coat Rack
C/RK	Chart Rack

Abbreviations and Acronyms

C/ROD	Curtain Rod
CSA	Canadian Standards Association
CT	Curtain Track
C/T	Clay Tile (block)
CTJ	Control Joint
C to C	Centre to Centre
CUP	Cupboard
CUP/D	Cup Dispenser
DCS	Diaper Change Station
DEPT	Department
DF	Decorative Finish
D/F	Drinking Fountain
DFP	Door Frame Protection
DFP-F	Door Frame Protection Full Height
DFP-H	Door Frame Protection Half Height
DIA	Diameter
DN	Down
DP	Door Protection
DP-F	Door Protection Full Height
DP-H	Door Protection Half Height
DP-K	Door Protection Kick Plate
D/P	Diaper Pail
DWG	Drawing
EL	Elevation (Above Datum)
ELEC	Electrical
ELV	Elevation (view)
ELEV	Elevator
EHO	Electric Hold Open
EIFS	Exterior Insulated and Finish System
ENT	Entrance
ENT/M	Entrance Mat
EPNL	Electrical Panel
E/PT	Epoxy Paint
EQL	Equal
E/TER	Epoxy Terrazzo
EXAM	Examination
EX or EXIST	Existing
EXPJT	Expansion Joint
EX/ST	Exposed Structure
FAF	Fluid Applied Flooring
FB	Fletboard
FD	Floor Drain
FHC	Fire Hose Cabinet
FEC	Fire Extinguisher Cabinet
FIN	Finish
FFL	Finish Floor

Abbreviations and Acronyms

F/GL	Frosted Glass
FL	Floor
F/MIR	Framed Mirror
FP	Frame Protection
FP-F	Door Frame Protection Full Height
FP-H	Door Frame Protection Half Height
FR	Fire Retardant or Fire Rated
FS	Fire Separation
FSS	Folding Shower Seat
F/SHLF	Folding Chart Shelf
F/T/GL	Frosted Tempered Glass
F/WC	Fiberglass Wall Covering
F/WGL	Frosted Wired Glass
GA	Gauge
GALV	Galvanized
GB	Grab Bar
GD	Glove Dispenser
GEN	Generic Accessory
GLB	Glass Block
GRAN	Granite
GL	Glass (float)
GL/T	Glass Mosaic Tile
GWB	Gypsum Board
GWB/AR	Gypsum Board, Abuse Resistant
HAMP	Hamper
HB	Hose Bibb
HC	Hollow Core Wood
HD	Hand Dryer
HDN/CON	Hardened Concrete
HM	Hollow Metal
HN/D	Hairnet Dispenser
H	Hand Rail
HOR	Horizontal
HPC	High Performance Coating
HR	Hour
HR/DR	Hair Dryer
HSKP (HKPG)	Housekeeping
HT	Height
HWU	Head Wall Unit
HYD	Hydrant
ICP	Infection Control Practitioner
ID	Inside Diameter
IMR	Imaging Room
INS/GL	Insulated Glass
IV/T	Intravenous Track

Abbreviations and Acronyms

JS	Janitor's Shelf
JT	Joint
kg	Kilogram
kPa	Kilopascals
L	Litre
LAB	Laboratory
LAM/GL	Laminated Glass
LAV	Lavatory
LD/GL	Leaded Glass
LEX/GL	Lexan Glazing
LINO	Linoleum
LKR	Locker
LOG	Lounge
LTSTD	Light Standard
m	Metre
MARB	Marble
MATL	Material
MATM	Materials Management
MAX	Maximum
MB	Marker Board
M/BRK	Monitor Bracket
MC	Medicine Cabinet
MD	Mask Dispenser
MECH	Mechanical
MESH/CLG	Mesh Ceiling
MET/LIN	Metal Linear
M/G	Make Good
MGPNL	Medical Gas Panel
MH	Manhole
M/H	Mop Holder
MHD	Mask Holder
MHO	Magnetic Hold Open
MIN	Minimum
MIR	Mirror
MIR/S	Mirror with shelf
MISC	Miscellaneous
mm	Millimetre
MO	Masonry Opening
MPa	Megapascal
M/PNL	Metal Panel
M/RK	Magazine Rack
MTC	Ministry of Transportation and Communications, Ontario
MTL	Metal
NAT	Natural
NBC	National Building Code

Abbreviations and Acronyms

NC	Narcotic Cabinet
NIC	Not in Contract
No.	Number
NPS	Nominal Pipe Size
NS	Nursing Station
NTS	Not to Scale
NUR	Nutrition
OAA	Ontario Association of Architects
OBC	Ontario Building Code
OC	On Centre
OD	Outside Diameter
OFF	Office
OGCA	Ontario General Contractors Association
ONE WAY	One-Way Glass
OPSS	Ontario Provincial Standard Specification
OR	Operating Room
ORCI	Owner Removed, Contractor Installed
OSCI	Owner Supplied, Contractor Installed
OSOI	Owner Supplied, Owner Installed
OWSJ	Open Web Steel Joists
PA	Public Amenities
P/BRK	Paper Bracket
P/C	Privacy Curtain
P/CAB	Presentation Cabinet
PCD	Paper Cup Dispenser
P/CON	Precast Concrete
P/CT	Plastic Coating
PEW	Portable Eye Wash
PF	Protective Flooring
PGB	Pegboard
PHAR	Pharmacy
PLAM	Plastic Laminate
PLAS	Plaster
P/LKR	Purse Locker
PLIFT	Patient Lift
PLYWD	Plywood
PM/RK	Pamphlet/Magazine Rack
POR	Porcelain
PORC/T	Porcelain Tile
POSN	Position
PP	Push Plate
PR	Procedure Room
P/RK	Pamphlet Rack
PR/PT	Prime Paint
PRES.VEST	Pressurized Vestibule
PROF	Profile
PROJ	Project

Abbreviations and Acronyms

PR/SC	Projection Screen
PT	Paint
PTD	Paper Towel Dispenser
PTD/R	Paper Towel Dispenser/Receptor
P/TEL	Pay Telephone
P/TER	Precast Terrazzo
PTR	Paper Towel Receptor
PTS	Pneumatic Tube Station
PTS/R	Pneumatic Tube Riser
QRY	Quarry Tile
R	Radius
RAIC	Royal Architectural Institute of Canada
RBR	Rubber Sheet
RBR/T	Rubber Tile
RCPT	Receptacle
RD	Roof Drain
REFR	Refrigerator
RB	Resilient Floor Base
REV	Revision
R/GL	Reflective glass
RH	Robe Hook
RH/S	Robe Hook Strip
RHP	Radiant Heat Panel
RI	Riser
RLS	Roller Shade
RM	Room
RSF	Resilient Sheet Floor
R/SU	Rod and Shelf Unit
RWL	Rainwater Leader
S/BRH	Scrub Brush Holder
SC	Solid Core Wood
S/C	Sharps Container
SCC	Sprinkler Control Cabinet
S/CONC	Sealed Concrete
SD	Soap Dispenser
SDH	Soap Dish
SECT	Section
SER	Services
S/GL	Spandrel Glass
SH/C	Shower Curtain
SH/CD	Shower Caddy
SH/H	Shower Head
SHLF	Shelf
SH/R	Shower Rod and Curtain
SH/S	Shower Seat
SIM	Similar

Abbreviations and Acronyms

SM	Square Metres
SND	Sanitary Napkin Dispenser
SND/PNL	Sound Absorption Panel
SNR	Sanitary Napkin Receptor
SP	Spandrel Panel
SPEC	Specification
SPL	Special Coating
SPL/S	Specialty Shelf
SS	Solid Surfacing Material
SSP	Surgery Support
SSS	Stainless Steel Shelf
SST	Stainless Steel
ST	Steel
STN	Stone
STOR	Storage
STR/U	Storage Unit
STR	Structural
TB	Tackboard
TBD	To Be Determined
TB/S	Tackboard Strip
TB/WB	Tackboard / Whiteboard
TBR	Toilet Back Rest
TD	Towel Dispenser
TDH	Tongue Depressor Holder
TEMP/GL	Tempered Glass
TEMP	Tempered
TER	Terrazzo
TEST	Testing Room
TEX FIN	Textured Finish
T & G	Tongue and Groove
TI/GL	Tinted Glass
TME	To Match Existing
T/MIR	Transparent Mirror (One Way Mirror)
TPH	Toilet Paper Holder
TR	Towel Rod
TRAN	Transparent
TRD	Tread
TRM	Treatment Room
TSD	Toilet Seat Dispenser
TV/BRK	Television Bracket
TYP	Typical
U/C	Undercut
UC/REFR	Undercounter Refrigerator
ULC	Underwriters' Laboratories of Canada
ULI	Underwriters' Laboratories Incorporated
U/S	Underside
UT	Utility

Abbreviations and Acronyms

VAR	Vapour/Air Retarder
VBX	View Box
VCT	Vinyl Composition Tile
VEST	Vestibule
VHD	Visor Holder
VNL	Vinyl Sheet
WB	White Board
W/COV	Wall Covering
WC/WR	Wheelchair Washroom
WD	Wood (solid)
WDP	Wood Panel
WDS	Wood Slat
WGL	Wired Glass
WIN/C	Window Covering
WKSP	Workshop
WM	Wire Mesh
WP	Wall Protection
WPF	Waterproof Flooring
WR	Washroom
WTR	Waiting Room
WV	Wood Veneer

END OF SECTION

Quality Requirements

PART 1 - GENERAL

1.1 Section Includes

- .1 *Contractor's* quality assurance program.
- .2 *Contractor's* field quality control.
- .3 Subcontractor Qualification Statements
- .4 Independent inspection and testing – *Owner's* Quality Assurance.
- .5 Inspection and testing schedule.
- .6 Reports and documents.
- .7 Manufacturer's field review.
- .8 Mock-ups.

1.2 *Contractor's* Quality Assurance Program

- .1 Submit to the *Owner* and the *Consultant* for their information, a quality assurance program (the "Quality Assurance Program").
- .2 The Quality Assurance Program shall meet the requirements of Canadian Standards Association CSA CAN3-Z299.3 or such other requirements as set out in the *Contract Documents*.
 - .1 The Quality Assurance Program shall be designed so that quality requirements are obtained by progressive implementation of the controls and inspection functions stated in the Quality Assurance Program.
 - .2 Make any modifications to the Quality Assurance Program as reasonably requested by the *Owner* and/or the *Consultant*.
 - .3 The Quality Assurance Program shall include, but shall not be limited to, the following:
 - .1 A system by which changes to the *Contract Documents* and correspondence with *Subcontractor* and other correspondence is handled in a controlled manner.
 - .2 A system for purchased or manufactured materials to be identified, inspected to the specified standard, and covered by a material test report.
 - .3 A system by which measuring and testing equipment is properly stored, handled, and calibrated to a known standard.
 - .4 A system by which incoming materials are: inspected to the specified standard; accepted; allocated safe storage; and properly recorded.
 - .5 A system by which process inspection requirements shall be clearly stated for operations and carried out by qualified personnel.
 - .6 A system by which final inspections will be carried out and accepted by authorized personnel prior to release for shipping or major assembly.

Quality Requirements

- .7 A system by which non-conformance to requirements of the *Contract Documents* shall be recorded and solutions proposed by the *Owner* or the *Consultant* are also recorded.
- .8 A system by which instructions for handling and storage of equipment shall be given.
- .9 A system by which SBO items can be inspected and received in a manner which allows replacement or correction.
- .10 A system by which a record of quality inspections, tests, and actions shall be kept, including field quality control.
- .11 A system by which the *Owner* and the *Consultant* shall be afforded access to manufacturing areas and quality records and issued with copies of pertinent drawings and manufacturing schedules.
- .3 Provide the *Owner* and the *Consultant* with regular Quality Assurance Reports for their information according to an agreed schedule.

1.3 Contractor's Field Quality Control

- .1 Provide and be responsible for field quality control throughout the *Work*, including quality control of *Subcontractors* and major *Suppliers*.
- .2 Ensure that the only specified or approved *Products* and materials are used.
- .3 Provide and maintain an effective quality control program, in accordance with the Quality Assurance Program, and perform inspections and tests to ensure compliance with *Contract Documents*.
- .4 Furnish appropriate facilities, instruments, and testing devices required for performance of the quality control function.
- .5 Deliver inspection testing reports or approvals in accordance with the requirements of Section 01 45 00.
- .6 Develop a field quality control manual covering field installation. The form of the manual shall be acceptable to the *Owner* and the *Consultant*. This manual will document field quality control practices of the *Contractor*, *Subcontractors*, and major *Suppliers*. The manual shall include, but not be limited to:
 - .1 Concrete slab moisture and pH testing and surface preparation, including flatness and levelness.
 - .2 Surface preparation.
 - .3 Fastener and anchor installation.
 - .4 Material compatibility testing.
 - .5 On line fabrication quality control practices.
 - .6 Shipping.
 - .7 Field installation.
 - .8 Field inspection and testing by *Contractor*.

Quality Requirements

- .9 Field inspection and testing independent.
- .7 Inspection and testing shall be performed by company qualified to perform the inspections or tests specified or required by the building code, regulations, by-laws, or authorities having jurisdiction.
- .8 Retain and pay for inspection and testing that is for *Contractor's* own quality control or is required by regulatory requirements
- .9 Maintain a logbook (copies to be provided to the *Consultant* at completion of fabrication) documenting date, time, results, and significance of in-plant testing carried out, where applicable, linked to daily production. The form of this logbook shall be acceptable to the *Owner* and the *Consultant*.

1.4 Subcontractor Qualification Statements

- .1 Upon request by the *Consultant*, submit proof, in the form of CCDC 11 - Contractor's Qualification Statement, of qualifications of *Subcontractors* to verify *Subcontractor's* qualifications and experience meet or exceed the requirements of the *Contract Documents*.
 - .1 If, upon review of the Contractor's Qualification Statement, it is found that the *Subcontractor* does not meet the qualification requirements specified in the *Contract Documents* pertaining to the parts of the *Work* for which the *Subcontractor* has been retained, the *Contractor* shall replace the unqualified *Subcontractor* with a qualified *Subcontractor*, satisfactory to the *Contractor* and the *Owner*, at no additional cost to the *Owner* and at no increase in the *Contract Time*.

1.5 Independent inspection and Testing – Owner's Quality Assurance

- .1 Independent inspection and testing services are used by the *Owner* to verify compliance with requirements of the *Contract Documents*.
- .2 Employment of inspection and testing agencies by *Contractor* or *Owner* does not relieve *Contractor* from responsibility to perform the *Work* in accordance with *Contract Documents*.
 - .1 Independent inspection and testing services do not relieve the *Contractor* of responsibility for normal shop and site inspection, and quality control of manufacturing and installation.
 - .2 Specified tests, inspections, and related actions do not limit the *Contractor's* other quality assurance and control procedures that facilitate compliance with the *Contract Documents* requirements.
 - .3 Requirements for the *Contractor* to provide quality control services required by the *Contract Documents*, *Consultant*, *Owner*, or authorities having jurisdiction are not limited by *Owner's* independent inspection and testing services.
 - .4 Inspections and tests specified or required that are not specified as independent inspection and testing are the responsibility of the *Contractor* and are not covered under the *Owner's* quality assurance requirements.

Quality Requirements

- .3 The *Owner* will appoint independent inspection and testing companies, representing, reporting and responsible to the *Owner*. Payment will be by *Owner*, unless otherwise specified.
- .4 Additional inspection and testing required because of changes in materials proposed by *Contractor* or *Subcontractors*, by lack of proper notice for inspection and testing specified, or required as a result of failure of such materials to meet requirements of the *Contract Documents* when originally tested, shall be carried out at no additional cost to the *Owner*.
- .5 Inspection and testing required by codes or ordinances, or by an authority having jurisdiction, and made by a legally constituted authority, shall be the responsibility of the *Contractor* and shall be paid for by the *Contractor*, is not part of the *Owner's* quality assurance requirements, and shall not be paid by *Owner*, unless otherwise specified in the *Contract Documents*.
- .6 Inspection or testing performed exclusively for *Contractor's* convenience shall be sole responsibility of *Contractor*, is not part of the *Owner's* quality assurance requirements, and shall not be paid by *Owner*.
- .7 Independent inspection and testing shall be performed by company qualified to perform the inspections or tests specified or required.
- .8 Requirements of regulatory companies:
 - .1 Testing shall be conducted in accordance with requirements of the building code.
 - .2 Obtain certification where required by the building code and standards.
- .9 Cooperation with independent inspection and testing companies:
 - .1 Provide independent inspection and testing companies with materials and installation information as required and/or requested.
 - .2 Submit test samples required for testing.
 - .3 Cooperate with independent inspection and testing companies and give adequate notification of any changes in source of supply, additional work shifts, and other proposed changes.
 - .4 Provide access to the *Work* for independent inspection and testing companies wherever the *Work* is in progress, or wherever *Products*, materials, or equipment are stored prior to shipping.
 - .5 Provide labour, *Construction Equipment*, and temporary facilities required to assist independent inspection and testing companies in sampling and making tests.
- .10 Inspection and test specimens:
 - .1 Inspection and testing will, generally, consist of procedures listed in the following paragraphs, but additional tests may be performed as required to verify conformance to *Contract Documents*.

Quality Requirements

- .2 Specimens and samples for testing, unless otherwise specified in the *Contract Documents*, shall be taken by the independent inspection and testing company; sampling equipment and personnel shall be provided by the independent inspection and testing company; and deliveries of specimens and samples to the testing company shall be performed by the testing company unless otherwise specified.
- .3 Independent inspection and testing company shall take samples necessary to verify quality as specified. Taking of samples shall not endanger the structure or life safety, and shall be taken so as to best represent the *Work* as a whole.
- .4 Samples shall be handled, packaged, stored and delivered in accordance with specified tests. Sample handling where required shall duplicate conditions at the *Place of the Work* (such as site-cured concrete cylinders).
- .11 Where evidence exists that defective workmanship may have occurred, or that the *Work* may have been carried out incorporating defective materials, or where tests demonstrate that installed conditions do not comply with the requirements of the *Contract Documents*, the *Consultant* reserves the right to have additional inspections, tests, analysis, and surveys performed in order to help determine the extent of defect and whether such work must be replaced. Inspections, tests, and surveys carried out under these circumstances will be made at the *Contractor's* expense, and will not be paid by *Owner*, unless the results indicate that the work so tested, inspected or surveyed is not defective or that, in *Consultant's* opinion, the work so tested, inspected, or surveyed may be accepted, in which case tests, inspections or surveys will be paid by *Owner*.
- .12 Repair work damaged as a result of independent inspection and testing work.

1.6 Inspection and Testing Schedule

- .1 Prepare schedule for inspection and testing company services in accordance with Section 01 32 00 and as follows:
 - .1 Establishing schedule:
 - .1 By advance discussion with the selected independent inspection or testing company, determine the appropriate time necessary to perform the required services and to issue related reports.
 - .2 Allow for required time within construction schedule.
 - .2 Adherence to schedule:
 - .1 *Contractor* shall advise independent inspection and testing companies in advance when inspection and testing of the *Work* is required.
 - .1 Amount of advance notice shall be as required by the independent inspection and testing company, but shall be no less than 2 *Working Days*.
 - .2 When independent inspection and testing company is ready to perform inspection and testing according to predetermined schedule, but is prevented from inspection and testing or taking specimens due to incompleteness of the parts of the *Work* scheduled for inspection and testing, extra costs for inspection and testing attributable to the delay may be back-charged to *Contractor* at no additional cost to the *Owner*.

Quality Requirements

- .3 Notify independent inspection and testing company at least 3 *Working Days* before work required to be inspected commences, and arrange for a meeting at the *Place of the Work*, to be held 1 *Working Day* before the work starts with the following present:
 - .1 The *Contractor*, and the *Subcontractor* responsible for the work to inspected and/or tested, the inspection and testing company representatives, the product manufacturer's representative when required, and the *Consultant*.
- .4 For inspection and testing required by *Contract Documents* or by authorities having jurisdiction, provide *Consultant* and inspection and testing agencies with timely notification in advance of required inspection and testing.
- .5 Give 2 *Working Days*' prior notice to independent inspection and testing company of the commencement of each phase of the *Work* requiring inspection, and provide independent inspection and testing company with materials and installation information.

1.7 Reports and Documents

- .1 Inspection and testing company, whether for *Owner's* quality assurance or for *Contractor's* quality assurance, shall submit shop inspection and site inspection reports within 5 *Working Days* of each inspection.
- .2 Distribute reports digitally as follows:
 - .1 *Owner*.
 - .2 *Consultant*.
 - .3 *Contractor*.
 - .4 Consulting engineers, as applicable.
- .3 Inspection and testing companies, whether for *Owner's* quality assurance or for *Contractor's* quality assurance, shall submit a written report for each inspection or test, including pertinent data such as conditions at the *Place of the Work*, dates, test references, locations of tested materials, actual *Product* identification, testing methodology, procedures, and descriptions, site instructions given, recommendations and/or any other information required by standard applicable to reporting of tests and inspections.
 - .1 Report shall clearly indicate failure of *Product* or procedures to meet applicable standards, give recommendations for retesting or correction. Inspector shall contact *Contractor* and *Consultant* immediately when *Product* or assembly fails to meet requirements of the *Contract Documents*.
- .4 Upon completion of portions of the *Work* subject to inspection and testing, whether for *Owner's* quality assurance or for *Contractor's* quality assurance, submit to the *Consultant* duplicate certificates of acceptance of the installation issued by the inspection and testing company.

Quality Requirements

1.8 Manufacturer's Field Review

- .1 Where manufacturer's field review is specified, manufacturer's representative shall review the relevant parts of the *Work* at the *Place of the Work*, or wherever such affected work is in progress, to verify that the relevant parts of the *Work* are being executed in accordance with manufacturer's written requirements and verify their product is fit for the purpose intended.
- .2 Manufacturer's field review is to verify that the *Products* specified are being used in the *Work* and are being applied on surfaces prepared in accordance with manufacturer's written requirements and the requirements of the *Contract Documents*.
- .3 Unless otherwise indicated, manufacturer's representative shall undertake a minimum of 3 field reviews, with additional reviews as required by the manufacturer, to verify that the relevant parts of the *Work* are in accordance with the manufacturer's written requirements.
- .4 Manufacturer's representative shall submit a type-written report on manufacturer's letterhead after each field review following procedures for reports and documents specified in Section 01 45 00. Report shall document manufacturer's representative's field observations and recommendations.

1.9 Mock-Ups

- .1 Provide field or shop erected example of work complete with specified materials and workmanship.
- .2 Provide field or shop erected mock-ups of *Work* as specified in the *Specifications*. If a mock-up location is not indicated in the *Drawings* or *Specifications*, locate where directed by *Consultant*.
- .3 Do not proceed with work for which mock-ups are required prior to *Consultant's* review of mock-ups.
- .4 Modify mock-up as required until *Consultant* written acceptance is obtained.
- .5 Protect and maintain mock-ups until directed to be removed.
- .6 Commence work demonstrated in mock-up only after review and acceptance of workmanship.
- .7 Remove mock-ups only when the *Work* they represent is complete or when otherwise directed by *Consultant*.
- .8 If possible, mock-up may become part of finished work, at sole discretion, and with prior written acceptance of *Consultant*.
- .9 Reviewed and accepted mock-ups shall be the standard of workmanship and material against which installed work will be compared.
- .10 Remove and replace materials or assemblies appearing in the finished work that do not match reviewed and accepted mock-ups.

PART 2 - PRODUCTS

Not applicable.

Quality Requirements

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Temporary Utilities

PART 1 - GENERAL

1.1 Section Includes

- .1 Temporary utilities - general.
- .2 Temporary electrical services.
- .3 Temporary water supply.
- .4 Temporary heating and ventilation.

1.2 Temporary Utilities - General

- .1 Provide temporary utilities as specified and as otherwise necessary to perform the *Work* expeditiously.
- .2 Arrange and pay for required temporary services, unless otherwise specified.
- .3 Provide connection and disconnection of temporary services and facilities required in the *Work*, including connection to existing services made available by the *Owner*.
- .4 Remove temporary utilities after use.
- .5 Existing services:
 - .1 Do not use any existing services and facilities during construction unless specific written permission is provided by *Owner*.
 - .2 Protect and maintain without interruption, existing water, heating, drainage, and other services within the *Place of the Work* to existing buildings not within the scope of the *Work* of this *Contract*. Obtain written permission of the *Owner* for services required to be temporarily shut off, at least 2 full *Working Days* in advance.
 - .3 Do not use permanent mechanical, or electrical systems during the course of the *Work* unless specific written permission is provided by the *Consultant*. Use of permanent services for temporary construction service shall not prejudice warranties.

1.3 Temporary Electrical Services

- .1 Provide and maintain an adequate temporary electrical service for performance of the *Work* including, but not limited to, operation of electric pumps, motors, vibrators and other power tools, hoisting and related construction and general illumination during the *Work*.
 - .1 Use existing electrical service into building. *Owner* will pay electrical bills.
- .2 Provide and maintain any components and equipment necessary to transform supply power to necessary temporary power voltage.

1.4 Temporary Water Supply

- .1 Provide and maintain a temporary supply of water for use in the *Work*.
 - .1 Use existing water supply. *Owner* will pay water bills.

Temporary Utilities

- .2 Extend supply pipe or pipes from nearest available sources and maintain in good condition until permanent system is installed and ready for use.

1.5 Temporary Heating and Ventilation

- .1 Provide and pay for temporary heating, cooling and ventilating required for the *Work*, including attendance, maintenance and fuel.
- .2 Provide temporary heat and ventilation as required to:
 - .1 Facilitate continuous uninterrupted progress of the *Work*.
 - .2 Protect the *Work* and *Products* against damage and defacement caused by weather, harmful levels of temperature, humidity, and moisture.
 - .3 Protect the *Work* against dampness and cold.
 - .4 Prevent moisture condensation on surfaces, freezing, or other damage to finishes or stored *Products*.
 - .5 Provide ambient temperatures and humidity levels for proper storage, installation and curing of materials, in accordance with specified standards and manufacturer's requirements.
 - .6 Provide adequate ventilation to meet health regulations for safe working environment.
- .3 Prior to enclosing building, maintain work areas at not less than 7°C. After enclosing, keep premises heated to at least 13°C using temporary heating devices that do not cause moisture and humidity build-up within the facility. Increase temperatures in isolated areas to 20°C as required by various sections of the *Specifications* or by *Product* manufacturers.
- .4 Solid fuel salamanders will not be permitted.
- .5 Provide temporary heat or adequate protection by means of straw or other coverings to floor slabs, footings, or any part of building not specifically designed to withstand frost penetration.
- .6 Furnish other temporary heating as required by various sections of the *Specifications* or by *Product* manufacturers.
- .7 Ventilate to the exterior of the building work areas as required when toxic materials are being utilized or cured.
- .8 Replace with new, any work damaged due to failure to provide adequate heat at no cost to *Owner*.

PART 2 - PRODUCTS

Not applicable.

PART 3 – EXECUTION

Not applicable.

END OF SECTION

Temporary Facilities

PART 1 - GENERAL

1.1 Section Includes

- .1 General scope and responsibility.
- .2 Parking.
- .3 Temporary sanitary facilities.
- .4 Temporary site office.
- .5 Temporary telephone.
- .6 Fire protection.
- .7 Temporary site storage.
- .8 Traffic Control and Road Maintenance.
- .9 Project sign.

1.2 General Scope and Responsibility

- .1 Temporary facilities specified in this section shall be supplemented as applicable in accordance with Section 01 35 13.
- .2 Arrange, obtain and pay cost for permits required for temporary facilities and controls.
- .3 Provide and maintain temporary facilities for the *Work* and remove them from the *Work* upon issuance of certificate of *Substantial Performance of the Work*.
- .4 Do not use permanent facilities during the course of the *Work* unless specific written permission is provided by the *Consultant*. Where use of permanent facilities is granted for temporary construction service, such use of permanent facilities shall not prejudice warranties.

1.3 Construction Parking

- .1 Workers will be allowed to park their vehicles in the existing parking lots on a pay basis at posted rates.
- .2 Comply with parking requirements in accordance with Trillium Health Partners – Contractor Orientation & Safety Handbook.
- .3 Do not interfere with the operation of existing premises. Keep existing parking areas and road system remain free and clear of obstructions resulting from the *Work*.
- .4 Illegally parked vehicles that are ticketed and/or towed shall be the sole responsibility of the vehicle owner.

1.4 Temporary Sanitary Facilities

- .1 The *Owner* will designate existing washrooms for use of workers.
 - .1 Regularly maintain and clean these washroom facilities, in compliance with applicable regulations, codes and by-laws, for the duration of the *Work*.

Temporary Facilities

- .2 At *Substantial Performance of the Work*, turn over to *Owner*, clean washroom facilities, in same condition facilities were prior to commencement of the *Work*. Arrange and pay for repairs, making good and replacement if necessary, as directed by *Consultant*.
- .3 Provision of such access to existing washrooms does not relieve the *Contractor* of the responsibility to provide and maintain, in compliance with applicable regulations, codes and by-laws, sufficient sanitary temporary water closets and washbasins for use of workers as required by applicable regulations, codes and by-laws. Additional sanitary temporary water closets and washbasins for use of workers, as required, shall be provided by the *Contractor* at no increase in the *Contract Price*.
- .2 Use of new sanitary facilities by workers is prohibited.

1.5 Temporary Site Offices

- .1 *Owner* shall make available to *Contractor* a designated space within existing building for use as temporary site office of sufficient size to accommodate site meetings.

1.6 Temporary Telephone

- .1 Provide and maintain a telephone in temporary site office for exclusive use of *Consultant*, *Contractor*, and *Subcontractors*. Pay phone is not acceptable.
- .2 Superintendent shall be equipped with mobile telephone device.
- .3 Long distance charges shall be paid by party making call.

1.7 Fire Protection

- .1 Provide and maintain temporary fire protection systems and equipment during construction.

1.8 Temporary Site Storage

- .1 Handle and store materials so as to prevent damage or defacement to the *Work* and surrounding property.
- .2 Construct weather-tight storage sheds for storage of materials that may be damaged or defaced by weather. Provide floors raised 150 mm (6") clear of ground for storage of *Products*.
- .3 *Owner* is not responsible for securing *Products* or materials at the *Place of the Work*.

1.9 Traffic Control and Road Maintenance

- .1 Provide and maintain adequate access to *Place of the Work*.
- .2 Do not block roads or impede traffic. Keep construction traffic to designated roads only. Provide flagperson to direct traffic as required.

Temporary Facilities

1.10 Project Sign

- .1 Only the project signs and notices regarding safety, caution, or instructions shall be erected on or near the *Place of the Work*.
- .1 *Contractor* shall be responsible for obtaining and posting notice of *Project*.

PART 2 - PRODUCTS

Not applicable.

PART 3 – EXECUTION

Not applicable.

END OF SECTION

Temporary Barriers and Enclosures

PART 1 - GENERAL

1.1 Section Includes

- .1 General scope and responsibility.
- .2 Temporary enclosures and protection.
- .3 Protection of the public.
- .4 Protection of the *Work*.

1.2 General Scope and Responsibility

- .1 Temporary facilities and controls specified in this section shall be supplemented as applicable in accordance with Section 01 35 13.
- .2 Provide and maintain signs, guard-rails, barriers, warning lights and other protection as required by authorities having jurisdiction for safety of the *Place of the Work*. Be responsible for adequacy of protection.
- .3 Plant, Machinery and Scaffolding:
 - .1 Provide formwork, scaffolding, equipment, tools, machinery and incidental appurtenances necessary for the proper execution of the *Work*.
 - .2 Erect plant, machinery and scaffolding to permit access to building and the *Work*.
 - .3 Use scaffolds in such manner as to interfere as little as possible with other trades' operations.
 - .4 Support scaffolds from finished surfaces only after taking precautions to prevent damage. No supports, clips, brackets, or similar devices shall be welded, bolted, or otherwise affixed to any finished member or surface without prior permission.
- .4 Maintain temporary barriers and enclosures in good condition for the duration of the *Work*.
- .5 Remove temporary barriers and enclosures from *Place of the Work* when no longer required.

1.3 Temporary Enclosures and Protection

- .1 Provide temporary enclosures and protection of adequate construction to prevent dispersion of dust and dirt into other areas of existing building and to prevent dispersion of dust and dirt beyond the *Place of the Work*.
- .2 Provide temporary weather-tight enclosures and protection for exterior openings in building as soon as walls, floors and roofs are built so as to protect the *Work* from weather and vandalism. Provide doors in enclosures as necessary to maintain fire exits.
- .3 Erect, maintain, and relocate enclosures as required to facilitate construction operations and *Owner's* operational requirements.
- .4 Temporary enclosure and protection shall be of finished appearance and painted to colour approved by *Owner*.

Temporary Barriers and Enclosures

- .5 Provide dust seal and sound resistant enclosures to protect existing building and operations as indicated. Include temporary doors, fastenings and keys.
- .6 Insulate and airseal exterior enclosures to prevent condensation and drafts.

1.4 Protection of the Public

- .1 Provide fencing, barricades, hoarding, notices and warning boards and maintain lights and signals for protection of workers engaged on the *Work*, for protection of adjoining property and for protection of the public.
- .2 Where any special hazard exists from which it is not possible to protect the public safety by other means, watchpersons shall be employed to preserve public safety until the area of special hazard no longer poses a risk to public safety.

1.5 Fire Routes

- .1 Maintain fire access routes, including overhead clearances, for use by emergency response vehicles.

1.6 Protection of the *Work*

- .1 Protect the *Work* from damage, discolouring, and defacement. Maintain protection until the *Work* is complete.
- .2 Provide necessary temporary barriers and enclosures to protect existing surfaces from damage during performance of the *Work*.
- .3 Have damaged or defaced work corrected by workers meeting qualification requirements of the *Contract Documents*.

PART 2 - PRODUCTS

Not applicable.

PART 3 – EXECUTION

Not applicable.

END OF SECTION

Temporary Controls

PART 1 - GENERAL

1.1 Section Includes

- .1 General scope and responsibility.
- .2 Security.
- .3 Dust, debris and noise control.
- .4 Pollution control.

1.2 General Scope and Responsibility

- .1 Temporary controls specified in this section shall be supplemented as applicable in accordance with Section 01 35 13.
- .2 Arrange, obtain and pay cost for permits required for temporary controls.
- .3 Provide temporary controls as necessary for performance of the *Work* and in compliance with applicable regulatory requirements.
- .4 Maintain temporary controls in good condition for the duration of the *Work*.
- .5 Remove temporary controls and *Construction Equipment* used to provide temporary controls from *Place of the Work* when no longer required.

1.3 Security

- .1 The *Contractor* shall be solely responsible for securing the *Place of the Work* and the *Work*, and for securing areas used for the storage of *Products* or construction machinery and equipment. The *Owner* shall have no responsibility in this regard.
 - .1 Provide and maintain security lighting.
 - .2 Provide and maintain temporary locks. Premises to be locked after working hours.
- .2 Provide security for the *Place of the Work* by methods compatible with the security system for the existing building.
 - .1 *Contractor* shall coordinate the work carefully with the *Owner* in order to ensure no disruption to the existing building's security system.
 - .2 Where existing building's security system is breached due to *Contractor's* negligence, be responsible for any damage or theft of property, regardless if area where damage or theft occurred is under *Contractor's* control or not.

1.4 Dust, Debris and Noise Control

- .1 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.
- .2 Control dust and dirt produced during the *Work* to prevent dispersion beyond the immediate work areas.
- .3 Prevent materials from contaminating air beyond application area, by providing temporary enclosures and ventilation/filtration.

Temporary Controls

- .4 Implement and maintain dust and particulate control measures in accordance with applicable regulatory requirements.
- .5 Execute *Work* by methods that minimize dust from construction operations and spreading of dust on site or to adjacent properties.
- .6 Provide temporary enclosures to prevent extraneous materials resulting from sandblasting or similar operations from contaminating air beyond immediate work area.
- .7 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.
- .8 Use appropriate covers on trucks hauling fine, dusty, or loose materials.
- .9 Limit noise levels in accordance with requirements of authorities having jurisdiction and the *Owner*.
- .10 Prevent abrasive-blasting, pressure-washing spray, and other extraneous materials from contaminating air beyond application area.

1.5 Pollution Control

- .1 Prevent contamination of soil, water, and atmosphere through uncontrolled discharge of noxious or toxic substances and other pollutants, potentially causing environmental damage.
- .2 Be prepared, by maintaining appropriate materials, equipment, and trained personnel on site, to intercept, clean up, and dispose of spills or releases that may occur. Promptly report spills and releases that may occur to:
 - .1 Authority having jurisdiction.
 - .2 Person causing or having control of pollution source, if known.
 - .3 *Owner and Consultant*.
- .4 Take immediate action to contain and mitigate harmful effects of the spill or release.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Product Requirements

PART 1 - GENERAL

1.1 Section Includes

- .1 Availability of *Products*.
- .2 *Product* handling.
- .3 *Product* requirements and quality.

1.2 Availability of Products

- .1 Promptly upon *Contract* award and periodically during construction, review and confirm *Product* availability and delivery times. Order *Products* in sufficient time to meet the construction progress schedule and the *Contract Time*.
 - .1 Failure to order a specified *Product* or to order a *Product* by a specified manufacturer in adequate time to meet construction progress schedule shall not be considered a valid reason for a *Product* substitution in accordance with Section 01 25 00.
 - .2 In the event of delays in supply of *Products* as a result of failure to order a specified *Product* or order a *Product* by a specified manufacturer in adequate time to meet construction progress schedule, and should it appear that the *Work* may be delayed for such reason, *Consultant* reserves the right to substitute more readily available *Products* of similar character, at no additional cost to the *Owner*.
- .2 If a specified *Product* is no longer available, promptly notify the *Consultant*. The *Consultant* shall take action as required.

1.3 Product Handling

- .1 Handle and store *Products* in accordance with manufacturer's and *Supplier's* written requirements to prevent damage, adulteration, deterioration, and soiling and to preserve their quality and fitness for the *Work*.
 - .1 Submit manufacturer's and *Supplier's* written requirements for handling and storage of their *Products*.
 - .2 Where manufacturer or *Supplier* does not have written handling and storage requirements already published, submit written requirements for handling and storage of their *Products* prepared for the *Work* by the *Product* manufacturer or *Supplier*, as applicable.
 - .3 Submit following procedures for submittal of *Product* data sheets in accordance with Section 01 33 00.
- .2 Protect stored *Products* from vandalism and theft.
- .3 Store packaged or bundled *Products* in original and undamaged condition with manufacturer's seals and labels intact, facing to outside. Do not remove from packaging or bundling until required in the *Work*.

Product Requirements

- .4 Store materials susceptible to environmental damage in a weathertight enclosure raised clear of ground so that they are protected from weather, dampness, and deterioration. Do not use materials which have been damaged by exposure to moisture.
- .5 Keep sand, when used as ingredients for grout, mortar, or similar mixed materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber, and other similar *Products* on flat, solid supports and keep clear of ground or slab. Slope to shed moisture.
- .7 Handle materials to prevent damage to existing surfaces and work of others.
- .8 Remove damaged *Products* and replace with new undamaged *Products*.
- .9 Transportation:
 - .1 Pay cost of transportation of *Products* required in performance of *Work*.
 - .2 Transportation cost of *Products* supplied by *Owner* will be paid for by *Owner*. Unload, handle and store such *Products* at the *Place of the Work*.
 - .3 Reject *Products* damaged during transport.
 - .4 Transportation of *Products* shall be undertaken to suit construction schedule.

PART 2 - PRODUCTS

2.1 *Product Requirements and Quality*

- .1 Compatibility of options: If given option of selecting between two or more *Products*, select *Product* compatible with products previously selected, even if previously selected products were also options.
 - .1 Unless otherwise indicated in the *Contract Documents*, maintain uniformity of *Product* and manufacturer for any like item, material, equipment or assembly for the duration of the *Work*.
- .2 *Products* used for temporary facilities may have been previously used, providing they are sound in structural qualities.
- .3 *Products* and *Product* installation shall be in compliance with building code, regulations and requirements of authorities having jurisdiction.
- .4 Specified options: The *Work* is based on materials, *Products* and systems specified by manufacturer's catalogued trade names, references to standards, by prescriptive *Specifications* and by performance *Specifications*.
 - .1 Wherever a *Product* or manufacturer is specified by a single proprietary name, provide the named *Product* only.
 - .2 Wherever more than one *Product* or manufacturer is specified by proprietary name for a single application, provide any one of the named *Product*.

Product Requirements

- .3 Wherever a *Product* is specified by reference to a standard only, provide any *Product* that meets or exceeds the specified standard. If requested by *Consultant*, submit information verifying that the proposed *Product* meets or exceeds the specified standard.
- .4 Wherever a *Product* is specified by descriptive or performance requirements only, provide any *Product* that meets or exceeds the specified requirements. If requested by *Consultant*, submit information verifying that the proposed *Product* meets or exceeds the specified requirements.
- .5 The onus is on the *Contractor* to prove compliance with governing published standards, prescriptive *Specifications* and with performance *Specifications*.
- .6 Visual selection *Specifications*:
 - .1 Where *Specifications* include the phrase "as selected by *Consultant* from manufacturer's full range" or similar phrase, select a product that complies with requirements. *Consultant* will select colour, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.
- .7 Visual matching *Specifications*:
 - .1 Where *Specifications* require "match *Consultant's* sample", provide a product that complies with requirements and matches *Consultant's* sample. *Consultant's* decision will be final on whether a proposed product matches.
- .5 Provide *Products* that are not damaged or defective, and suitable for purpose intended, subject to specified requirements. If requested by *Consultant*, furnish evidence as to type, source and quality of *Products* provided.
 - .1 Defective *Products*, whenever identified prior to completion of the *Work*, will be rejected, regardless of previous reviews. Review of the *Work* by the *Consultant* or independent inspection and testing companies does not relieve the *Contractor* of the responsibility for executing the *Work* in accordance with the requirements of the *Contract Documents*, but is a precaution against oversight or error.
- .6 Basis of design:
 - .1 Where *Contract Documents* list "basis of design", this indicates the *Product* or system that was used in the preparation of the design included in the *Contract Documents*, and which shall be an acceptable *Product*.
 - .2 The basis of design establishes the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products from other manufacturers.
 - .3 The term "basis of design" does not preclude the use of other *Products* or systems in the *Work*, provided the proposed *Product* or system complies with the design and performance requirements contained in the *Contract Documents*.
 - .4 Proposals for use of *Products* or systems in the *Work* that are not the named "basis of design" must be submitted in accordance with the following procedures:

Product Requirements

- .1 Do not order or install any proposed *Products* or systems without a Supplemental Instruction.
- .2 Provided a proposal includes the information specified in Section 01 60 00, *Consultant* will review submission, but in any case with the understanding that neither the *Contract Time* nor the *Contract Price* will be altered due to the time required by the *Consultant* to review the submission and by the *Contractor* to incorporate the proposed *Products* or systems in the Work.
- .3 The proposed *Products* or systems shall be accepted by the *Consultant* if:
 - .1 The proposed *Products* or systems are the same type as, are capable of performing the same functions as, interfaces with adjacent work the same as, and meets or exceeds the standard of quality, performance and, if applicable, appearance and maintenance considerations, of the specified *Product* or system.
 - .2 The manufacturer of the proposed *Products* or systems has capabilities comparable to the specified manufacturer.
- .4 If the proposed *Products* or systems are accepted, the change in the *Work* will be documented in the form of a *Supplemental Instruction*.
- .5 If the proposed *Products* or systems are accepted, *Contractor* shall not revert to an originally specified *Product* or manufacturer without *Consultant's* prior written acceptance.
- .6 Proposed *Product* or system submitted on *Shop Drawings* without following requirements of this section prior to submission of the affected *Shop Drawings* will cause the *Shop Drawings* to be rejected.
- .7 Include with each proposal the following information:
 - .1 Identification of the proposed *Product* or system, including *Product* name and manufacturer's name, address, telephone numbers, and web site.
 - .2 A statement verifying that the proposed *Product* or system will affect neither the *Contract Price* nor the *Contract Time*.
 - .3 A statement verifying that the proposed *Product* or system will not affect the performance or warranty of other parts of the *Work*.
 - .4 Manufacturer's *Product* literature for the proposed *Product* or system, including material descriptions, compliance with applicable codes and reference standards, performance and test data, compatibility with contiguous materials and systems, and environmental considerations.
 - .5 *Product* samples as applicable.
 - .6 A detailed comparison of the physical properties and performance characteristics of the basis of design *Product* or system and the proposed *Product* or system, with any significant variations clearly highlighted.
 - .7 Availability of maintenance services and sources of replacement materials and parts for the proposed *Product* or system, as applicable, including associated costs and time frames.

Product Requirements

- .8 Details of other projects and applications where the proposed *Product* or system has been used.
- .9 Identification of any consequential changes in the *Work* to accommodate the proposed *Product* or system and any consequential effects on the performance of the *Work* as a whole. A later claim for an increase to the either the *Contract Price* or the *Contract Time* for other changes in the *Work* attributable to the proposed *Product* or system will not be considered.
- .10 Confirmation of delivery schedule of the proposed *Product* or system, in writing by *Product* manufacturer.
- .11 Compliance with the building codes and requirements of authorities having jurisdiction.
- .12 Copy of manufacturer's warranty for any *Product* or system for which an extended warranty has been specified, along with copy of manufacturer's warranty for specified *Product* or system with differences highlighted.
- .7 Where *Contract Documents* require design of a *Product* or system, and minimum material requirements are specified, the design of such *Product* or system shall employ materials specified within applicable section. Where secondary materials or components are not specified, augment with materials meeting applicable code limitations, and incorporating compatibility criteria with adjacent work.
- .8 Should dispute arise as to quality or fitness of *Products*, the decision rests strictly with *Consultant* based upon the requirements of the *Contract Documents*.
- .9 *Products* exposed in the finished work shall be uniform in colour, texture, range, and quality, and be from one production run or batch, unless otherwise indicated.
- .10 *Owner* retains right to select from choices available within specified *Products* for colours, patterns, finishes or other options normally made available. Submit full range of *Product* options in accordance with Section 01 33 00 for such selection.
- .11 Exposed to weather: *Products* and materials in environments not protected by the building's HVAC and/or climate control systems shall be considered exposed to weather.

PART 3 – EXECUTION

Not applicable.

END OF SECTION

Examination and Preparation

PART 1 - GENERAL

1.1 Section Includes

- .1 Examination of the *Place of the Work*, documents, surfaces and conditions.
- .2 Setting out the *Work*.

1.2 Examination of the *Place of the Work*, Documents, Surfaces and Conditions

- .1 Examine the *Place of the Work* and investigate matters relating to the nature of the *Work*, means of access and egress, obstacles, rights and interests of other parties which may be interfered with during the execution of the *Work*, conditions and limitations including obstructions, existing structures or facilities, local conditions, actual levels, character and nature of the *Work*, documents related to existing building or buildings, as applicable and when available, and other consideration which may affect performance of the *Work*.
- .2 Examine the extent of work to be performed and matters which are referred to in the *Contract Documents* prior to start of the *Work*.
- .3 Examine work to which work is to be applied, anchored or connected, and relevant as-built conditions.
- .4 Each work operation following on a previous work operation of a differing *Subcontractor*, shall include a thorough examination of the condition of the previous work to verify that work is complete and in a condition suitable to receive the subsequent work. Conditions found unacceptable, either for the commencement of the new work or its satisfactory completion, shall be reported in writing to the *Consultant*.
- .5 Verify that ambient conditions are suitable before commencing the work of any Section and will remain suitable for as long as required for proper setting, curing, or drying of *Products* used.
 - .1 Do not commence installation of interior finishes until after building is enclosed, with windows and exterior doors in place and glazed, and roof watertight.
- .6 Ensure that substrate surfaces are clean, dimensionally stable, cured and free of contaminants.
- .7 Do not commence work until unsatisfactory conditions are corrected. Commencement of work shall mean acceptance of surfaces, tolerances, and conditions, and existing conditions will not be accepted as a contributing factor to subsequent failure or unacceptability of the *Work*.

1.3 Setting Out the *Work*

- .1 Assume full responsibility for and execute complete layout of the *Work* to required locations, lines and elevations.
- .2 Arrange meeting with *Consultant* to discuss critical setting out assumptions for the *Work* and establish limiting conditions for setting out the *Work*. *Consultant* shall chair and prepare minutes of the meeting, and prepare and submit sketches recording understanding of key setting out principles.

Examination and Preparation

PART 2 - PRODUCTS

Not applicable.

PART 3 – EXECUTION

Not applicable.

END OF SECTION

Execution

PART 1 - GENERAL

1.1 Section Includes

- .1 Inserts, anchors, and fasteners.
- .2 Penetrations.
- .3 Concealed services.
- .4 Trademarks and labels.
- .5 Interferences.
- .6 Publicity releases and photographs.
- .7 Manufacturer's instructions.
- .8 Galvanic/dissimilar metal corrosion.
- .9 Workmanship.
- .10 General construction tolerances.

1.2 Inserts, Anchors, and Fasteners

- .1 Use only factory made, threaded or toggle type inserts as required for supports and anchors, properly sized for load to be carried.
- .2 Where inserts cannot be placed, use factory made expansion shields for light weights only.
- .3 Supply and locate inserts, holes, anchor bolts and sleeves during placement or fabrication of structural elements.
- .4 Fasteners stressed in withdrawal are not acceptable, except where otherwise indicated.
- .5 Prevent electrolytic action and corrosion between dissimilar metals and materials by using suitable non-metallic strips, washers, sleeves, or other permanent separators to prevent direct contact.
- .6 Use non-corrosive fasteners and anchors for securing exterior work and in spaces where high humidity levels are anticipated.
- .7 Space anchors within individual load limit or shear capacity and install such that they provide positive permanent anchorage.
- .8 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .9 Fastenings for prefinished materials shall be of concealed type unless otherwise indicated, and when exposed finish is required, of matching prefinishing materials.
- .10 Do not use fastenings or fastening methods that may cause spalling or cracking of material to which anchorage is made.
- .11 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .12 Bolts shall not project more than one diameter beyond nuts.

Execution

- .13 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials being fastened.
- .14 Power actuated fasteners:
 - .1 Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load, as determined by testing per ASTM E1190-21 conducted by a qualified independent testing agency.
 - .2 Do not use power actuated fasteners which are stressed in withdrawal in finished work.
 - .3 Do not use power actuated fasteners within 100 mm (4") of the edge of concrete or masonry, unless otherwise accepted in writing by *Consultant*.
 - .4 Do not use power actuated fasteners in post-tensioned concrete.

1.3 Penetrations

- .1 Holes or voids created in assemblies or partitions for penetrating mechanical, electrical, or sprinkler service items, shall be of sufficient size to accommodate the penetrating item as well as additional required fill materials, such as sealants, firestopping and smoke sealants, insulation, and the like, without exceeding the maximum opening allowable by the manufacturer of the additional required fill material.
- .2 When penetrating fire rated walls, ceiling, or floor assemblies, completely seal voids with firestopping materials, smoke seals, or both, in full thickness of the construction element as required to maintain the integrity of the fire rated assembly.

1.4 Concealed Services

- .1 Unless otherwise indicated, conceal pipes, ducts, and wiring in floors, walls, and ceilings in finished areas. Do not conceal until after:
 - .1 Review by *Consultant* and authority having jurisdiction.
 - .2 Recording actual locations on as-built drawings where locations differ from those shown on *Drawings*.
- .2 Provide incidental furring or other enclosures as required.
- .3 Notify *Consultant* in writing of interferences before installation.

1.5 Trademark and Labels

- .1 Trademarks and labels, including applied labels, shall not be visible in finished work in finished areas, unless otherwise accepted or indicated by *Consultant*, and except for trademarks and labels:
 - .1 That are essential to identify materials, systems, assemblies, and equipment for maintenance and replacement purposes.
 - .2 That are essential for life safety, fire resistance, and temperature rise ratings.

Execution

1.6 Interferences

- .1 Coordinate placement of equipment to ensure that components will be properly accommodated within spaces provided prior to commencement of the *Work*.
- .2 Take complete responsibility for remedial work that results from failure to coordinate aspects of work prior to its fabrication/installation.
- .3 Maintain accesses and clearance required by jurisdictional authorities and/or for easy maintenance of equipment in layout of equipment and services, Notify *Consultant* if indicated clearances are in conflict.
- .4 Prepare coordination and interference drawings in accordance with Section 01 31 00.

1.7 Publicity Releases and Photographs

- .1 No press or publicity releases, including photographs of the *Place of the Work*, will be permitted without prior written approval of the *Owner*.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

3.1 Manufacturer's Instructions

- .1 Install, erect, or apply *Products* in accordance with manufacturer's written requirements. Do not rely on labels or enclosures supplied with *Products*. Obtain written requirements directly from manufacturers.
- .2 Notify *Consultant*, in writing, of conflicts between *Contract Documents* and manufacturer's instructions where, in *Contractor's* opinion, conformance with *Contract Documents* instead of the manufacturer's instructions may be detrimental to the *Work* or may jeopardize the manufacturer's warranty.
- .3 Improper installation or erection of *Products*, due to failure in complying with these requirements, shall result in removal and re-installation of such *Products* as part of the *Work* at no additional cost to the *Owner*.
- .4 Provide manufacturer's representatives with access to the *Work* at all times. Render assistance and facilities for such access so that manufacturer's representatives may properly perform their responsibilities.

3.2 Galvanic/Dissimilar Metal Corrosion

- .1 Insulate dissimilar metals from each other by suitable plastic strips, washers or sleeves, or other method in accordance with manufacturer's written requirements to prevent galvanic corrosion where conductive liquid or electrolyte exists or may reasonably be expected to exist.

3.3 Workmanship

- .1 General:

Execution

- .1 Execute the *Work* using workers experienced and skilled in the respective duties for which they are employed.
- .2 Do not employ an unfit person or anyone unskilled in their required duties.
- .3 Remove *Products* or materials that have been broken, chipped, cracked, discoloured, abraded, or damaged during construction period and provide undamaged *Products* or materials meeting the requirements of the *Contract Documents*.
- .2 Coordination:
 - .1 Ensure cooperation of workers in layout of the *Work*. Maintain efficient and continuous supervision.
 - .2 Be responsible for coordination and placement of openings, sleeves and accessories.
- .3 Backer plates:
 - .1 Provide backer plates to support and provide anchorage base to carry loads from surface or recessed applied materials.
- .4 Cutting and remedial work:
 - .1 Perform cutting and remedial work required to make parts of the *Work* come together. Coordinate the *Work* to ensure this requirement is maintained. Comply with requirements of Section 01 73 29.
 - .2 Notify *Consultant* of, and perform remedial work required to, repair or replace defective or unacceptable work. Ensure that properly qualified workers perform remedial work. Coordinate adjacent affected work as required.
- .5 Location of fixtures:
 - .1 Locations of fixtures, access panels, outlets, and mechanical and electrical items indicated on *Drawings* are approximate only.
 - .2 Locate fixtures, outlets, and devices to provide minimum interference, maximum usable space, and as required to meet safety, access, maintenance, acoustic, and regulatory, including barrier free, requirements. Architectural drawings will relate these items to known dimensions, such as ceiling tile grid or wall locations and the like.
 - .3 Obtain *Consultant's* acceptance for precise locations of fixtures, access panels, outlets, mechanical, and electrical items.
 - .4 *Consultant* reserves the right to relocate electrical outlets and mechanical fixtures at a later date, but prior to installation, without cost, provided that the relocation per outlet does not exceed 3050 mm (10') from the original location.
 - .5 Promptly notify *Consultant* in writing of conflicting installation requirements for fixtures, outlets, and devices. If requested, indicate proposed locations and obtain approval for actual locations.
- .6 Protection of work in progress:
 - .1 Provide protection required by authorities having jurisdiction.

Execution

- .2 Protect parts of the *Work* completed or in progress from soiling, abrasion, punctures, damage, and defacement, and maintain protection until the surrounding or overhead work is complete.
- .3 Remove and replace materials damaged or defaced as a result of failure to provide adequate protection.
- .4 Do not cut, drill, or sleeve any load bearing structural member without written permission of *Consultant*. Comply with requirements of Section 01 73 29.
- .5 Do not load or permit to be loaded any part of the *Work* with a weight or force that will endanger the safety or integrity of the *Work*.
- .6 Protect finished flooring from damage. Take special measures when moving heavy loads or equipment on them.
- .7 Keep surfaces free of oils, grease or other materials that may damage or deface them or affect bond of applied *Products*.
- .8 Protect existing buildings, curbs, roads and lanes. If, during the *Work*, any buildings, curbs, roads or lanes are damaged, bear costs for repairs.
- .7 Protection of mechanical and electrical *Products* or materials:
 - .1 Wrap in protective plastic and seal mechanical and electrical items and equipment prior to and during shipment, storage at the *Place of the Work* and after installation.
 - .2 Remove protective coverings only to the extent required for installation of the items. Re-install protection immediately following installation.
 - .3 Remove protective coverings in stages, as work areas are completed, or when directed by *Consultant*.
- .8 Operational requirements:
 - .1 Operable *Products* shall be provided fully operational and ready for intended use.
 - .2 Adjust operating hardware and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts for smooth squeak-free function, in accordance with manufacturer's requirements.
- .9 Alterations:
 - .1 Restore new or existing work which is altered as a result of the *Work* and *Make Good*.
 - .2 Materials and workmanship shall match existing materials and workmanship. Exposed materials shall match and blend in with the appearance of the existing undamaged surfaces in all respects including colours, textures, layout, jointing, and material types so as to not vary in appearance when compared to adjacent materials from a viewing distance of 1830 mm (6').

3.4 General Construction Tolerances

- .1 Match existing tolerances in every respect unless otherwise specified.

Execution

- .2 Where tolerances are not defined elsewhere in the *Contract Documents* or building code, construct the *Work* to the following tolerances:
 - .1 Maximum variation from plumb in vertical lines, surfaces of columns, walls, and arrises:
 - .1 6.4 mm (1/4") in 3 m (10 ft)
 - .2 9.6 mm (3/8") in a storey height not to exceed 6 m (20 ft)
 - .3 12.7 mm (1/2") in 12 m (40 ft) or more
 - .2 Maximum variation from plumb for external corners, expansion joints, and other conspicuous lines:
 - .1 6.4 mm (1/4") in any storey or 6 m (20 ft)
 - .2 12.7 mm (1/2") in 12 m (40 ft) or more
 - .3 Maximum variation from level of grades for exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines:
 - .1 6.4 mm (1/4") in any bay or 6 m (20 ft)
 - .2 12.7 mm (1/2") in 12 m (40 ft) or more
 - .4 Maximum variation from drawing location of columns, walls, and partitions:
 - .1 12.7 mm (1/2") in any storey or 6 m (20 ft)
 - .2 19 mm (3/4") in 12 m (40 ft) or more.
 - .5 Maximum variation in cross-sectional dimension of columns and thicknesses of wall from dimensions indicated:
 - .1 Minus 6 mm (1/4")
 - .2 Plus 12.7 mm (1/2")
 - .6 Maximum variation from plane or from straight:
 - .1 3.2 mm (1/8") in 3 m (10 ft) under a 3 m (10 ft) straight edge.
 - .7 Maximum variation from angle indicated:
 - .1 10 seconds.
 - .8 Tolerances shall be non-cumulative.

END OF SECTION

Cutting and Patching

PART 1 - GENERAL

1.1 Section Includes

- .1 Cutting, patching and remedial work.

1.2 Request for Cutting, Patching and Remedial Work

- .1 Submittal Items:
 - .1 Comply with administrative requirements of Section 01 33 00.
 - .2 Submit written request in advance of cutting, coring, and alteration that affects or is likely to affect:
 - .1 Structural integrity of any element of *Work*.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of any operational element.
 - .4 Visual qualities of sight-exposed elements.
 - .5 *Owner* or work of other contractors.
 - .6 Warranty of *Products* affected.
 - .3 Include in request:
 - .1 Identification of *Project*.
 - .2 Location and description of affected work, including drawings or sketches as required.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed work, and *Products* to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on *Owner* or work of other contractors.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be performed.
 - .9 Non-destructive structural survey: Location of reinforcement in concrete structure confirmed by non-destructive, positive method other than X-ray.
- .4 Do not commence cutting, patching, or remedial work until request has been reviewed by *Consultant*.

PART 2 - PRODUCTS

2.1 Materials

- .1 Unless otherwise specified, when replacing existing or previously installed *Products* in the course of cutting and patching work, use replacement *Products* of the same character and quality as those being replaced.

Cutting and Patching

- .2 If an existing or previously installed *Product* must be replaced with a different *Product*, submit request for substitution in accordance with Section 01 25 00.

PART 3 - EXECUTION

3.1 Preparation

- .1 Inspect existing conditions in accordance with Section 01 71 00, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of the *Work*.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to maintain structural integrity of surroundings. Provide devices and methods to protect other portions of the *Work* from damage.
- .5 Provide protection from elements for areas which may be exposed by uncovering work.
- .6 Where uncovering of area exposes local deterioration, cracking, evidence of water infiltration, structural settlement, previous modifications, or other unexpected conditions, advise *Consultant* immediately in writing and leave conditions exposed until receipt of *Consultant's* written instructions. If area is exposed to the exterior, provide temporary protection from inclement weather.

3.2 Existing Services and Utilities

- .1 Protect, relocate, or maintain existing active services or utilities except where breaking into or connecting to them. When inactive services are encountered, cap off in a manner approved by authority having jurisdiction and stake or otherwise record location of capped service. Record location of services, including depth, on as-built drawings.
- .2 When breaking into or connecting to existing active services or utilities, execute the *Work* at times approved by *Owner*, with a minimum of disturbance to *Owner's* ongoing operations, the *Work*, and traffic. Give notice to authorities having jurisdiction as required by such authorities.
- .3 Keep duration of interruptions to a minimum.
- .4 Carry out interruptions outside regular working hours of occupants unless *Owner's* prior written approval is obtained.
- .5 Construct or erect barriers in accordance with Section 01 56 00 as required to protect pedestrian and vehicular traffic.

3.3 Cutting and Patching

- .1 Coordinate and perform the *Work* so that cutting and patching work is kept to a minimum.
- .2 Execute cutting, fitting, and patching to complete the *Work*. Under no circumstances will overcutting of corners of opening be accepted. Ensure corners of openings to be cut are predrilled or sawed.
- .3 Remove and replace defective and non-conforming work.
- .4 Remove samples of installed work for testing if directed by *Consultant*.

Cutting and Patching

- .5 Provide openings in non-structural elements of the *Work* for penetrations of mechanical and electrical work.
- .6 Perform work by methods to avoid damage to other work, and which will provide proper surfaces to receive patching and finishing.
- .7 Employ qualified installer with at least 3 years of relevant experience to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .8 Perform cutting, patching, and remedial work using competent and qualified specialists familiar with the *Products* affected, in a manner that neither damages nor endangers the *Work*.
- .9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed to be used anywhere within existing buildings unless approved by *Consultant*.
- .10 Restore work with new *Products* in accordance with requirements of *Contract Documents*.
- .11 Fit work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces and with suitable allowance for deflection, expansion, contraction, and firestopping.
- .12 Enclose pipes, ducts, conduit and wires passing through floors at areas where faucets occur in a 100 mm (4") high metal sleeve and make air and watertight with water resistant firestopping.
- .13 Completely seal voids of penetrations of fire rated wall, ceiling, and floor constructions with firestopping and smoke seals.
- .14 Execute cutting, patching, and remedial work in manner that does not jeopardize manufacturers' warranties.
- .15 Refinish surfaces to match adjacent finishes. Refinish continuous surfaces to nearest intersection. Refinish entire assembly units.

END OF SECTION

Cleaning and Waste Management

PART 1 - GENERAL

1.1 Section Includes

- .1 Waste management.
- .2 Storage, handling, and protection.
- .3 Coordination.
- .4 Cleaning.
- .5 Disposal of waste.

1.2 Waste Management

- .1 Comply with requirements of authorities having jurisdiction.
- .2 Remove waste material from the *Place of the Work* daily. If waste is collected in bins, bins to be removed from site once full.
- .3 Arrange and pay for removal of debris and waste from the *Place of the Work*.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris. Pay fees.

1.3 Storage, Handling and Protection

- .1 Store, materials to be reused, recycled and salvaged in locations to prevent contamination of materials being diverted from landfill.
- .2 Prevent contamination of materials to be salvaged and recycled, and handle such materials, in accordance with requirements for acceptance by designated facilities.

1.4 Coordination

- .1 Coordinate waste management and disposal procedures and requirements with other activities at the *Place of the Work* so that there is no delay in the *Work*, and at no increase in either the *Contract Time* or the *Contract Price*.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

3.1 Cleaning

- .1 General cleaning requirements:
 - .1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - .2 Store volatile wastes in covered metal containers, and remove from *Place of the Work* daily.
 - .3 Prevent accumulation of wastes which create hazardous conditions.

Cleaning and Waste Management

- .4 Provide adequate ventilation during use of volatile or noxious substances. Do not rely on building ventilation systems for this purpose.
- .5 Prevent cross-contamination during the cleaning process.
- .6 Notify the *Consultant* of the need for cleaning caused by *Owner* or other contractors.
- .2 Materials:
 - .1 Use only cleaning materials in accordance with written requirements of manufacturer of surface to be cleaned and in accordance with written requirements of cleaning material manufacturer.
- .3 Cleaning during construction/progressive cleaning:
 - .1 Clean-up the *Place of the Work* daily. Maintain clean and clear egress routes at all times.
 - .2 Maintain *Place of the Work*, grounds and public properties free from accumulations of waste materials and rubbish.
 - .3 Provide appropriate, clearly marked containers at the *Place of the Work* for collection of waste materials and rubbish. Remove waste materials and rubbish from the *Place of the Work* when containers become full.
 - .4 Clean interior building areas prior to start of finish work and maintain free of dust and other contaminants during finishing operations.
 - .5 Vacuum and clean interior building areas when ready to receive finish painting, and continue vacuum cleaning on an as-needed basis until *Substantial Performance of the Work*.
 - .6 Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces nor contaminate building systems.
 - .7 Promptly as the *Work* proceeds, on a daily basis and upon completion, clean up and remove rubbish, surplus materials and equipment.
 - .8 Remove as the work of this section progresses, corrosive and foreign materials which may set or become difficult to remove at time of final cleaning or which may damage members.
 - .9 Wash exposed surfaces with a cleaning solution approved by *Product* manufacturers.
 - .10 Debris and waste not permitted within cavities of *Work*.
- .4 Cleaning prior to *Ready-for-Takeover*.

Cleaning and Waste Management

- .1 Immediately prior to *Consultant's* review to determine if *Ready-for-Takeover* has been achieved, remove surplus *Products* and construction machinery and equipment not required for the performance of the remaining *Work* and clean in accordance with Final Cleaning paragraphs in Section 01 74 00 to the greatest extent practicable given work remaining to be completed. Cleaning shall be to a sufficient extent to permit the *Consultant's* review to be performed properly and reasonably.
- .5 Final cleaning:
 - .1 Before final cleaning, arrange a meeting at *Place of the Work* to determine the acceptable standard of cleaning. Ensure that *Owner, Consultant, and Contractor* are in attendance.
 - .2 Remove from *Place of the Work* surplus *Products*, waste materials, recyclables, *Temporary Work*, and *Construction Equipment* not required to perform any remaining work and other than that caused by the *Owner*, and leave the *Work* clean and suitable for occupancy by *Owner*.
 - .3 Remove waste material and debris from crawlspaces and other accessible concealed spaces.
 - .4 Clean and polish prefinished and finished surfaces including: glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or otherwise damaged glass.
 - .5 Clean exterior and interior window glass and frames.
 - .6 Remove stains, spots, marks and dirt from decorative parts of the *Work*, electrical and mechanical fixtures, furniture fittings, walls, and floors.
 - .7 Vacuum clean and remove dust from building interiors, exposed wall, floor, and ceiling surfaces, behind grilles, louvres, and screens, and above suspended ceiling tiles and panels. Vacuum clean interior of electrical equipment.
 - .8 Clean floor finishes in accordance with manufacturer's written requirements.
 - .9 Remove non-permanent labels.
 - .10 Remove dirt and residue from surfaces.
 - .11 Inspect finishes, fittings and equipment and ensure specified workmanship and operation.
 - .12 Remove protective coatings, clean surfaces and remove excess compounds and sealant materials. Make good defective, scratched or damaged work.
 - .13 Broom clean and wash exterior walks, steps, paved areas, and surfaces.
 - .14 Remove dirt and disfigurations from exterior surfaces.
 - .15 Clean and sweep roofs, gutters, areaways, downspouts, and drainage systems.
 - .16 Clean equipment and fixtures to a sanitary condition,
 - .17 Remove seal wrap and protective coverings from mechanical and electrical *Products* and materials and clean as required.

Cleaning and Waste Management

- .18 Clean mechanical, electrical, and other equipment. Replace filters for mechanical equipment.
- .19 Clean and/or replace lighting reflectors, lamps, light fixtures, lenses, bulbs, and other lighting surfaces, and grilles.
- .20 Clean architectural concrete to remove surface discolouration, efflorescence, and the like. Use a suitable cleaning agent which will not stain the surfaces or mar the texture.
- .21 Use leaf blowers to clean landscaped surfaces.
- .22 Lock or otherwise restrict access to each room or area after completing final cleaning in that area.
- .23 Re-clean as necessary areas that have been accessed by *Contractor's* workers prior to *Owner* occupancy.

3.2 Disposal of Waste

- .1 Remove waste materials and recyclables from work areas, separate, and deposit in designated containers at end of each *Working Day*. Collect packaging materials for recycling or reuse.
- .2 Handle waste materials not reused, salvaged or recycled in accordance with appropriate regulations and codes.
- .3 Do not bury rubbish and waste materials at the *Place of the Work*.
- .4 Do not dispose of waste or volatile materials into waterways or storm or sanitary sewers.
- .5 Do not burn waste materials at the *Place of the Work*.
- .6 Comply with waste disposal requirements of authorities having jurisdiction.
- .7 Deliver to nearest appropriate depot materials accepted for recycling by region or municipality having jurisdiction over the *Place of the Work*, including but not limited to cardboard, paper, plastic, aluminum, steel, and glass. Deliver to nearest appropriate depot scrap and excess gypsum wallboard for recycling of this material. Costs for this work are included in the *Contract Price*.
- .8 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris. Pay fees.

END OF SECTION

Closeout Procedures

PART 1 - GENERAL

1.1 Section Includes

- .1 General *Contract* closeout procedures.
- .2 *Substantial Performance of the Work*.
- .3 *Ready-for-Takeover*.
- .4 Inspection and review before *Ready-for-Takeover*
- .5 Early occupancy by the *Owner*.
- .6 Final inspection for completion of the *Contract*.
- .7 Warranty period.

1.2 General *Contract* Closeout Procedures

- .1 The procedures for completing *Contract* and acceptance by the *Owner* shall be in accordance with the methods described in OAA/OGCA Document 100 (July 1, 2018, and reissued January 8, 2019) and any additional requirements described below.
- .2 Stages will be reviewed at the *Contract* start-up meeting to ensure that parties understand their responsibilities. Refer to Section 01 31 19 for procedures and requirements for *Contract* start-up meeting.
- .3 Within 4 weeks of commencement of the *Work*, submit to the *Consultant* a list of closeout submittals required by the *Contract Documents*.

1.3 *Substantial Performance of the Work*

- .1 The prerequisites to, and the procedures for, attaining *Substantial Performance of the Work*, or similar such milestone as provided for in the Construction Act, shall be:
 - .1 As described in Section 01 77 00.
 - .2 Independent of those for attaining *Ready-for-Takeover* of the *Work*.
 - .3 In accordance with the Construction Act.
- .2 Deficiency review:
 - .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.

Closeout Procedures

- .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 (the deficiency list) and apply for a review of the *Work* by the *Consultant* to determine if *Substantial Performance of the Work* has been achieved.
- .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.
- .4 No later than 10 *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 Section 01 78 00, 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*. 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.
- .5 Provide a schedule of planned deficiency review having regard to the foregoing.
- .3 Certification of *Substantial Performance of the Work*:
 - .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*.
 - .2 The certificate of *Substantial Performance of the Work* shall be prepared and issued in accordance with the Construction Act.
 - .1 Inform *Owner*, *Consultant*, *Subcontractors*, and *Suppliers* which publication is to be used for publishing certificate of substantial performance in accordance with Section 01 31 19.

1.4 **Ready-for-Takeover**

- .1 The prerequisites to attaining *Ready-for-Takeover* of the *Work* are described in the General Conditions of the *Contract*.

1.5 **Inspection and Review Before Ready-for-Takeover**

- .1 *Contractor's* Inspection: Before applying for the *Consultant's* review to establish *Ready-for-Takeover* of the *Work*:
 - .1 Ensure that the specified prerequisites to *Ready-for-Takeover* of the *Work* are completed.

Closeout Procedures

- .2 Conduct an inspection of the *Work* to identify defective, deficient, or incomplete work.
- .3 Prepare a comprehensive and detailed list of items to be completed or corrected.
- .4 Provide an anticipated schedule and costs for items to be completed or corrected.
- .2 *Consultant's Review*: Upon receipt of the *Contractor's* application for review, together with the *Contractor's* list of items to be completed or corrected, the *Consultant* will review the *Work*. The *Consultant* will advise the *Contractor* whether or not the *Work* is *Ready-for-Takeover* and will provide the *Contractor* with a list of items, if any, to be added to the *Contractor's* list of items to be completed or corrected. Provide the *Consultant* with a copy of the *Contractor's* revised list.
- .3 Maintain the list of items to be completed or corrected and promptly correct or complete defective, deficient and incomplete work. The *Contractor's* inspection and *Consultant's* review procedures specified above shall be repeated until the *Work* is *Ready-for-Takeover* and no items remain on the *Contractor's* list of items to be completed or corrected.
- .4 When the *Consultant* determines that the *Work* is *Ready-for-Takeover*, the *Consultant* will notify the *Contractor* and the *Owner* in writing to that effect.

1.6 Early Occupancy by the Owner

- .1 If early occupancy by the *Owner* is required, the provisions of this Section shall apply, to the extent applicable, to those parts of the *Work* that the *Owner* intends to occupy.

1.7 Final Inspection for Completion of the Contract

- .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.
- .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 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*.
- .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 7 days from date of request.
- .5 *Contractor* shall thereafter submit invoice for final payment.
- .6 Money withheld for deficiency work shall be released only when all deficiencies have been completed. No partial payment to be recognized until all work is completed.

1.8 Warranty Period

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

Closeout Procedures

- .2 At the beginning of the 12th month after *Ready-for-Takeover*, the *Owner*, *Contractor* and *Consultant*, along with key *Subcontractors* as designated, shall carry out a complete review of building and its systems to determine which deficiencies are to be rectified under the warranty. *Contractor* shall be responsible for timely written notification of *Owner*, and *Consultant* 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 applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Closeout Submittals

PART 1- GENERAL

1.1 Section Includes

- .1 As-built documents.
- .2 Operation and maintenance manuals.
- .3 Operation and maintenance book.
- .4 *Project* data book.
- .5 Shop drawing book.
- .6 Warranty book.
- .7 Posted operating instructions.
- .8 Spare parts, maintenance materials, and special tools.

1.2 Administrative Requirements

- .1 Collect reviewed submittals, and assemble required closeout submittals executed by *Subcontractors*, *Suppliers*, and manufacturers. Prior to submitting closeout submittals to the *Consultant*.
 - .1 Review maintenance manual contents (operating, maintenance instructions, as-built drawings, materials) for completeness.
 - .2 Review supply and completeness of spare parts required by *Contract Documents* and manufacturers.
 - .3 Review in relation to *Contract Price*, *Change Orders*, *Change Directives*, holdbacks and other adjustments to the *Contract Price*.
 - .4 Review inspection and testing reports to verify conformance to intent of *Contract Documents* and that changes, repairs or replacements have been completed.
 - .5 Execute transition of performance bond and labour and materials payment bond to warranty period requirements.
 - .6 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.
- .2 No later than 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 and elsewhere in the *Contract Documents*.
- .3 For equipment put into use with *Owner's* permission during the *Work*, submit required closeout submittals within 10 *Working Days* after start-up.
- .4 For items of the *Work* delayed materially beyond date of *Substantial Performance of the Work*, provide updated closeout submittals within 10 *Working Days* after acceptance, listing date of acceptance as start of warranty period.

Closeout Submittals

- .5 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*.

1.3 As-Built Documents

- .1 Prepare as-built documents in accordance with Section 01 32 00.
- .2 Submit as-built documents as follows:
 - .1 Submit 1 set of as-built documents in hard copy.
 - .2 In addition, submit digital scanned copy ("PDF" files) of as-built documents. Submit on a USB drive and title "As-Built drawings and O&M manual."

1.4 Operation and Maintenance Manuals

- .1 Prepare a comprehensive operation and maintenance manual, in the language of the *Contract*, using personnel qualified and experienced for this task.
- .2 Submit an initial draft of the operation and maintenance manual for *Consultant's* review. If required by *Consultant's* review comments, revise manual contents and resubmit for *Consultant's* review. If required, repeat this process until *Consultant* accepts the draft manual in writing.
- .3 Submit operation and maintenance manuals as follows:
 - .1 Submit 1 copy of operation and maintenance manuals in hard copy.
 - .2 In addition, submit digital copies ("PDF" files) of operation and maintenance manuals. Submit on a USB drive and title "As-Built drawings and O&M manual."

1.5 Operation and Maintenance Manual Format

- .1 Organize operation and maintenance manuals into the following general components:
 - .1 Operation and maintenance book.
 - .2 *Project* data book.
 - .3 Shop drawing book.
 - .4 Warranty book.
- .2 Organize data in the form of an instructional manual.
- .3 Bind each general component of the operation and maintenance books in separate vinyl hard covered, 3 ring loose leaf binders.
- .4 Enclose title sheet, labelled as applicable, with project name, date and list of contents.
- .5 Organize contents into applicable sections of work to parallel project *Specifications* breakdown. Mark each section by labelled tabs protected with celluloid covers fastened to hard paper dividing sheets.
- .6 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.

Closeout Submittals

- .7 Cover: Identify each binder with typed or printed title "Operation and Maintenance Manual", name of *Project* or facility, and subject matter of contents.
- .8 Text: Manufacturer's printed data, or typewritten data.

1.6 Operation and Maintenance Book

- .1 Operation and maintenance books shall contain operating and maintenance data and information specified below for supplied *Products*.
- .2 Neatly type lists and notes. Use clear drawings, diagrams of manufacturers' literature.
- .3 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 nomenclature and commercial number of replaceable parts.
- .4 Panel Board Circuit Directories: provide electrical service characteristics, controls, and communications.
- .5 Include installed colour coded wiring diagrams.
- .6 Description, operation and maintenance instructions for equipment and parts list. Indicate nameplate information such as make, size, capacity, serial number.
- .7 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.
- .8 Maintenance Requirements: include routine procedures and guide for trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .9 Provide servicing and lubrication schedule, and list of lubricants required.
- .10 Include manufacturer's printed operation and maintenance instructions.
- .11 Include sequence of operation by controls manufacturer.
- .12 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .13 Provide installed control diagrams by controls manufacturer.
- .14 Provide *Contractor's* coordination drawings, with installed colour coded piping diagrams.
- .15 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .16 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .17 Include testing and balancing reports.
- .18 Include additional content as specified in technical *Specifications* sections.

Closeout Submittals

1.7 Project Data Book

- .1 *Project Data Book* shall include the following information supplemented by additional required data specified elsewhere in the *Contract Documents*:
 - .1 Maintenance instructions for finished surfaces and materials.
 - .2 Copy of hardware and paint schedules.
 - .3 Names, addresses and phone numbers of *Subcontractors* and *Suppliers*, as applicable.
 - .4 Additional material used in the *Work* listed under various sections showing name of manufacturer and source of supply.
 - .5 Report recording demonstration and instruction provided to *Owner* for operation and maintenance of building systems as described in Section 01 79 00.
 - .6 Key construction photos.
 - .7 Permits and forms:
 - .1 Certificate of Clearance from the Workplace Safety and Insurance Board (WSIB).
 - .2 Certificates of approval of the *Work* by local building department (if available).
 - .3 Electrical authority certificate of inspection.
 - .8 Waste management and disposal reports, prepared in accordance with Section 01 74 00.
 - .9 *Integrated fire protection and life safety systems tests* final test report prepared in accordance with Section 01 91 26.

1.8 Shop Drawing Book

- .1 Submit one copy of each final accepted *Shop Drawings* issued for the *Work* on which have been recorded changes made during fabrication and installation caused by unforeseen conditions.
- .2 Engineered *Shop Drawings* shall include copies of the certificate of insurance, the engineer's field review reports, and the engineer's letters of general conformity that were provided as part of the engineered submittal in accordance with Section 01 33 00 appended to the pertinent engineered *Shop Drawings* in the shop drawing manual.

1.9 Warranty Book

- .1 Submit copies of bonds, guarantees, warranties and extended warranties together, complete with an indexed summary list of warranties and expiration dates. Warranties to be in accordance with Section 01 78 36.
- .2 Separate each warranty with index tab sheets keyed to Table of Contents listing.
- .3 List each warrantor with complete contact information.
- .4 Verify that documents are in proper form and contain full information. Warranties shall be for the correct duration and shall be in *Owner's* name.

Closeout Submittals

- .5 Include maintenance bond(s).

1.10 Posted Operating Instructions

- .1 Prepare operating instructions in English for posting near equipment and systems. Posted instructions to be glass covered, framed and mounted.
- .2 Posted instructions to consist of simplified, consolidated equipment, control and power diagrams graphically representing the entire system, including concise instructions on how to start and stop systems, what settings and conditions are to be observed by the operators, and what control adjustments are to be made or maintained by the operator.
- .3 Posted instructions shall include control diagrams with added specific operating instructions, controls, interlocks, and the like.
- .4 Posted instructions shall include:
 - .1 HVAC controls for each system.
 - .2 One line schematic diagrams of water supply.
 - .3 One line isometric diagrams of sanitary drainage.
 - .4 One line diagrams of steam distribution, hot and cold water systems, including risers, valves, control devices, etc.

1.11 Spare Parts, Maintenance Materials, and Special Tools

- .1 Provide overage, extra stock, and maintenance materials, including keys, in quantities specified in the *Contract Documents*.
- .2 Submit to *Consultant* a typed inventory list of maintenance materials prior to application for *Substantial Performance of the Work*. List all items, complete with quantities, and storage locations. Include *Consultant* reviewed inventory listing in final submission to *Owner*.
- .3 Prepare and submit 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*.
- .4 Provide tags for special tools identifying their function and associated *Product*.
- .5 Supply spare parts, maintenance materials, and special tools in quantities specified in technical *Specifications* sections.
- .6 Ensure spare parts and maintenance materials are new, not damaged nor defective, and of same quality, manufacturer, and batch or production run as installed *Products*.
 - .1 Replace incorrect or damaged maintenance materials.
- .7 Deliver to and store items at location and time directed by *Owner*. Store in original packaging with manufacturer's labels intact and in a manner to prevent damage or deterioration.
 - .1 Clearly mark cartons or packaging as to contents, project name, and *Supplier*.
 - .2 If applicable give colour and finish, room number or area where material is used.

Closeout Submittals

- .3 Include necessary information for re-ordering of materials as part of packaging of materials.
- .8 Catalogue all items and submit to *Consultant* an inventory listing organized by *Specifications* section. Include *Consultant* reviewed inventory listing in operation and maintenance manual.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Warranties

PART 1 - GENERAL

1.1 Warranties

- .1 Warranties shall be in accordance with GC 12.3, as amended.

1.2 Extended Warranties

- .1 Extended warranties shall be in accordance with GC 12.3, as amended, and as follows:
 - .1 Where specifically identified in the *Contract Documents*, extended warranties shall be furnished by individual manufacturer for particular product/system/assembly.
 - .2 Extended warranties shall include for proper performance of the portion of the *Work* as defined by the scope of the applicable *Specifications* section to the extent that the design and *Contract Documents* permit such performance.
 - .3 The *Owner* shall promptly give the warrantor notice in writing of observed defects and deficiencies which occur during the warranty period.
 - .4 Subject to GC 12.2.3.3, as amended, extended warranties shall commence at date of *Ready-for-Takeover*.
 - .5 Extended warranties specified shall be in addition to, and run concurrent with, other warranties required by the *Contract Documents*. Manufacturer's disclaimers and limitations on product warranty do not relieve *Contractor* of obligations under requirements of the *Contract Documents*.
 - .6 Submit extended warranty on warrantor's standard form specifically endorsed by the warrantor to the *Owner* and shall include the following information:
 - .1 Name and address of *Project*.
 - .2 Warranty commencement date.
 - .3 Warranty period.
 - .4 Specific warranty terms as required in applicable portion of *Contract Documents*.
 - .5 Name and title of authorized signing officer and seal of warrantor.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Demonstration and Training

PART 1 - GENERAL

1.1 Section Includes

- .1 Systems demonstration and training.

1.2 Preparation

- .1 Prior to scheduling demonstration and training:
 - .1 Review condition of equipment or systems for which demonstration and training is required and that have been used in the course of the *Work* to ensure turning over at completion in "as new condition", with warranties dated and certified from time specified.
 - .2 When partial occupancy of uncompleted project is required by *Owner*, coordinate *Owner's* uses, requirements, access, and the like, with requirements to complete the *Work*.

1.3 Submittals

- .1 Submit proposed dates, times, durations, and locations for demonstration and training of each item of equipment and each system for which demonstration and training is required. Allow sufficient time for training and demonstration for each item of equipment or system, or time as may be specified in technical *Specifications*.
 - .1 Correlate with construction schedule in accordance with Section 01 32 00.
- .2 *Consultant* and *Owner* will review submittal and advise *Contractor* of any necessary revisions.
- .3 Submit report(s) within 5 *Working Days* after completion of demonstration and training:
 - .1 Identifying time and date of each demonstration and training session.
 - .2 Summarizing the demonstration and training performed.
 - .3 Including a list of attendees.

1.4 Demonstration and Training

- .1 Perform system demonstration work no later than 15 *Working Days* prior to submitting request for *Consultant's* review to determine if *Substantial Performance of the Work* has been achieved.
 - .1 Provide *Owner* with 5 *Working Days* prior written notice of dates scheduled for demonstration and training.
- .2 Submit required certificates of approval or acceptance from authorities having jurisdiction.
- .3 Prerequisites to demonstration and training:
 - .1 Testing, adjusting, and balancing has been performed in accordance with *Contract Documents*.
 - .2 Equipment and systems are fully operational.

Demonstration and Training

- .3 Copy of completed operation and maintenance manual is available for use in demonstration and training.
- .4 Conditions for demonstration and training comply with requirements specified in technical *Specifications*.
- .4 Demonstration and training:
 - .1 Demonstrate and provide training to *Owner's* personnel.
 - .2 Instruct *Owner's* personnel in operation and maintenance of equipment and systems, using operation and maintenance data provided as the basis for instructions. Arrange and coordinate instruction of *Owner's* staff in care, maintenance, and operation of building systems and finishes.
 - .3 *Contractor*, manufacturer's representatives, and responsible personnel from *Subcontractors* whose work is being demonstrated shall be present at these demonstrations, as well as *Owner's* personnel.
 - .4 *Owner* shall provide list of personnel to receive training and shall coordinate their attendance at agreed upon times.
 - .5 Demonstration shall include start up, operation, control, adjustment, troubleshooting, servicing, and maintenance of each item of equipment and system.
 - .6 Review operation and maintenance manual in detail to explain all aspects of operation and maintenance.
 - .7 Instruct *Owner's* representative on use of software required for operation and maintenance of building systems and provide a toll-free telephone number or website address for further assistance to the *Owner*.
 - .8 Prepare and insert additional data in the operation and maintenance data manuals when the need for additional data becomes apparent during demonstration or instruction.
- .5 Correct deficiencies and defects identified during demonstration, instruction, or commissioning.
- .6 Attend 'end-of-work' testing and break-in or start-up demonstration.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

Not applicable.

END OF SECTION

Integrated Fire Protection and Life Safety Systems Testing

PART 1 - GENERAL

1.1 Section Includes

- .1 Procedures for verifying and documenting that interconnections between systems provided for *integrated fire protection and life safety systems* functions are installed and operating in conformance with their *design criteria* and in accordance with CAN/ULC S1001-11.
- .2 This specification is limited to testing of the interconnections between life safety and fire protection systems. Refer to separate technical specification sections for the individual testing and commissioning requirements for those systems.

1.2 Administrative Requirements

- .1 Definitions:
 - .1 Terms presented here in italic font are defined either in the Definitions of CCDC 2 – 2020, or in CAN/ULC S1001-11.
 - .2 The *Consultant* shall be considered the *design professional* for the purposes of the *Contract*.
- .2 Coordination:
 - .1 Coordinate the applicable *Subcontractors* whose equipment or systems are part of the *integrated fire protection and life safety systems test*.
- .3 Conduct a pre-installation meeting in accordance with Section 01 31 19 and as follows:
 - .1 Attendees at pre-installation meeting shall include *Subcontractors* whose equipment or systems are part of the *integrated fire protection and life safety systems test*.
 - .2 Review requirements of authorities having jurisdiction, as well as requirements of, and roles and responsibilities for, each participant in the development of the *integrated test plan* and the execution of the *integrated fire protection and life safety systems test*.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Integrated test plan*:
 - .1 Develop the *integrated test plan* in accordance with Section 5 of CAN/ULC S1001-11.
 - .2 Submit the *integrated test plan* for review by the *Consultant* at least 30 days prior to commencement of the first *integrated fire protection and life safety systems test*. The *integrated testing plan* shall comply with the requirements of CAN/ULC S1001-11 and as specified herein.
 - .3 Distribute final copy of plan digitally as follows:
 - .1 Authorities having jurisdiction.

Integrated Fire Protection and Life Safety Systems Testing

- .2 One copy to be maintained at the *Place of the Work*.
 - .3 *Owner*.
 - .4 *Consultant*.
 - .5 *Contractor*.
 - .6 Consulting engineers, as applicable.
- .3 Final test report:
- .1 Upon successful completion of the *integrated fire protection and life safety systems tests*, submit a final test report in accordance with Section 7 of CAN/ULC S1001-11.
 - .2 Distribute reports digitally as follows:
 - .1 Authorities having jurisdiction.
 - .2 One copy to be maintained at the *Place of the Work*.
 - .3 *Owner*.
 - .4 *Consultant*.
 - .5 *Contractor*.
 - .6 Consulting engineers, as applicable.

1.4 Quality Assurance

- .1 *Integrated testing coordinator* qualifications:
 - .1 The *integrated testing coordinator* services shall be provided by a firm or individual certified under the CAN/ULC-S1001 Certification of Integrated Testing Service Providers program.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

3.1 Integrated Systems Testing Requirements

- .1 Conduct *integrated fire protection and life safety systems* testing in accordance with Section 6 of CAN/ULC S1001-11 and the accepted *integrated testing plan*.

3.2 Demonstration and Training

- .1 Conduct demonstration and training in accordance with Section 01 79 00.
 - .1 Demonstrate the operation of, and providing training on, the integration of *fire protection and life safety systems*.
 - .2 Demonstration and training to include:
 - .1 The function of the integration.

Integrated Fire Protection and Life Safety Systems Testing

- .2 The method of integration: hardwired, network communication, operating protocols.
- .3 The type of information: data, commands, monitoring.
- .4 Any temporary measures to be taken to retest in the future.

END OF SECTION

Demolition

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Demolition and removal of selected non-structural portions of building.
 - .2 Salvage:
 - .1 Salvaging of designated items for reuse by *Owner*
 - .2 Salvage of designated items to be reused or recycled.
 - .3 Removal of surplus materials from the *Place of the Work*.
 - .4 Related mechanical and electrical work and demolition requirements are covered under Divisions 21, 22, and 23 and Divisions 26, 27, and 28 respectively.
- .2 Section excludes:
 - .1 Demolition, removal, remediation, or abatement of designated substances or materials and toxic and hazardous substances.

1.2 Administrative Requirements

- .1 Pre-demolition meeting:
 - .1 Schedule a pre-demolition meeting following the procedures specified for pre-installation meetings in accordance with Section 01 31 19.
 - .2 Review existing conditions at the *Place of the Work* thoroughly to establish full extent of items to be removed and items to remain. Commencement of demolition work will be considered to be acceptance of existing conditions at the *Place of the Work* and removal of such items.
 - .3 Examine adjacent properties to determine extent of protection required.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 Special procedures submittals:
 - .1 Existing conditions documentation:
 - .1 Document existing conditions of adjoining construction and site improvements, including pre-existing damage to finish surfaces that might be misconstrued as damage caused by demolition operations.
 - .2 Comply with Section 01 32 00.
 - .3 Submit existing conditions documentation before demolition work begins.
 - .2 Inventory of items to be salvaged:
 - .1 Prepare typed inventory of units to be salvaged and cross-reference to drawing showing existing elevations.

Demolition

- .2 Submit inventory following procedures for submittal of *Shop Drawings* in accordance with Section 01 33 00.

1.4 Quality Assurance

- .1 Qualifications:
 - .1 *Subcontractor*.
 - .1 Shall have 5 years' specialized demolition experience, minimum.
 - .2 Shall be able to deploy adequate equipment and skilled personnel to complete work expediently in an efficient and orderly manner.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

3.1 Examination

- .1 Verify that utilities have been disconnected and capped.
- .2 Observe existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- .3 Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- .4 When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to *Consultant*.
- .5 Survey of existing conditions: Record existing conditions by use of photographs in accordance with Section 01 32 00.

3.2 Utility Services and Mechanical / Electrical Systems

- .1 Refer to Divisions 21, 22, and 23 and Divisions 26, 27, and 28 respectively.

3.3 Selective Demolition, General

- .1 Demolish and remove existing construction only to the extent required by new construction, and as otherwise indicated. Use methods required to complete the work within limitations of governing regulations and as follows:
 - .1 Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 - .2 Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

Demolition

- .3 Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
- .4 Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
- .5 Maintain adequate ventilation when using cutting torches.
- .6 Remove decayed, infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
- .7 Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- .8 Dispose of demolished items and materials promptly.
- .2 Dispose of demolished materials from *Project* site except where noted otherwise and in accordance with authorities having jurisdiction. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- .3 Do not sell demolished material at the *Place of the Work*.
- .4 Clean existing surfaces specified to receive new applied finishes to assure proper adherence.

3.4 Selective Demolition Procedures for Specific Materials

- .1 Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.

3.5 Salvage

- .1 Remove and store items indicated or directed for salvage. Remove, handle and transport such items to storage area designated in the *Contract Documents*, to an area within the *Place of the Work* designated by *Consultant*, or to an area away from the *Place of the Work* as directed by the *Consultant*. Perform such work to prevent damage to the items during removal and in storage.
- .2 The *Owner* shall review *Place of the Work* prior to commencement of demolition and instruct the *Contractor* of the items to be retained for re-use or be turned over to the *Owner*.
- .3 Remove and store indicated items for future use by *Owner*. Remove, handle and transport such items to storage area indicated in the *Contract Documents* or to an area within the *Place of the Work* designated by *Consultant*. Perform such work carefully and with diligence to prevent any damage to the items during removal and in storage.

3.6 Protection

- .1 Prevent movement, settlement or damage of adjacent structures, services, walks, paving, trees, landscaping, adjacent grades and parts of existing building to remain. Make good damage caused by demolition.

Demolition

- .2 Take precautions to support affected structures and, if safety of building being demolished or adjacent structures or services appears to be endangered, cease operations and notify demolition engineer, *Contractor* and *Consultant*.
- .3 Provide temporary weather enclosures in accordance with Section 01 35 13 and Section 01 56 00.
- .4 Prevent debris from obstructing active services and drainage systems.
- .5 Protect work to remain against damage. Repair or replace damaged work at no additional cost to the *Owner*.

END OF SECTION

Metal Fabrications

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Work of this section includes metal fabrications including but not limited to the following:
 - .1 HSS steel support posts for the Care Station.

1.2 Administrative Requirements

- .1 Conduct a pre-installation meeting in accordance with Section 01 31 19.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 Submit list of fabrications to be provided as part of the work of this section.
- .3 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .4 Shop drawings:
 - .1 Submit engineered shop drawings.
 - .2 Include plans, sections and large scale details, and indicate components and methods of assembly, materials and their characteristics, fastenings, metal finishes, welds, and their structural characteristics relative to their purpose, and other fabrication information required.
 - .3 Indicate proposed *Place of the Work* connections and methods.
 - .4 Submit coordination drawings indicating locations of concealed grounds, cutouts, plates, and other required fabrications.
 - .5 Show relation to adjoining construction, details of outside and inside corners and door openings.

1.4 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Maintenance data:
 - .1 Submit maintenance data for incorporation into maintenance manual specified in Section 01 78 00.

1.5 Quality Assurance

- .1 Qualifications:
 - .1 *Subcontractor*.

Metal Fabrications

- .1 Has adequate plant, equipment, and skilled tradespersons to perform work expeditiously.
- .2 Has successfully completed installations similar to that required in the *Work* during a period of at least the immediate past 5 years.
- .2 Requirements of regulatory agencies: the work of this section that functions to resist forces imposed by dead and live loads shall conform to requirements of jurisdictional authorities.

1.6 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

- .1 Design, fabricate, and install work of this section in accordance with the building code and requirements of authorities having jurisdiction.
- .2 Welding:
 - .1 Steel: Weld components to conform to requirements of CSA W59-18, and by a fabricator fully certified by the Canadian Welding Bureau to conditions of CSA W47.1-19 and CSA W55.3-08 (R2018) as applicable.
- .3 Design assemblies and connections to withstand own dead load, live loads, super-imposed dead loads, and fabrication forces, without permanent distortions or deformation, to maximum allowable deflection of L/360, within the following construction tolerances:
 - .1 Maximum variation from plumb in vertical lines: 3.2 mm (1/8") in 3 m (10'-0").
 - .2 Maximum variation from level: 3.2 mm (1/8") in 9 m (30'-0").
 - .3 Maximum variation from straight: 3.2 mm (1/8") in 3 m (10'-0") under a 3 m (10'-0") straight edge.
 - .4 Maximum variation from angle indicated: 10 seconds.
 - .5 Tolerances shall be non-cumulative.

2.2 Materials

- .1 General:
 - .1 Unless detailed or specified otherwise, standard *Products* will be acceptable if construction details and installation meet requirements of the *Contract Documents*.
 - .2 Include materials, *Products*, accessories, and supplementary parts necessary to complete assembly and installation of work of Section 05 50 00.
 - .3 Incorporate only metals that are free from defects that are visible, or that impair strength or durability. Install only new metals that are of best quality, free from rust or waves and buckles, clean, straight, with sharply defined profiles.
- .2 Steel:

Metal Fabrications

- .1 Structural shapes, plate, bars: hot-rolled, in accordance with CSA G40.21-13, Grade 300W.
- .2 Hollow structural sections: hot-formed, seamless, in accordance with CSA G40.21-13, Grade 350W, Class H.
- .3 Mild sheet and strip: hot rolled, in accordance with ASTM A1011/A1011M-14.
- .4 Cold rolled sheet: stretcher levelled, fully pickled, in accordance with ASTM A1008/A1008M-13, Grade CS Type A exposed, matte finish, dry, unless otherwise indicated.
- .5 Steel pipe: in accordance with ASTM A53/A53M-12, Type E or S, Grade A or B, standard weight, Schedule 40 seamless black or AISI MT 1010/1015.

2.3 Accessories

- .1 Fasteners:
 - .1 Exposed fasteners to match the material surface on which they occur.
 - .2 For fastening steel: Zinc plated screws and bolts, and in accordance with ASTM A307-21, Type 304 stainless steel where exposed to exterior.
 - .3 High strength bolts: in accordance with ASTM A325-14.
 - .4 Other types of fasteners as appropriate to meet design requirements.
 - .5 Fasteners shall be tamperproof where exposed.
- .2 Welding materials:
 - .1 Steel: in accordance with CSA W59-18.
- .3 Grout:
 - .1 Epoxy grout; non-shrink, non-expanding.
 - .1 *Acceptable Products:*
 - .1 Hilti 'HY-200'.
 - .2 Sika 'Sika AnchorFix 3001'.
 - .3 W.R. Meadows 'REZI-WELD 3/2 EPOXY GROUT/PATCH'.
 - .4 Substitutions: in accordance with Section 01 25 00.
 - .2 Cementitious grout: non-shrink, non-expanding in accordance with ASTM C1107/C1107M-20:
 - .1 *Acceptable Products:*
 - .1 Sika 'Sika Grout 212' or 'Sika M-Bed Standard'.
 - .2 W.R. Meadows 'Sealtight CG-86 Construction Grout'.
 - .3 Substitutions: in accordance with Section 01 25 00.

Metal Fabrications

- .4 Dielectric separator: Best grade, quick drying non-staining alkali resistant bituminous paint in accordance with CAN/CGSB 1.108-M89, or membrane type to acceptance of *Consultant*.

2.4 Finishes

- .1 Shop primer; premium quality:
 - .1 Acceptable *Product*.
 - .1 Sherwin-Williams 'Pro Industrial Pro-Cryl Universal Primer', 0.0076 mm (3 mils) DFT.

2.5 Fabrication

- .1 General:
 - .1 Fabricate metal fabrications with machinery and tools specifically designed for the intended manufacturing processes and by skilled tradesmen.
 - .2 Fit and assemble metal fabrications in shop. When this is not possible, make a trial shop assembly.
 - .3 Incorporate means for fastenings of other work secured to work of this section.
- .2 Construction:
 - .1 Fabricate with materials, component sizes, metal gauges, reinforcing, anchors, and fasteners of adequate strength to withstand intended use, and within allowable design factors imposed by jurisdictional authorities. Fabricate items from steel unless otherwise noted.
 - .2 Metal fabrications shall remain free of warping, buckling, opening of joints and seams, distortion, and permanent deformation.
- .3 Assembly:
 - .1 Accurately cut, machine and fit joints, corners, copes and mitres so that junctions between components fit together tightly and in true planes.
 - .2 Provide smooth welds with splatter removed where exposed to view.
 - .1 Finish welds shall comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #4 - Good quality, uniform undressed weld with minimal splatter as shown in NAAMM-AMP 521-01(R2012).
 - .3 Allow for differential movements within assemblies and at junctions of assemblies with surrounding *Work*.
 - .4 Incorporate holes and connections for work installed under other sections.
 - .5 Cleanly and smoothly finish exposed edges of materials including holes.
 - .6 Cap open ends of sections exposed to view, such as pipes, channels, angles, and other similar work.
- .4 Shop prime painting; premium quality:
 - .1 Clean loose mill scale, rust, dirt, weld flux and spatter from work after fabrication.

Metal Fabrications

- .2 Clean and prepare surfaces to meet specified requirements of SSPC SP-6 and paint manufacturer's installation requirements.
- .3 Apply primer in accordance with paint manufacturer's installation requirements.

PART 3 - EXECUTION

3.1 Examination

- .1 Take measurements at the *Place of the Work* to verify that metal fabrications fit surrounding construction, around obstructions and projections in place, or as indicated, and to suit service locations.

3.2 Installation

- .1 Install metal fabrications plumb, true, square, straight, level, and accurately and tightly fitted together and to surrounding work.
- .2 Include in work of this section anchor bolts, high tensile bolts, washers and nuts, expansion bolts, toggles, straps, sleeves, brackets, clips, and other items necessary for secure installation as required by loading and jurisdictional authorities.
- .3 Countersink holes at wood screw locations where wood is attached to work of this section.
- .4 Attach metal fabrications to interior concrete and masonry with corrosion resistant expansion bolts to support load with a safety factor of 3.
- .5 Insulate between dissimilar metals or between metal, and masonry or concrete with bituminous paint to prevent electrolytic action.

3.3 Field Quality Control

- .1 Conduct quality control in accordance with Section 01 45 00.

3.4 Adjusting and Cleaning

- .1 After erection, touch up primed surfaces that are burned, scratched or otherwise damaged with prime paint to match shop paint.
- .2 Remove damaged, dented, defaced, defectively finished, or tool marked components and replace with new.

3.5 Metal Fabrications Schedule

- .1 Refer to metal fabrications identified on the drawings.

END OF SECTION

Rough Carpentry

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 The work of this section includes, but is not necessarily limited to, the following:
 - .1 Wood grounds, nailers, blocking and sleepers.

1.2 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 Shop drawings:
 - .1 Submit engineered shop drawings.
 - .2 Clearly indicate details of construction, profiles, jointing, fastening and other related details, seismic design, connections, and restraint of wall assemblies.

1.3 Product Handling

- .1 Where stability of wood dimensions and tolerances is required to ensure accurate installation of later work, store and install only in dry areas where no installation of moist or wet materials will be undertaken.

PART 2 - PRODUCTS

2.1 Wood Materials

- .1 General requirements:
 - .1 Except as indicated or specified otherwise lumber shall be softwood, S4S, moisture content not greater than 19% at time of installation, in accordance with following standards:
 - .1 CSA O141-05.
 - .2 NLGA-2014 Standard Grading Rules for Canadian Lumber.
- .2 Furring, blocking, nailing strips, grounds:
 - .1 Use S2S material.
 - .2 Dimension lumber sizes: in compliance with Section 12 of the NLGA-2014.
 - .3 Dimension lumber species and grades:
 - .1 Spruce-Pine-Fir.
 - .2 Light framing in accordance with NLGA-2014 Construction grade, S-Dry.
 - .3 Planks in accordance with NLGA-2014 No. 2 grade, S-Dry.
 - .4 Boards in accordance with NLGA-2014 No. 4 Common grade, S-Dry.

Rough Carpentry

2.2 Panel Materials

- .1 Softwood plywood (CSP): in accordance with CSA O151-09.
- .2 Douglas Fir plywood (DFP): in accordance with CSA O121-08.

2.3 Fastenings and Hardware

- .1 General:
 - .1 Provide fasteners of size and type indicated, acceptable to authorities having jurisdiction, and that comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 38 mm (1-1/2") into wood substrate.
 - .2 Anchors to concrete and unit masonry: Capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing according to ASTM E488/E488M-22.
 - .3 Use surface fastenings of following types, except where specific type is indicated.
 - .1 To hollow masonry, plaster and panel surfaces use 9 mm (11/32") expansion bolts or other acceptable anchor.
 - .2 To solid masonry and concrete use expansion bolts.
 - .3 To structural steel use bolts through drilled hole, or welded stud-bolts or power driven self-drilling screws, or welded stud-bolts.
 - .4 Provide screw type fasteners for securing wood sill plates to substrates in accordance with seismic requirements.
 - .4 Fastener materials:
 - .1 Hot-dip galvanized fasteners: in accordance with ASTM A153/A153M-09 Class A or B1 G185 and connectors meeting ASTM A653/A653M-13 Class G-185 sheet or better.
 - .5 Hardware materials:
 - .1 Hot-dipped galvanized in accordance with ASTM A153/A153M-09, Class A or B1, and connectors in accordance with ASTM A653/A653M-13, Class G185.

2.4 Source Quality Control

- .1 Identify lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

PART 3 - EXECUTION

3.1 General

- .1 Layout work to accommodate work of others. Cut and fit accurately. Erect in position indicated. Align, level, square, plumb, and secure work permanently in place.

Rough Carpentry

- .2 Bore holes true to line and to same size as bolts. Drive bolts into place for snug fit, and use plates or washers for bolt head and nut bearings. Turn up bolts and lag screws tightly when installed, and again just before concealed by other work or at completion of work.
- .3 Include in work of this section rough hardware such as nails, bolts, nuts, washers, screws, clips, and connectors required for complete and proper installations; and operating hardware required on work of this section for temporary use.
- .4 Do not attach work by wood plugs or blocking in concrete or masonry.
- .5 Do not regard nailers, blocking, and such other fastening provision indicated as exact or complete. Install required provisions for fastening, located and secured to suit *Place of the Work* conditions, and adequate for intended support.
- .6 Verify that grounds required for fastening of components and equipment are located correctly, and sized for adequate support.

END OF SECTION

Architectural Woodwork

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Work of this section includes architectural woodwork as indicated, including, but not limited to, the following:
 - .1 Cabinetry and hardware.
 - .2 Plastic laminate fabrications.
 - .3 Solid surfacing fabrications.
 - .4 Factory and site finishing of architectural woodwork.

1.2 Administrative Requirements

- .1 Coordination:
 - .1 Coordinate with other work for satisfactory and expeditious completion of the work of this section. Coordinate with partition accessories, electrical, communications, and finish components to ensure that proper provisions are made for the installation of the work of this section and for work by others.
 - .2 Where woodwork is to be fitted to other construction, check actual dimension of other construction by accurate field measurements before manufacturing woodwork; show recorded measurements on final shop drawings. Coordinate manufacturing schedule with construction progress to avoid delays in the *Work*.
 - .3 Provide forms, templates, anchors, sleeves, inserts and accessories required to be fixed to or inserted in the work of this section and set in place. Instruct applicable *Subcontractors* as to their locations.
 - .4 Provide cut-outs for raceways, sleeves, grommets and other manufactured accessories which are required for the work of this section and for work by others.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data for each type of *Product* and process proposed for use in the work of this section and incorporated into items of architectural woodwork.
- .3 Shop drawings:
 - .1 Submit shop drawings for the work of this section complying with the North American Architectural Woodwork Standards 4.0 requirements.
 - .2 Submit engineered shop drawings, including seismic design, connections and restraint.

Architectural Woodwork

- .3 Submit engineered shop drawings for the following architectural woodwork assemblies:
 - .1 Metal support framing assemblies.
- .4 Indicate quality standards and grades.
- .5 Include full scale drawings of exposed-to-view edge conditions.
- .6 Include plans, sections and large scale details, and indicate components and methods of assembly, fastenings, and other fabrication information required for the work of this section. Indicate assembly joint lines.
- .7 Include materials and their characteristics and finishes as applicable including the following:
 - .1 Panel core and material types, thicknesses, compliance with specified standards, special treatments.
 - .2 Adhesive types to be used and locations.
 - .3 Finishing requirements including North American Architectural Woodwork Standards 4.0 finish system number, sheen, and required application steps.
- .8 Submit coordination drawings indicating locations of concealed grounds, cut-outs, plates, and other required fabrications.
- .9 Show relation to adjoining construction, details of outside and inside corners and door openings.
- .10 Provide flame spread ratings of walls and ceiling finishes to meet building code requirements, tested and listed by accredited listing agency.

1.4 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Operation and maintenance data:
 - .1 Submit maintenance and cleaning instructions for finishes requiring specific care, noting particularly those procedures or materials which will cause damage to finished surfaces to be included in maintenance manuals.

1.5 Quality Assurance

- .1 Qualifications:
 - .1 Manufacturers:
 - .1 Architectural woodwork shall be manufactured by a firm having 5 years' experience, minimum, on work of similar size and quality.
 - .2 Shall be a member in good standing of the Architectural Woodwork Institute or the Architectural Woodwork Manufacturers Association of Canada or the Woodwork Institute.
 - .3 Solid surfacing fabricator: Fabrication to be performed by a solid surface manufacturer's certified fabricator. Submit certification letter prepared by the solid surfacing manufacturer.

Architectural Woodwork

.2 Installers:

- .1 Has successfully completed 2 architectural woodwork projects similar in scope, materials and design to this *Project* within the last 5 years.

.2 Quality standard:

- .1 Work shall be in accordance with the North American Architectural Woodwork Standards 4.0, Premium Grade, or the highest grade available for performance and appearance characteristics of materials in Sections 3 – 5 used that apply to *Product* fabrication and installation requirements governed by Sections 6 – 12.
- .3 Requirements of regulatory agencies: the work of this section that functions to resist forces imposed by dead and live loads shall conform to requirements of jurisdictional authorities.

1.6 Product Handling

- .1 Protect architectural woodwork during transit, delivery, storage and handling to prevent damage, spoilage, and deterioration.
- .2 Do not deliver woodwork until painting, wet work, grinding, and similar operations that could damage, soil, or deteriorate architectural woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified under paragraph Site Conditions paragraphs of Section 06 40 00.
- .3 The architectural woodwork manufacturer and the *Contractor* shall be jointly responsible to make certain that architectural woodwork is not delivered until the building and storage areas are sufficiently dry so that the architectural woodwork will not be damaged by changes in moisture content.

1.7 Site Conditions

- .1 During storage and installation: Obtain and comply with North American Architectural Woodwork Standards 4.0 for optimum temperature and relative humidity conditions for woodwork during its storage and installation. Do not install woodwork until these conditions have been attained. Woodwork shall be acclimatized for a minimum of 72 hours prior to commencing woodwork installation.
- .2 During finishing: Comply with Architectural Woodwork Standard's temperature and humidity requirements before, during, and after application of finishes.
- .3 During service life of woodwork: Obtain and comply with woodwork manufacturer's advice for optimum temperature and humidity conditions.

1.8 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.

Architectural Woodwork

PART 2 - PRODUCTS

2.1 Sustainable Design Requirements

- .1 Wood products used in work of this section shall be Forestry Stewardship Council (FSC) Certified, with chain of custody verification, except for products made with recycled material.
- .2 Wood-based materials are to contain no added urea-formaldehyde.

2.2 Performance/Design Requirements

- .1 Casework integrity shall meet the minimum acceptance levels in accordance with SEFA 8-1999 as outlined in the North American Architectural Woodwork Standards 4.0 and additional or greater loading capacities as specified throughout the North American Architectural Woodwork Standards 4.0.
- .2 Maximum allowable adjustable shelf lengths shall comply with shelves assembly rules per the North American Architectural Woodwork Standards 4.0 based on shelf thickness indicated or scheduled.
- .3 No exposed wood is allowed. Finish shall be plastic laminate as a minimum finish where not indicated.

2.3 Wood Materials

- .1 Lumber:
 - .1 Hardwood for concealed blocking and framing: Custom grade, any species that, when painted, will not show any defects.
 - .2 Moisture content: Provide kiln-dried (KD) lumber with moisture content range between 6% to 12% for interior architectural woodwork. Maintain temperature and relative humidity during fabrication, storage and finishing operations so that moisture content values for woodwork at time of installation do not exceed 5% to 10%.

2.4 Panel Materials

- .1 Panel material schedule; except where indicated otherwise:
 - .1 Thickness: 19 mm (3/4") minimum.
 - .2 Core panels:
 - .1 At plastic laminate: MDF.
 - .2 Plywood backing; countertops, backsplashes, and where indicated: Exterior grade plywood with no added urea-formaldehyde used in composition.
 - .3 Maximum moisture content at time of installation: 10% to 12%.
- .2 Plywood:
 - .1 Veneer core plywood non telegraphing grain: Sanded good one side or good two sides (when both sides exposed or to receive applied finish materials) plywood:
 - .1 Hardwood plywood: in accordance with ANSI/HPVA HP-1-2009.

Architectural Woodwork

- .2 Softwood plywood: to US Plywood Standard APA PS-1-19 Structural Plywood (with Typical APA Trademarks).
- .3 Medium density fibreboard (MDF):
 - .1 To ANSI A208.2-2022, 16 mm (5/8") minimum thickness, 720 kg/m³ (45 lbs/ft³) minimum density and as follows:
 - .1 Grade: Grade 130.
 - .2 Formaldehyde emission: No added urea-formaldehyde used in composition.

2.5 Plastic and Composite Materials

- .1 High pressure decorative laminate:
 - .1 General purpose grade: in accordance with ANSI/NEMA LD 3-2005, Horizontal General Purpose Grade (HGS).
 - .2 Post forming grade: in accordance with ANSI/NEMA LD 3-2005, Horizontal Performable Grade (HGP).
 - .3 Colours, finishes, and patterns:
 - .1 PLAM 1: to later selection by *Consultant*.
 - .2 PLAM 2: to later selection by *Consultant*.
 - .3 PLAM 3: to later selection by *Consultant*.
 - .4 Acceptable manufacturers:
 - .1 Formica.
 - .2 Laminart.
 - .3 Nevamar.
 - .4 Pionite.
 - .5 Wilsonart.
- .2 Solid surfacing sheet:
 - .1 Homogenous (not coated, laminated or composite construction).
 - .1 SS1:
 - .1 Nominal sheet thickness: 13 mm (1/2") minimum, unless otherwise indicated.
 - .2 Colour/pattern: As selected by *Consultant* from manufacturer's full range.
 - .3 Acceptable *Product*:
 - .1 Aristech Surfaces LLC (Trinseo) 'Avonite'.
 - .2 Dupont 'Corian'.
 - .3 Wilsonart International 'Solid Surface'.
 - .4 Substitutions: in accordance with Section 01 25 00.

Architectural Woodwork

.2 Accessories:

- .1 Joint adhesive: Manufacturer's standard adhesive to create inconspicuous, nonporous joints, with a chemical bond.
- .2 Sealant: Mildew resistant sealant in accordance with Section 07 92 00.

2.6 Fasteners and Adhesives

- .1 Fasteners shall comply with North American Architectural Woodwork Standards 4.0.
- .2 Adhesives: Shall be used for intended purpose and manufacturer materials applications and installation, applied in accordance with manufacturer's written requirements and shall comply with the "adhesive usage guidelines" recommendations of North American Architectural Woodwork Standards 4.0.

2.7 Hardware

- .1 Casework hardware; to be furnished and installed by the architectural woodwork manufacturer.
 - .1 Where casework hardware is not specified or indicated on drawings or scheduled, casework hardware shall comply with ANSI/BHMA Standards, latest edition, minimum grades, loading and other basic rules per the North American Architectural Woodwork Standards 4.0.
 - .2 Drawer slide; medium duty:
 - .1 Soft close.
 - .2 Pound Class 100.
 - .3 Height: 45 mm (1-47/64").
 - .4 Clearance: 13 mm (1/2") plus 0.8 mm (1/32") minus 0 inches per side.
 - .5 *Acceptable Products:*
 - .1 BLUM Movento.
 - .2 Salice 'Futura'.
 - .3 Hinges:
 - .1 *Acceptable Product:*
 - .1 Marathon 'DTC C-80 Soft-Close Hinge, 105-C80A675NF'.
 - .2 Substitutions: in accordance with Section 01 25 00.
 - .4 Pulls; doors and drawers, except where otherwise indicated:
 - .1 *Acceptable Product:*
 - .1 Marathon 'Modern Bar Pull, 128 mm, Brushed Satin Nickel, 9303-BSN'.
 - .2 Substitutions: in accordance with Section 01 25 00.
 - .5 Locks; swinging doors and drawers, except where otherwise indicated:
 - .1 Locks shall be keyed alike, unless otherwise indicated.

Architectural Woodwork

- .2 Acceptable *Product*.
 - .1 Hafele 'Cam locks, FH Series'.
 - .2 Substitutions: in accordance with Section 01 25 00.
- .6 Magnetic catches:
 - .1 Acceptable *Product*.
 - .1 Hafele 'Magnetic Catch 3-4 KG Pull.'
 - .1 Colour/finish: to be later selected by *Consultant*.
 - .2 Substitutions: in accordance with Section 01 25 00.
- .7 Pilaster strips:
 - .1 Acceptable *Product*.
 - .1 Knape & Vogt 255 Series, flush mounted.
 - .2 Substitutions: in accordance with Section 01 25 00.
- .8 Pilaster clips:
 - .1 Acceptable *Product*.
 - .1 Knape & Vogt 256.
 - .2 Substitutions: in accordance with Section 01 25 00.
- .9 Adjustable shelf standards and supports:
 - .1 Finishes:
 - .1 For cabinets with baked enamel finish: Cadmium or chrome plated steel.
 - .2 For stainless steel cabinets: stainless steel or gloss nickel finish.
 - .2 Acceptable *Product*.
 - .1 Richelieu 'Model 1461210'.
 - .2 Substitutions: in accordance with Section 01 25 00.
- .10 Grommets.
 - .1 Acceptable *Product*.
 - .1 Richelieu 'Round Cable Grommet, 9004430'.
 - .1 Colour: White.
 - .2 Substitutions: in accordance with Section 01 25 00.
- .11 Metal rod:
 - .1 25 mm (1") diameter galvanized metal rod with galvanized metal brackets.

2.8 Finishes - Interior Architectural Woodwork

- .1 General: The entire finish of interior architectural woodwork is specified in this section, regardless of whether factory applied or applied after installation.

Architectural Woodwork

.2 Preparations for finishing:

- .1 Prior to finishing, exposed portions of woodwork shall have handling marks or effects of exposure to moisture removed with a thorough final sanding over surfaces of the exposed portions, using appropriate grit sandpaper, and shall be cleaned prior to applying sealer or finish. Sanding shall be completed just prior to stain or finishing application.
- .2 Concealed surfaces of woodwork that might be exposed to moisture, such as those adjacent to exterior concrete or masonry walls, shall be back-primed.
- .3 Comply with referenced quality standard in Part 1 for sanding, filling countersunk fasteners, sealing concealed surfaces and similar preparations for finishing of architectural woodwork, as applicable to each unit of work.

2.9 Fabrication

- .1 Fabricate woodwork to dimensions, profiles, and details indicated with openings and mortises pre-cut, where possible, to receive hardware and other items of work.
- .2 Complete fabrication, assembly, finishing, hardware application, and other work before shipment to maximum extent possible. Trial fit in shop and disassemble components only as necessary for shipment and installation. Where necessary, provide ample allowance for scribing, trimming, and fitting. Reassemble with concealed fasteners.
- .3 Provide woodwork, solid tops and other indicated materials with pre-cut openings, where possible, for hardware, appliances, plumbing fixtures, electrical work, telephone cut-outs and similar items. Locate openings accurately and provide proper size and shape. Smooth edges of cut-outs and, where located in countertops, seal edges of cut-outs with a water-resistant coating.
- .4 Provide framing for architectural woodwork, complete with bracing and fastening devices as required for a rigid installation, and as required to sustain the imposed loads.
- .5 Reinforcing shown is minimum. Provide additional reinforcing as required to ensure a rigid assembly. Take responsibility for the stability of furniture and fitments.
- .6 Provide balancing sheets as required, and specified, complying with the North American Architectural Woodwork Standards 4.0.
- .7 Provide surface mount blocking and strapping necessary to support the work of this section. Such blocking shall not be exposed upon completion of work.
- .8 Prefinish work at the factory, except where specified or indicated otherwise.

2.10 Fabrication - Solid Surfacing

- .1 Fabricate components in shop to greatest extent practical to size and shape indicated, in accordance with reviewed shop drawings and manufacturer's written requirements.
- .2 Form joints between components using manufacturer's standard joint adhesive. Joints shall be inconspicuous in appearance and without voids. Attach 100 mm (4") wide solid surfacing material reinforcing strip under joints.
- .3 Provide holes and cut-outs as indicated or as required.

Architectural Woodwork

- .4 Rout and finish component edges to a smooth, uniform finish. Rout cut-outs then sand edges smooth. Repair or reject defective or inaccurate work.
- .5 Surfaces shall have a uniform finish.

PART 3 - EXECUTION

3.1 Preparation

- .1 Condition woodwork to field conditions in installation areas before installing. Ensure that field conditions have been provided as requested and specified.
- .2 Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including back priming and removal of packing.
- .3 Provide grounds, nailers and other required fabrications which are to be built into other work when required.
- .4 Ensure that wall and ceiling variations are not in excess of 6.4 mm (1/4") in 3658 mm (144") and that floors are not in excess of 12.7 mm (1/2") in 3658 mm (144") of being plumb, level, flat, straight, square, of the correct size. Variations shall be corrected prior to installation of work of this section.
- .5 Report conditions contrary to requirements preventing proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.

3.2 Installation

- .1 Install woodwork to comply with North American Architectural Woodwork Standards 4.0 for same grade specified in Part 1 of this section for type of woodwork involved.
- .2 Install woodwork plumb, level, true, and straight with no distortions.
- .3 Scribe and cut woodwork to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.
- .4 Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fastener heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork and matching final finish where transparent finish is indicated.
- .5 Complete the finishing work specified in this section to whatever extent not completed at shop or before installation of woodwork.

3.3 Installation - Tolerances

- .1 Install to a tolerance of 3 mm in 2400 mm (1/8" in 8'-0") for plumb and level (including tops) and with no variations in flushness of adjoining surfaces unless otherwise acceptable in accordance with the North American Architectural Woodwork Standards 4.0.

3.4 Adjusting and Cleaning

- .1 Repair damaged and defective woodwork where possible to eliminate defects functionally and visually; where not possible to repair, replace woodwork.

Architectural Woodwork

- .2 Clean, lubricate, and adjust hardware.
- .3 Clean woodwork on exposed and semi-exposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

3.5 Protection

- .1 Protect architectural woodwork during remainder of construction period to ensure that work will be without damage or deterioration at time of acceptance.
- .2 Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer, that ensure that woodwork is without damage or deterioration at time of *Substantial Performance of the Work*.

END OF SECTION

Joint Firestopping and Smoke Seals

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Materials installed in joints to restrict the spread of fire and smoke.
 - .1 Joints in or between fire-resistance-rated constructions.
- .2 Section excludes:
 - .1 Firestopping and smoke seals, for mechanical, electrical and communications penetrations of fire resistant assemblies, and firestopping and smoke seals within their respective assemblies. Refer to Divisions 21, 22, and 23 and Divisions 26, 27, and 28.

1.2 Administrative Requirements

- .1 Coordination:
 - .1 Coordinate joint firestopping and smoke seal work with Section 01 33 00, paragraph 1.8 Project Firestopping Manual and Coordination.
 - .2 Coordinate with other sections to assure that pipes, conduit, cable, and other items that penetrate fire rated construction, have been permanently installed prior to installation of firestop assemblies.
 - .3 Schedule the *Work* to assure that penetrations and other construction that conceals penetrations are not erected prior to the installation of firestop and smoke seals.
- .2 Conduct a pre-installation meeting in accordance with Section 01 31 19.
 - .1 Representatives for mechanical and electrical work and independent inspection and testing company shall attend pre-installation meeting.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets: Submit data and installation instructions for *Products* providing descriptions sufficient for identification at the *Place of the Work*.
 - .1 Materials list of *Products* proposed for use in the work of this section; complying with listed systems designs.
 - .2 Listing agency's detailed drawing showing joint assemblies and firestopping materials, identified with listing agency's name and number or designation, fire rating achieved, and date of listing.
 - .3 Certificates:
 - .1 Submit the following certification documents with closeout submittals:

Joint Firestopping and Smoke Seals

- .1 Manufacturer's certification: Submit manufacturer's certification that installed firestopping and smoke seal *Products* are suitable for the use indicated and comply with specified requirements.
- .2 Installation certification: Installer shall submit certification that all joint firestopping system installations are completed and that installations comply with listed systems designs.
- .4 Submit fire resistance rating test listings for firestopping and smoke seal systems.
- .3 Shop drawings:
 - .1 Submit drawings indicating fire resistance rated assembly number, required temperature, hose stream, and flame rating, material thicknesses, installation methods and materials of firestopping and smoke seals, primers, supports, damming materials as applicable, reinforcements, anchorages, fastenings and methods of installation for each condition to be encountered.
 - .2 Designate on shop drawings static and dynamic joint systems, relative positions, expansion and control joints in rated slabs and walls, and firestopping details.
 - .3 Engineered shop drawings; for engineering judgements:
 - .1 Where *Project* conditions require modification to an accredited third party testing agency's listed system design to address a particular firestopping condition that is not covered by a listed system, submit engineered shop drawings detailing the modifications to the listed system design as an engineering judgment or equivalent fire-resistance-rated assembly, for each *Project* location and condition.
 - .2 Submit the manufacturer's engineering judgment identification number and shop drawing details prepared by a professional engineer. The engineering judgment submittal shall include both *Project* name, *Project* location, and *Subcontractor's* name who will install firestop system as described in engineering judgement shop drawings.
 - .3 Provide complete details of specific application of listed system and its modifications upon which the engineered judgement is based upon.
 - .4 For perimeter fire barrier systems:
 - .1 Submit engineered shop drawings for engineering judgements covering perimeter fire barrier systems. Identify each cladding assembly type in contact with each perimeter fire barrier system.
 - .4 Manufacturers' instructions:
 - .1 Manufacturer of *Products* proposed for use in work of this section shall prepare firestopping manual scheduling products to be used for each assembly and installation required in the *Work*.
 - .1 Coordinate with project firestopping manual specified under Section 01 33 00.
 - .2 Manual shall include manufacturer's *Product* data sheets as specified under paragraph 1.3.2.
 - .3 Firestopping manual shall be submitted within 4 weeks of *Contract* award.

Joint Firestopping and Smoke Seals

1.4 Quality Assurance

.1 Qualifications:

- .1 Installers: Shall have 5 years' experience, minimum, in application of *Products*, systems and assemblies specified and with approval, training and certification of *Product* manufacturers.
- .1 Submit proof of manufacturer's installer certification for each installer of firestopping and smoke sealant systems.
- .1 Manufacturer's willingness to sell its firestopping *Products* to the *Contractor* or to an installer engaged by the *Contractor* does not in itself confer qualification on the buyer.
- .2 Applicator shall designate a single individual as *Project* foreperson who shall be present at the *Place of the Work* at all times throughout the work of this section when the work of this section is being performed.

1.5 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.

PART 2 - PRODUCTS

2.1 Manufacturers

- .1 General: Manufacturers of firestopping and smoke seal system *Products* and installation specialists for the work of this section are limited to applicable assemblies as required for the *Work* and having listing mark on packaging.
- .2 Subject to compliance with requirements, provide products by one of the following:
 - .1 3M Canada Inc.
 - .2 Hilti Canada Corp.
 - .3 NUCO Inc.
 - .4 STI Firestop.
 - .5 Tremco Commercial Sealants & Waterproofing.

2.2 Performance/Design Requirements

- .1 Firestop and smoke sealant systems shall consist of material, or combination of materials installed to retain integrity of fire-rated construction by effectively impeding spread of flame, smoke, and/or hot gasses through perimeter joint or gaps, construction joints, or at perimeter fire containment in or adjacent to fire-rated barriers.
- .2 Smoke sealants applied over firestopping materials or combination smoke seal/firestop seal material shall form air tight barriers to prevent passage of gas and smoke.
- .3 Fire-resistance rating of firestopping system shall be equivalent to rating of adjacent floor, wall or other fire separation assembly.

Joint Firestopping and Smoke Seals

- .4 Firestopping system at fire rated assemblies with assembly STC rating requirements shall provide STC rating equal to STC rating of fire rated assembly.
- .5 Confirm locations of exposed/non-exposed firestopping/smoke seal surfaces with *Consultant* prior to application.
- .6 Provide movement capability at movement joints in accordance with design requirements for movement joint.
- .7 Head-of-wall joints; with dynamic designation:
 - .1 Joint assemblies shall permit vertical movement allowing wall to move independent of structure due to forces including, but not limited to, live loads, dead loads, thermal expansion/contraction, seismic movements, and wind sway. Such movement shall not damage the wall assembly or its fire protection components.
 - .1 Provide head-of-wall joints with dynamic designation.
 - .2 Seismic dynamic joints: Provide head-of-wall joints with dynamic designation to accommodate seismic movement. Seismic requirements in accordance with building code.
- .8 Regulatory requirements:
 - .1 Joint firestop systems shall be listed in accordance with CAN/ULC-S115-11 and shall achieve required fire resistance rating in accordance with building code.
 - .2 Proposed firestopping and smoke seal materials and methods shall conform to applicable governing codes having local jurisdiction.

2.3 Materials

- .1 Single source responsibility for firestopping and smoke seal materials:
 - .1 Obtain firestopping and smoke seal materials from single manufacturer for each different *Product* required.
 - .2 Manufacturer shall instruct applicator in procedures for each material.
- .2 Firestopping and smoke seal systems shall conform to the following:
 - .1 VOC content not to exceed 250 gm/litre minus water.
 - .2 Asbestos-free materials and systems capable of maintaining an effective barrier against flame, smoke and gasses in compliance with requirements of CAN/ULC-S115-11 and not to exceed opening sizes for which they are intended.
 - .3 Provide firestopping materials and systems with fire-resistance rating not less than the fire-resistance rating of applicable adjacent assembly.
 - .4 Listed in accordance with CAN/ULC-S115-11.
 - .5 Use only joint firestop systems that have been tested by an accredited third party testing agency for specific fire-rated construction conditions conforming to construction assembly type, joint type and fire-rating requirements for each separate instance.

Joint Firestopping and Smoke Seals

- .1 Where there is no specific third party tested and classified firestop system for a particular firestop configuration, submit engineered shop drawings.
- .6 For joints in fire-separations, provide listed systems designs for the joint firestop and smoke seal systems as required by building code to maintain the integrity of the fire separations.
- .7 *Products* shall be compatible with abutting dissimilar membranes, architectural coatings, finishes at floors, walls and ceilings. Check with requirements of *Contract Documents* and manufacturer of selected materials being installed.
- .3 Smoke sealants for overhead and vertical joints shall be non-sagging; sealants for floors shall be self-levelling.
- .4 Smoke seal sealant colour at exposed locations: No exposed firestopping.

PART 3 - EXECUTION

3.1 Preparation

- .1 Examine sizes, anticipated movement and conditions to establish correct thickness and installation of back-up materials.
- .2 Prepare surfaces in accordance with manufacturer's written specifications and to requirements of listed system designs.

3.2 Installation

- .1 Install joint firestopping and smoke seal systems in accordance with manufacturer's written requirements and in compliance with listed system designs. Products and installation requirements must comply with listed system designs.
- .2 For materials that will remain exposed after completing the *Work*, finish to achieve smooth, uniform surfaces. Tool or trowel exposed surfaces.
- .3 Notify *Consultant* when random completed installations are ready for review, as directed by *Consultant*, prior to concealing or enclosing firestopping and as applicable, smoke seals.
- .4 Protect materials from damage on surfaces subjected to traffic.

3.3 Identification and Documentation

- .1 Provide documentation for each joint firestop system application addressed. This documentation is to identify each joint location on the entire Project.
- .2 Documentation for installed joint firestop systems is to include:
 - .1 Sequential location number.
 - .2 Project name.
 - .3 Date of installation.
 - .4 Detailed description of joint firestop system location.
 - .5 Listed firestop system design number or engineered judgment number.

Joint Firestopping and Smoke Seals

- .6 Type of joint.
- .7 Width of joint.
- .8 Overall length of joint.
- .9 Number of sides addressed.
- .10 Hourly rating of firestop joint system to be achieved.
- .11 Installers name.

3.4 Field Quality Control

- .1 Conduct quality control to be in accordance with Section 01 45 00.
 - .1 Field tests and inspections:
 - .1 Examine completed firestop joint installations to ensure proper installation before concealing or enclosing areas. Keep areas of work accessible until inspections are completed.
 - .2 Inspection consultant to review installation of the work of this section and to perform random tests to verify its completion in accordance with the requirements of the *Contract Documents*.
 - .3 Give at least 48 hours notice before operations commence, and arrange for a pre-job conference with *Contractor*, installer, independent inspection and testing company, manufacturer, and *Consultant* present.
 - .4 Independent inspection and testing company shall examine installed firestopping in accordance with ASTM E2174-20a and ASTM E2393-20a. Independent inspection and testing company shall examine firestopping and shall determine, in general, that firestopping has been installed in accordance with requirements of the *Contract Documents* and in compliance with each listed firestop system design.
 - .5 Representatives of the manufacturer(s) shall have access to the *Work*. *Contractor* shall provide assistance and facilities for such access in order that the manufacturer(s) representative(s) may properly perform its function.
 - .2 Manufacturer's field review to be in accordance with Section 01 45 00.

END OF SECTION

Joint Sealants

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Joint sealants – interior locations.
- .2 Section excludes:
 - .1 Glazing system assembly sealants.
 - .2 Mechanical and electrical sealants.
 - .3 Acoustic sealants.

1.2 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
 - .2 Submit manufacturer's and *Product* name for each sealant which will be used in the *Work* prior to commencing the *Work*.
- .3 Samples:
 - .1 Submit "wet sample" sealant colour samples for each sealant *Product* and colour.
- .4 Test and evaluation reports:
 - .1 Test sealant in contact with samples of porous materials to be sealed to ensure that no staining of the material will result in accordance with ASTM C1248-22.
 - .1 Submit test results to *Consultant* prior to application of sealants.

1.3 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
 - .1 Include manufacturer's warranties.
- .2 Maintenance instructions:
 - .1 Submit maintenance instructions for all items for incorporation into the operation and maintenance manuals.

1.4 Quality Assurance

- .1 Qualifications:
 - .1 *Subcontractor*.
 - .1 Shall have 5 years' experience, minimum, in application of *Products*, systems and assemblies specified.

Joint Sealants

- .2 Installer to comply with quality assurance articles referenced in ASTM C1193-16(2023) for installation of joint sealants.

1.5 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

- .1 Interior sealants shall have a VOC limit of 50 g/L maximum, unless otherwise specified, and comply with South Coast Air Quality Management District (SCAQMD) Rule 1168, Adhesive and Sealant Applications.
- .2 Joint sealants:
 - .1 Shall perform as air tight and water-tight joints.
 - .2 Defects shall include, but are not limited to:
 - .1 Staining from abutting materials or filler.
 - .2 Migrating, bleeding into, or staining abutting materials.
 - .3 Unsightly surface deformation.
 - .4 Excessive colour change, chalking, or dust pick-up.
 - .5 Failing adhesively or cohesively where maximum elongation is less than 25% of designed width of exposed joints.
 - .6 Hardening to more than 25% over specified hardness.

2.2 Sealants

- .1 General:
 - .1 Colours: Sealant colours shall match colours of adjacent materials, as selected and approved by *Consultant*.
 - .1 Colours shall be custom colour.
 - .2 In accordance with ASTM C920-14 and other requirements indicated for each liquid-applied chemically curing sealant, including those referencing ASTM C920-14 classifications for type, grade, class, and uses.
 - .3 For sealants to be applied to porous substrates:
 - .1 Provide products that have undergone testing in accordance with ASTM C1248-22 and have not stained porous joint substrates indicated for *Work*.
 - .4 Sealant supplied shall not exude any material(s) which travel into adjacent materials, or travel onto surfaces of adjacent materials; causing damage, or attracting soiling, which becomes apparent during the service life of the building.
 - .5 Exposed sealants shall be non-pick type.
- .2 Interior general sealants:

Joint Sealants

- .1 VOC limit: Maximum 50 g/L, unless otherwise indicated.
- .2 Interior sealant; at joints with painted gypsum board: one-component paintable acrylic in accordance with ASTM C834-10 Type OP; or polyurethane in accordance with ASTM C920-14 Type S, Grade NS, Class 35.
 - .1 *Acceptable Products:*
 - .1 Acrylic sealants:
 - .1 Master Builders Solutions Canada 'MasterSeal NP 520'
 - .2 Tremco, Inc. 'Tremflex 834'.
 - .2 Polyurethane sealants:
 - .1 Sika 'Sikaflex 1A'.
 - .3 Substitutions: in accordance with Section 01 25 00.
- .3 Interior sealant; gap filler: at movement paintable joints in vertical surfaces: One-component polyurethane sealant in accordance with the following: ASTM C920-11, Type M or S, Grade NS, Class 25.
 - .1 *Acceptable Products:*
 - .1 Master Builders Solutions Canada 'MasterSeal NP100'.
 - .2 Sika 'Sikaflex 15LM'.
 - .3 Substitutions: in accordance with Section 01 25 00.
- .4 Interior sealant; at movement joints in vertical surfaces: one-component polyurethane sealant in accordance with the following: ASTM C920-14, Type M or S, Grade NS, Class 25.
 - .1 *Acceptable Products:*
 - .1 Master Builders Solutions Canada 'MasterSeal NP1'.
 - .2 Sika 'Sikaflex 15LM'.
 - .3 Tremco, Inc. 'Dymonic 100'.
 - .4 Substitutions: in accordance with Section 01 25 00.
- .3 Specialty sealants:
 - .1 Interior sealant; mildew resistant one part silicone sealant; healthcare facilities: in accordance with FDA Regulation No. 21 CFR 177.2600, ASTM C920-14, Type S, Grade NS, Class 25, CAN/CGSB 19.22-M89.
 - .1 *Acceptable Products:*
 - .1 DOWSIL '786'.
 - .2 Substitutions: in accordance with Section 01 25 00.
 - .2 Pick resistant sealant:
 - .1 Two part high solids, high modulus epoxy resin security sealant:

Joint Sealants

.2 Acceptable *Products*:

.1 Sika 'Sikadur 31 High –Mod Gel'.

.2 Substitutions: in accordance with Section 01 25 00.

2.3 Accessories

- .1 General: Provide joint sealants, primers, backings, and fillers that are compatible with one another and with joint substrates and other sealants or joint fillers specified and approved for applications indicated under joint sealant scheduled and under conditions of service and application as demonstrated by joint sealant manufacturer based on proven test results and field experience. When incompatible, inform *Consultant* and change to compatible type acceptable to *Consultant*.
- .2 Cylindrical sealant backings: Provide joint backings that meet ASTM C1330-02, Type O (open-cell polyurethane), or Type B (non-absorbent bi-cellular backing materials with surface skin), sized 25 percent or greater than joint opening with proper density to control sealant depth and profile. Follow joint sealant manufacturer's recommendations with backing selections for optimum joint sealant performance, in accordance with the following schedule:
 - .1 Use open cell foam with non-absorbing closed cell skin (Sof-Rod) for vertical joints; round shape for open joints and triangular shape for angular joints.
 - .2 Use closed cell foam for horizontal joints.
- .3 Bond-breaker tape: Polyethylene tape or other approved plastic tape as recommended by joint sealant manufacturer to prevent 3-sided joint adhesion to rigid, inflexible joint fillers or joint surfaces at back of joint where such adhesion would restrict proper sealant movement or result in sealant failure.
- .4 Masking tape: Non-staining, non-absorbent and compatible with joint sealants and adjacent surfaces.
- .5 Sealant primers: Use primers only as recommended by sealant manufacturer where required to enhance adhesion of sealant to specific joint substrates indicated and as determined for use from pre-construction mock-up testing. Select primers in consultation with sealant manufacturer and manufacturer of substrate material which do not have a detrimental effect on sealant adhesion or in-service performance.
- .6 Cleaners for nonporous surfaces:
 - .1 Provide non-staining, chemical cleaners of type which are acceptable to manufacturer of sealant and sealant backing material, which are not harmful to substrates and adjacent nonporous materials, and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in-service performance.
 - .2 Provide cleaner conditioner required for glass and glazed surfaces as recommended by sealant manufacturer.

Joint Sealants

PART 3 - EXECUTION

3.1 Manufacturer's Recommendations

- .1 Unless specified otherwise herein, comply with the recommendations and directions of the manufacturer whose materials are being used in the work of this section.

3.2 Preparation

- .1 Protect adjacent work areas and finished surfaces from damage during joint sealant installation.
- .2 Clean and prepare joint surfaces and substrates of substance that could impair the bond of joint sealants immediately before installing joint sealants.
- .3 Provide a dry, dust-free and cleaned substrate for optimum results.
- .4 Clean porous joint surfaces by using heavy-duty brushing, light abrasive, mechanical abrading or combination of these methods to produce a clean, sound surface for optimum bond with joint sealants per manufacturer's recommendations.
- .5 Clean non-porous surfaces using the two-cloth wipe method as referenced in ASTM C1193-16(2023) and outlined by joint sealant manufacturer's written requirements.
- .6 Prepare rusting or scaling surfaces using abrasive cleaning methods as recommended by joint sealant manufacturer prior to joint sealant installation. Remove and neutralize efflorescence, mould, mildew and algae prior to joint sealant installation.
- .7 Prepare finish-coated surfaces per joint sealant manufacturer's specific recommendations.
- .8 Test materials for indications of staining or poor adhesion before any sealing is commenced. Submit reports in writing to *Consultant* of results.
- .9 Do not proceed with installation of joint sealants under the following conditions:
 - .1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer, or are below 5°C (40°F).
 - .2 When joint substrates are wet.
 - .3 Where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
 - .4 Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

3.3 Masking

- .1 Where necessary to prevent contamination or marring surfaces of adjacent materials, mask areas adjacent to joints with masking tape prior to priming or sealing application. Remove tape immediately after joint has been completed and an initial set achieved.

Joint Sealants

3.4 Installation

- .1 Install in accordance with joint sealant manufacturer's installation written requirements for products, primers and applications indicated unless more stringent project-specific instructions or requirements apply.
- .2 Apply joint sealants for continuous waterproof sealant joint protection. Lap vertical joints over horizontal joints as recommended by sealant manufacturer. Comply with installation recommendations in ASTM C1193-16(2023) for use of joint sealants as applicable to each specific sealant installation.
- .3 Install sealant primers only when recommended by sealant manufacturer and demonstrated at pre-construction tests after joint surface preparation has been completed and when surfaces are verified as clean and dry. Allow any primer installation to completely dry or cure prior to installation of backing or joint sealants. Primer is mandatory for gun applied sealants.
- .4 Install joint sealants using proven techniques that comply with the following and in proper sequence with installation of primers and backings.
 - .1 Using proper joint sealant dispensing equipment, place sealants by pushing sealant beads into opening to fully wet-out joint sealant substrates. Fill sealant joint opening to full and proper configuration.
 - .2 Provide uniform cross-sectional shapes and depths in relation to joint width for optimum sealant movement capability per joint sealant manufacturer's written requirements.
- .5 Joint sealant tooling is required for non-sag joint sealant installations. Immediately after placing fresh sealants and before skinning or curing begins, tool sealants using metal spatulas designed for this purpose in accordance with manufacturer's recommendations. Provide a smooth, uniform sealant finish, eliminating air pockets and ensuring good contact for optimum sealant adhesion within each side of the joint opening.
 - .1 Provide concave joint configuration as indicated per figure 5-A in ASTM C1193-16(2023) unless otherwise indicated.
 - .2 Use tooling agents that are approved in writing by sealant manufacturer and that do not discolour sealants or adjacent surfaces.
 - .3 Remove excess sealant from surfaces adjacent to joint openings using metal spatula, promptly cleaning any sealant residue from adjacent finished surfaces. Remove masking after joint sealant is installed.
- .6 Allow single-component sealants to fully cure before adhesion testing is performed as recommended by joint sealant manufacturer as outlined in Field Quality Control paragraphs in Section 07 92 00.
- .7 Match approved sealant mock-up for colour, finish and overall aesthetics. Remove, refinish or re-install work not in compliance with the *Contract Documents*.
- .8 When surfaces of adjacent materials are to be painted, perform sealant work before these surfaces are painted.

Joint Sealants

- .9 Check form release agent used on concrete for compatibility with primer and sealant. If they are incompatible inform *Consultant* and change primer and sealant to compatible type, or clean concrete to sealant manufacturer's acceptance.
- .10 Install joint backing material, filler strips, gaskets, bond breakers and similar type material of comparable performance characteristics. Install bond breaker tape or packing over asphalt impregnated fibre board as recommended by sealant manufacturer.
- .11 Where joints are 12.7 mm (1/2") or deeper, insert backing material in continuous uniform compression with setback from finished face of adjoining materials equal to required depth of sealant (width/depth ratio) as specified herein.
- .12 On horizontal traffic surfaces, support joint filler against vertical movement which might result from traffic loads, including foot traffic.
- .13 Install bond breaker tape in bottom of joints in lieu of sealant backing where proper depth cannot be obtained when backing is installed.
- .14 Maintain correct sealant depth. Sealant depth shall be 1/2 the width of the joint, maximum depth shall be 12.7 mm (1/2"), minimum depth shall be 6 mm (1/4"). Comply with manufacturer's written recommendations.
- .15 Fillet bead sealant joints to be sized to provide proper contact area with substrates, in accordance with manufacturer's written recommendations.
- .16 Apply sealants using pressure-operated guns fitted with suitable nozzles in accordance with manufacturer's directions. Apply sealants in such manner as to ensure good adhesion to sides of joints and to completely fill voids in joints.
- .17 Apply sealants so that surfaces of joints are smooth, full bead, free from ridges, wrinkles, sags, air pockets and embedded impurities. Tool sealant surfaces to produce a smooth surface.
- .18 Install sealant with exterior face of sealant set back 10 mm (3/8") from face of adjacent materials at building movement joints, unless otherwise indicated.
- .19 Do not apply sealants to areas where installation of paints, coatings or flooring is in progress. Apply sealants after such work is complete and fully cured.

3.5 Interior Sealant Schedule

- .1 Include in work of this section sealants to seal open joints in surfaces exposed to view, and to make building weather-tight and air-tight, as applicable, as indicated, and as otherwise specified, except where specified under the work of other sections.
- .2 Install sealant to:
 - .1 Movement and control joints on exposed insitu concrete walls.
 - .2 Interior control and expansion joints in floor and wall surfaces.
 - .3 Raked out joints at junctions of masonry with concrete walls and columns, and at intersection of masonry walls and partitions where joint reinforcement is installed.
 - .4 Perimeters of exterior and interior door and window frames.

Joint Sealants

- .5 Joints at tops of non-load bearing masonry walls at the underside of insitu concrete.
- .6 Exposed interior control joints in gypsum board.
- .7 Millwork junctions with walls.
- .8 Counter/wall junctions at countertops.

3.6 Field Quality Control

- .1 Conduct quality control in accordance with Section 01 45 00.
 - .1 Inspection and testing:
 - .1 Field-adhesion testing: Installer to keep daily log of sealant installation recording self-performed field-adhesion test at each elevation of the project and as follows:
 - .1 Record field adhesion testing on digital video camera and submit to *Consultant*.
 - .2 Document and perform field adhesion testing in accordance with manufacturer's recommended field-adhesion requirements and submit written reports co-signed by sealant manufacturer's representative. Coordinate with Section 01 45 00.
 - .3 Perform 5 field adhesion tests for the first 300 m (1000 lineal feet) and one test in each 300 m (1000 lineal feet) of sealant joint length thereafter. One (1) test per floor height and per elevation is also recommended. When the sealant is used to weatherseal between 2 dissimilar substrates, the sealant adhesion to each side of the joint should be individually tested.
 - .4 Field test joint sealants in accordance with Method A, Field-Applied Sealant Joint Hand-Pull Tab, in Appendix X-1 in ASTM C1193-16(2023) and in compliance with manufacturer's specific recommendations.
 - .5 Evaluation: In compliance with joint sealant manufacturer, joint sealants tested and not indicating adhesive failure within the substrates are considered satisfactory results. For joint sealants that fail to adhere to the substrate, clean, re-install and then re-test until satisfactory results are obtained.
 - .2 Manufacturer's field review to be in accordance with Section 01 45 00.
 - .3 Provide manufacturer's field service consisting of periodic site visits by manufacturer or their distributor representative for observation of joint sealant application.

3.7 Adjusting and Cleaning

- .1 Remove droppings and clean off excess sealant or sealant residue adjacent to sealant joint installations as the work progresses by methods approved by joint sealant manufacturer before material achieves initial set.

Joint Sealants

- .2 Do not damage adjacent surfaces with harmful removal techniques and protect finished surfaces beyond those that have been masked.
- .3 Remove and replace damaged joint sealants.
- .4 Remove temporary coverings and masking protection from adjacent work areas upon completion.

3.8 Protection

- .1 Protect installed sealants during and after final curing from damage resulting during construction.

END OF SECTION

Steel Doors and Frames

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Hollow metal doors and panels (steel doors).
 - .2 Insulated metal doors (insulated steel doors).
 - .3 Metal frames (steel frames).
 - .4 Metal frames (steel frames for screens, sidelights, window assemblies).

1.2 Administrative Requirements

- .1 Coordination:
 - .1 Cooperate fully with finish hardware distributor's representative during preparation of shop drawings and execution of shop fabrication.
 - .2 Coordinate installation of doors and frames with installation of hardware specified in Section 08 71 00.
- .2 Conduct a pre-installation meeting in accordance with Section 01 31 19.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 Submit copy of NAAMM-HMMA 840-17 standard.
- .3 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .4 Shop drawings:
 - .1 Include details of each door and frame type, finish hardware types and locations, frame profiles, door and frame elevations, mitre details, fire protection rating, glazing preparation details and anchor details and locations.
 - .2 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and in door schedule.
 - .3 Electrified hardware requirements and preparations shall be clearly indicated on shop drawings.

1.4 Quality Assurance

- .1 Qualifications:
 - .1 Manufacturers:
 - .1 Provide doors and frames manufactured by a firm specializing in the design and production of hollow metal steel doors and frames.

Steel Doors and Frames

- .2 Manufacturer shall be a member in good standing of the Canadian Steel Door Manufacturers Association (CSDMA).

1.5 Product Handling

- .1 Product handling shall be in accordance with CSDMA Guide Specification for Installation and Storage of Hollow Metal Doors and Frames.

1.6 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranties:
 - .1 System:
 - .1 Labour, materials, and workmanship for work of this section.
 - .2 The warranty is a total system warranty, and includes hardware, sealants, hanging and fitting, and finishing.
 - .3 Duration: 5 years.
 - .2 Glass and glazing: in accordance with Section 08 80 00.

PART 2 - PRODUCTS

2.1 Manufacturers

- .1 All Steel Doors 2000 Ltd.
- .2 Apex Industries Inc.
- .3 Artek Door (1985) Ltd.
- .4 Daybar Industries Ltd.
- .5 Fleming-Baron Door Products.
- .6 M.J. Daley Manufacturing Co. Ltd.
- .7 Trillium Steel Doors Limited.
- .8 Vision Hollow Metal Limited.

2.2 Performance/Design Requirements

- .1 Fire rating requirements:
 - .1 Fire rated labelled doors and frames: tested in accordance with CAN/ULC-S104-10 and listed by a nationally recognized agency having a factory inspection service and shall be constructed as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.
 - .2 Install fire labelled steel door and frame products in accordance with NFPA 80-2013, except where indicated otherwise.
- .2 Doors and frames shall function as intended, including but not limited to:
 - .1 Be in true alignment.

Steel Doors and Frames

- .2 Operate and swing freely, smoothly, and easily.
- .3 Remain stationary at any point.
- .4 Close evenly and tightly against stops without binding.
- .5 Latch positively when doors are closed with moderate force.

2.3 Materials

- .1 Steel:
 - .1 Fabricated from tensioned levelled steel in accordance with ASTM A924/A924M-22a, galvanized in accordance with ASTM A653/A653M-13, Commercial Steel CS, Type B.
 - .2 Steel shall be free of scale, pitting, coil breaks, surface blemishes, buckles, waves, and other defects.
 - .3 Minimum sheet thickness; uncoated steel sheet: in accordance with Appendix 1 of ANSI/NAAMM HMMA 861-14 "Guide Specifications for Commercial Hollow Metal Doors and Frames".
 - .4 Finish: Minimum Galvanneal coating designation ZF120 (A40).
- .2 Door core materials:
 - .1 Honeycomb: Structural small cell 25 mm (1") maximum kraft paper 'honeycomb'. Weight: 36.3 kg (80 lb) per ream (minimum). Density: 16.5 kg/m³ (1.03 pcf) minimum, sanded to required thickness.
 - .2 Steel stiffeners: Continuous vertical formed steel sections, 0.813 mm (0.032") minimum thickness, spaced not more than 150 mm (6") apart, welded at 150 mm (6") on centre maximum or adhesively applied to each face sheet. Fill voids with 24 kg/m³ (1.5 pcf) density minimum fibreglass type material in accordance with ASTM C665-17 or CAN/ULC S702-14.
- .3 Adhesives:
 - .1 Heat resistant, single component, polyurethane reactive (water) hot melt, thermoset adhesive.
 - .2 Lock seam doors: fire resistant, resin reinforced polychloroprene, high viscosity sealant-adhesive.
- .4 Primer: rust inhibitive for touch-up.
- .5 Finishing hardware: in accordance with Section 08 71 00.
- .6 Miscellaneous:
 - .1 Door silencers: single stud rubber or neoprene type.
 - .2 Channel glazing stops and glazing trim: formed channel of minimum 0.81 mm (0.032") (20 gauge) steel, 15.9 mm (5/8") high.

Steel Doors and Frames

2.4 Fabrication - General

- .1 Fabricate steel doors, frames, sidelights and borrowed lights as applicable, to the design and dimensions indicated. Take field measurements where coordination with adjoining work is necessary.
- .2 Fabricate steel doors and frames to be rigid, neat in appearance and free from defects, warp, wave or buckle with all corners square unless otherwise indicated.
- .3 Operating clearances:
 - .1 Provide clearance at floor with allowance made for indicated finish flooring materials.
 - .2 Clearances for Fire-Rated Doors: As required by NFPA 80-2010.
 - .3 Clearances for Non-Fire-Rated Doors: Not more than 3 mm (1/8") at jambs and heads, except not more than 6 mm (1/4") between pairs of doors. Not more than 19 mm (3/4") at bottom.
- .4 Drill and tap or reinforce for mortised or surface mounted hardware in accordance with accepted hardware schedule, ANSI A115, NFPA 80-2013, or manufacturers recommendations.
- .5 Countersink exposed fasteners unless otherwise shown. Use flat or oval head screws.
- .6 Reinforce components to resist stresses imposed by hardware in use.
- .7 Allow for anticipated expansion and contraction of frames and supports.
- .8 Fit elements at intersections and joints accurately together, in true planes, and plumb and level.
- .9 Perform welding in accordance with CSA W59-18.
- .10 Mortise, reinforce, drill and tap to receive hardware and security devices using templates provided by respective *Supplier*.
- .11 Touch up finish damaged during fabrication.
- .12 Prepare doors or frames to receive seals where seals are indicated.
- .13 Attach labels to suit required fire-protection ratings.

2.5 Fabrication - Steel Doors and Panels

- .1 Fabricate steel doors and panels to a thickness of 45 mm (1-3/4"), unless indicated otherwise.
- .2 Heavy duty doors and panels; steel stiffened:
 - .1 Face sheets fabricated from: 1.34 mm (0.053") (16 gauge) steel.
 - .2 Steel stiffened core.
 - .3 Longitudinal edges continuously welded the full height of the door, filled and ground smooth with no visible seams.
- .3 Interior and non-insulated doors and panels:

Steel Doors and Frames

- .1 Face sheets fabricated from 1.06 mm (0.042") (18 gauge) steel.
- .2 Honeycomb core.
- .3 Longitudinal edges continuously welded the full height of the door, filled and ground smooth with no visible seams.
- .4 Fabricate of composite metal face construction with each face formed from flush sheet steel without visible seams, free of scale, pitting, coil brakes, buckles and waves.
- .5 Formed edges shall be true and straight with minimum radius for the thickness of steel used.
- .6 Lock and hinge edges shall be bevelled 3 mm in 50 mm (1/8" in 2") unless hardware or door swing dictates otherwise.
- .7 Top and bottom of doors shall be provided with inverted, recessed, 1.34 mm (0.053") (16 gauge) steel end channels, welded to each face sheet at 50 mm (2") on centre maximum.
- .8 Prior to shipment, mark each door with an identification number as shown on the approved submittal drawings.
- .9 Blank, reinforce, drill and tap doors for mortised, templated hardware. Locate hardware to manufacturer's standard unless indicated otherwise.
- .10 Holes 12.7 mm (1/2") and larger shall be factory prepared.
- .11 Glazing:
 - .1 For glazing materials up to and including 8 mm (5/16") thick, doors shall be provided with 0.81 mm (0.032") (20 gauge) steel glazing trim and snap-in glazing stops.
 - .2 For glazing materials greater than 8 mm (5/16") thick, doors shall receive 0.81 mm (0.032") (20 gauge) steel trim and screw fixed glazing stops. Screws shall be #6 x 32 mm (1-1/4") oval head Tek™ (self-drilling) type at 305 mm (12") on centre maximum.
 - .3 Glazing trim and stops shall be accurately fitted (within 0.39 mm (0.015") tolerance), butted at corners, with removable glazing stops located on the 'push' side of the door.
- .12 Fabricate closing stiles of paired doors as indicated or scheduled.

2.6 Fabrication - Steel Frames

- .1 General: Applicable to frames, sidelights, and window assemblies.
- .2 Interior and non-thermally broken frames; welded:
 - .1 Fabricated from: 1.70 mm (0.067") (14 gauge) steel for frames noted as heavy duty.
 - .2 Supplied set-up and welded (SUW).
- .3 Factory assembled frame product shall be square, free of defects, warps or buckles.
- .4 Set-up and welded corner joints (SUW):

Steel Doors and Frames

- .1 Profile welded—punch mitred, continuously welded on inside of the profile faces, rabbets, returns and soffit intersections, with exposed faces filled and ground to a smooth, uniform seamless surface, as defined in the CSDMA - "Recommended Specifications for Commercial Steel Door and Frame Products".
- .5 Set-up and welded joints at mullions, sills and center rails:
 - .1 Coped accurately, butted and tightly fitted.
 - .2 At intersecting flush profile faces, securely weld, fill and grind to flush, smooth, uniform, seamless surface.
 - .3 At intersecting recessed profile faces, securely weld to concealed reinforcements, with exposed hairline face seams.
 - .4 At other intersecting profile elements make exposed face seams to hairline tolerance.
- .6 Where required due to site access, when required for co-ordination or installation, or shipping limitations, frame product shall be fabricated in sections for splicing in the field.
 - .1 Field spliced jambs, heads and sills shall be provided with 1.34 mm (0.053") (16 gauge) steel splice plates securely welded into one section, extending 100 mm (4") minimum each side of splice joint.
 - .2 Field splices at closed sections (mullions or center rails) shall be 1.34 mm (0.053") (16 gauge) steel splice angles securely welded to the abutting member. Face of splice angle shall extend 100 mm (4") minimum into closed sections when assembled.
 - .3 Field splice joints shall be welded, filled and ground to present a smooth uniform surface by the installation company responsible for installation after assembly.
- .7 On factory assembled frame product, provide 2 temporary steel shipping bars welded to the base of the jambs or mullions to maintain alignment during shipping and handling. Remove shipping bars prior to anchoring of frames to floor.
- .8 Each door opening shall be prepared for single stud door silencers. Silencers shall be shipped loose for installation by installer, after finish painting.
 - .1 Single interior doors: 3 at strike jamb.
 - .2 Pair of interior doors: 2 at header.
 - .3 Weather-stripped doors: None required.
 - .4 Sound, light, or smoke sealed doors: None required.
- .9 Prior to shipment, mark each frame with an identification number as shown on the approved submittal drawings.
- .10 Provide mullions and transom bars of closed construction type. For fixed condition, attach members to frame with butt-welded joints. For removable condition, attach members with removable mullion anchors.
- .11 Conceal fastenings unless otherwise indicated.

Steel Doors and Frames

- .12 Anchor frames to floor by 1.34 mm (0.053") (16 gauge) thick angle clips, welded to frame and provide with 2 holes for floor anchorage.
- .13 Grind welded corners to a flat plane, fill with metallic paste filler and sand to uniform smooth finish.
- .14 Protect strike and hinge reinforcements using guard boxes welded to frames at masonry construction.
- .15 Reinforce head of frames wider than 1220 mm (48").
- .16 Brace frame units to prevent distortion in shipment and protect finish.
- .17 Where removable mullions provided under this section are indicated, head or transom mullion shall be reinforced. Provide loose mounting bracket/shoe mechanical fasteners and installation requirements.

2.7 Hardware Reinforcements and Preparations

- .1 Door and frame product shall be blanked, reinforced, drilled and tapped at the factory for fully templated mortise hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier.
- .2 Door and frame products shall be factory blanked and reinforced only for mortised hardware that is not fully templated.
- .3 Where surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges, or non-templated hardware are required frame product shall be reinforced only, with drilling and tapping done by field installation.
- .4 Templated holes 12.7 mm (1/2") diameter and larger shall be factory prepared, except mounting and through bolt holes, which shall be by installation on site. Templated holes less than 12.7 mm (1/2") diameter shall be factory prepared only when required for the function of the device (for knobs, levers, cylinders, thumb or turn pieces) or when these holes over-lap function holes.
- .5 Hinge reinforcements shall be 3.12 mm (0.123") (10 gauge) steel minimum, high frequency type shall be provided.
- .6 Hinge reinforcements for lead-lined doors shall be 3.12 mm (0.123") (10 gauge) minimum with each cut-out provided with 114.3 mm (4.5") heavy weight 4.6 mm (0.180") high frequency type reinforcing.
- .7 Frames shall be prepared for 114 mm (4.5") standard weight hinges minimum unless otherwise indicated.
- .8 Doors and frames in excess of 2450 mm (96") rabbet height shall be prepared for 114 mm (4.5") heavy weight 4.6 mm (0.180") hinges minimum.
- .9 Lock, strike and flush bolt reinforcements shall be 1.34 mm (0.053") (16 gauge) steel minimum, with extruded tapped holes that provide equivalent number of threads as 2.36 mm (0.093") (12 gauge).
- .10 Reinforcements for surface mounted hardware, concealed closers and holders and flush bolts shall be 1.06 mm (0.042") (18 gauge) steel minimum.

Steel Doors and Frames

- .11 Reinforcements are not required for surface applied hardware supplied with thru-bolts and spacers or sex-bolts.
- .12 Provide hardware mortises on perimeter frame members to be grouted in masonry or concrete partitions with 0.66 mm (0.026") (22 gauge) steel grout guards.
- .13 Electrified hardware:
 - .1 Where electrically or electronically operated hardware is specified on the schedules or details or the final approved schedule and templates provided by the hardware supplier, hardware enclosures and/or junction boxes, where indicated on the templates, shall be provided and inter-connected with CSA approved 12.7 mm (1/2") diameter conduit and connectors.
 - .2 Refer to electrical documents for general electrical rough-in details. At door locations indicated in electrical documents as requiring rough-in only of electrical (ie. where no electrically or electronically operated hardware is specified in the hardware schedule), provide enclosures, boxes, and conduit to permit future installation of devices without removal of grout, demounting of frames, or installation of exposed conduits.
 - .3 Frames:
 - .1 Frames with electrified devices shall include electrical connection boxes sized to accommodate devices specified in Section 08 71 00. At time of frame manufacture, electrical connection boxes shall be supplied by Divisions 26, 27, and 28 for installation into frame by work of this section.
 - .2 Frame electrical connection boxes shall be positioned flush to edge of frame face return. Clearance shall be maintained to allow wall material to be consistently applied for length of frame member. Frame connection boxes shall be welded in place and positioned to allow necessary clearance for electrical trade to install conduit and connection components, with conduit layout in a manner that takes conduit up to ceiling in an uninterrupted configuration and to accommodate wire installation.
 - .4 Doors:
 - .1 Doors with electrified devices shall be manufactured to include wire raceway in door panel to accommodate electrified devices, such as electric hinge, power transfer units, electrified locks, electrified door closures and electrified exit devices. Construction of raceways shall provide a continuous conduit or channel between entry and exit points to accommodate wire installation after door manufacture.
 - .2 Doors with electrified locks may require extended space to accommodate plug-type connection components or wire collection space. Coordinate with work of Section 08 71 00 and obtain hardware templates for electrified hardware clearly indicated on reviewed shop drawings and prior to door manufacture.

2.8 Frame Anchorage

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

Steel Doors and Frames

- .2 Each wall anchor shall be located immediately above or below each hinge reinforcement on the hinge jamb and directly opposite on the strike jamb.
- .3 Frame products for installation in new masonry walls shall be provided with steel adjustable wall anchors of the T-strap, stirrup or wire, 1.34 mm (0.053") (16 gauge) minimum or 3.96 mm (0.156") diameter wire. Straps shall be not less than 50 mm (2") x 254 mm (10") in size, corrugated and/or perforated.
- .4 Frame products installed in steel stud and drywall partitions shall be provided with 0.81 mm (0.032") (20 gauge) steel snap-in or "Z" stud type anchors.
- .5 Jambs of frames in previously placed concrete, masonry or structural steel shall be punched and dimpled to accept machine bolt anchors, 6.4 mm (1/4") diameter, located not more than 150 mm (6") from the top and bottom of each jamb. Anchor preparations and guides shall also be located immediately above or below the intermediate hinge reinforcing and directly opposite on the strike jamb. Each preparation shall be provided with 1.34 mm (0.053") (16 gauge) anchor bolt guides.
- .6 Anchor bolts and expansion shell anchors for the above preparations shall be provided by the installation company.
- .7 Where frame product is installed prior to construction of the adjacent wall, each jamb shall be provided with 1.34 mm (0.053") (16 gauge) steel floor anchors. Each anchor shall be provided with 2 holes for mounting to the floor and shall be securely welded to the inside of the jamb profile.
- .8 On sidelights or windows exceeding 3 m (9'-10") in width, installed in stud partitions, channel extensions shall be provided from the top of the frame assembly to the underside of the structure above. Extensions shall be fabricated from 2.36 mm (0.093") (12 gauge) steel formed channels, mounting angles and adjusting brackets, with mounting angles welded to the inside of frame head. Formed channels, adjusting brackets and fasteners shall be shipped loose. Channels shall be mechanically connected to mounting angles and adjusting brackets with supplied fasteners, on site, by contractor responsible for installation.

2.9 Sizes and Tolerances

- .1 Widths of door openings shall be measured from inside of frame jamb rabbet with a tolerance of ± 1.6 mm (± 0.063 ").
- .2 Heights of door openings shall be measured from the finished floor (exclusive of floor coverings) to the head rabbet of the frame with a tolerance of ± 1.2 mm (± 0.047 ").
- .3 Unless finishing hardware dictates otherwise, doors shall be sized so as to fit the above openings and allow a 3 mm (1/8") clearance at jambs and head. A clearance of 19 mm (3/4") between the bottom of the door and the finished floor (exclusive of floor coverings) shall be provided. Tolerances on door sizes shall be ± 1.2 mm (± 0.047 ").
- .4 Manufacturing tolerances on formed frame profiles shall be ± 0.8 mm (± 0.031 ") for faces, door stop heights and jamb depths. Tolerances for throat openings and door rabbets shall be ± 1.6 mm (± 0.063 ") and ± 0.4 mm (± 0.016 ") respectively. Hardware cut-out dimensions shall be as per template dimensions, ± 0.4 mm (± 0.015 ").

Steel Doors and Frames

2.10 Hardware Locations

- .1 Hardware preparations in frame product shall be as noted below and locations on doors shall be adjusted for clearances specified in paragraph 2.9 of this section.
- .2 Top of upper hinge preparation for 114.3 mm (4.5") hinges shall be located 180 mm (7.5") down from head, transom mullion or panel as appropriate. The top of the bottom hinge preparation for 114.3 mm (4.5") hinges shall be located 310 mm (12.625") from finished floor as defined in paragraph 2.9 of this section. Intermediate hinge preparations shall be spaced equally between top and bottom cutouts.
- .3 Strike preparations for unit, integral, cylindrical and mortise locks and roller latches shall be centered 1033 mm (40-5/16") from finished floor. Strikes for deadlocks shall be centered at 1220 mm (48") from finished floor. Strikes for panic or fire exit hardware shall be located as per device manufacturer's templates.
- .4 Push and/or pulls on doors shall be centered 1070 mm (42") from finished floor.
- .5 Preparations not noted above shall be as per hardware manufacturer's templates.
- .6 Hardware preparation tolerances shall comply with the ANSI A115 standards.

PART 3 - EXECUTION

3.1 Examination

- .1 Provide necessary grounds, bracing and strapping for fitting and adequate for securing of the work.
- .2 Cooperate with work of other sections to ensure fastenings set by others are provided and located, their work is installed to their specifications and that those responsible for back priming are notified in sufficient time for them to schedule work.

3.2 Installation - Steel Doors and Frames

- .1 Set frame product plumb, square, aligned, without twist at correct elevation in accordance with NAAMM-HMMA 840-1708 11 13.
- .2 Fire labelled product shall be installed in accordance with NFPA 80-2010.
- .3 Frame product installation tolerances:
 - .1 Plumbness tolerance, measured through a line from the intersecting corner of vertical members and the head to the floor, shall be ± 1.6 mm ($\pm 1/16$ ").
 - .2 Squareness tolerance, measured through a line 90° from one jamb at the upper corner of the product, to the opposite jamb, shall be ± 1.6 mm ($\pm 1/16$ ").
 - .3 Alignment tolerance, measured on jambs, through a horizontal line parallel to the plane of the wall, shall be ± 1.6 mm ($\pm 1/16$ ").
 - .4 Twist tolerance, measured at face corners of jambs, on parallel lines perpendicular to the plane of the wall, shall be ± 1.6 mm ($\pm 1/16$ ").
- .4 Brace frame product rigidly in position while building-in. Remove temporary steel shipping jamb spreaders. Install temporary wood spreaders at mid-point of frame rabbet height to maintain frame widths. Remove wood spreaders after product has been built-in.

Steel Doors and Frames

- .5 Provide vertical support at center of head for openings exceeding 1250 mm (48") in width.
- .6 Secure anchorages and connections to adjacent construction.
- .7 Adjust operable parts for correct clearances and function.
- .8 Steel surfaces shall be kept free of grout, tar or other bonding materials or sealers.
- .9 Remove grout or other bonding material from products immediately following installation.
- .10 Provide appropriate anchorage for floor and wall construction. Each wall anchor shall be located immediately above or below each hinge reinforcement on the hinge jamb and directly opposite the strike jamb. On each jamb, install 2 anchors for openings up to and including 1525 mm (60") high and install 1 anchor for each additional height of 760 mm (30") of height or fraction thereof, except as indicated below. Frames placed in previously placed concrete, masonry or structural steel shall be provided with anchors located not more than 150 mm (6") from top and bottom of each jamb, and intermediate anchors at 660 mm (26") on centre maximum.
- .11 Secure frames set in previously constructed concrete or masonry openings by countersunk expansion bolts at same centres as for adjustable Tee wall anchors. Reinforce frame at fastening location to prevent indentation of frame by fastening device.
- .12 Fill and grind smooth "punch and dimpled" frame installations.
- .13 Prior to site touch-up, exposed surfaces of galvanized steel to be finished shall be cleaned to remove foreign matter. Refer to paint manufacturers recommendations for additional information and requirements of Section 09 91 00.
- .14 Touch-up exposed field welds shall be finished to present a smooth uniform surface and with a rust inhibitive primer.
- .15 Touch-up exposed surfaces that have been scratched or otherwise marred during shipment, installation, and handling shall be with a rust inhibitive primer.
- .16 Finish paint in accordance with Section 09 91 00.
- .17 Install door silencers.
- .18 Properly fasten units and secure in place with concealed fixings wherever possible. Include grounds and furring where required.
- .19 Make allowance for deflection to ensure structural loads are not transmitted to frames.
- .20 Adjust operable parts for correct clearances and function.

3.3 Installation - Finishing Hardware

- .1 Install finishing hardware in accordance with ANSI A115.1G-1994, manufacturers' templates and instructions, and Section 08 71 00.

3.4 Adjusting and Cleaning

- .1 Adjust doors to swing freely, smoothly and easily, to remain stationary at any point, to close evenly and tightly against stops without binding, and to latch positively when doors are closed with moderate force.

Steel Doors and Frames

- .2 Adjust hardware so that latches and locks operate smoothly and without binding, and closers act positively with the least possible resistance in use. Lubricate hardware if required by *Supplier's* requirements.
- .3 Adjust doors equipped with closers to close doors firmly against anticipated wind and building air pressure, and to enable doors to be readily opened as suitable for function, location, and traffic.
- .4 Clean hardware after installation in accordance with *Supplier's* requirements.

END OF SECTION

Interior Aluminum Sliding Glass Doors

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Interior aluminum manually operated sliding glass doors.

1.2 Administrative Requirements

- .1 Conduct a pre-installation meeting in accordance with Section 01 31 19.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Shop drawings:
 - .1 Submit engineered shop drawings.
 - .2 Indicate seismic design, connections and restraint.
 - .3 Clearly indicate each type of frame and screen, extrusion profiles, method of assembly, section and hardware reinforcement and mounting plates, locations of exposed fasteners, finishes, glazing systems, glass type, accessories, air and water barrier and drainage path, and as required to completely represent the proposed door system.
 - .4 Indicate fastening system for anchorage of door frame to opening, and structural design for each door type and size, structural designed under seal of qualified professional engineer registered in the *Place of the Work*.
- .4 Samples:
 - .1 Submit samples of colour and finish prepared as specified on respective metal components.
 - .2 Identify samples as to treatment, thickness, alloy, framing composition, colour, manufacture, performance standard and portion of the work to which they apply.
 - .3 Fabrication shall not proceed without written acceptance of samples from *Consultant*.
- .5 Test reports:
 - .1 Submit relevant test report prepared by accredited independent testing laboratory, showing compliance with the design criteria of this section.

1.4 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Maintenance data:

Interior Aluminum Sliding Glass Doors

- .1 Submit maintenance data for cleaning and maintenance of work of this section, in accordance with Section 01 78 00.

1.5 Quality Assurance

- .1 Qualifications:
 - .1 Company:
 - .1 Has adequate plant, equipment, and skilled workers to perform the work expeditiously.
 - .2 Has successfully completed installations similar to that specified during a period of at least the immediate past 5 years.
 - .2 Installers:
 - .1 Provide at least one trade specialist who shall be thoroughly trained and experienced in skills required, be completely familiar with referenced standards and requirements of this work, and personally direct installation performed under work of this section.
 - .2 Foreperson experience: Shall have 10 years' experience, minimum, as glazing mechanic.
 - .3 Typical glazing mechanic experience: Shall have 3 years' experience, minimum, as glazers.
- .2 Mock-up:
 - .1 Install door mock-up in location as directed. Include foamed-in-place insulation, air barriers, and connections to structure, sills, and other related work.

1.6 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranty:
 - .1 System:
 - .1 Labour, materials, and workmanship for work of this section.
 - .2 The warranty is a total system warranty, and includes hardware, operators, finishing, delivery, hanging, fitting, and refinishing of door and hardware.
 - .3 Duration: 2 years.
 - .2 Glass and glazing:
 - .1 In accordance with Section 08 80 00.

Interior Aluminum Sliding Glass Doors

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

- .1 Reinforce units to withstand handling stresses, temperature changes, the effect of shrinkage forces, seismic and wind loads, dead and live loads, related elements as calculated in accordance with building code.
- .2 Design components to achieve sufficient freedom of movement of members to allow for thermal expansion and contraction within the range of air and surface temperatures as applicable to the location of the components without causing harmful buckling, opening of joints, distortion, undue stress on fasteners, breakage of sealants, or other detrimental effects.
- .3 Make provision for drainage to the exterior.
- .4 Design light gauge aluminum *Products* to CSA CAN3-S157-M83.
- .5 Design and fabricate doors to AAMA/WDMA/CSA 101/I.S.2/A440-11.
- .6 Design and anchor work so that there will be no objectionable distortion or seriously stressed fastenings as the metal expands and contracts. Design and fabricate expansion joints to ensure that they will be, and remain, permanently watertight. Locate joints as shown on reviewed shop drawings. Provide necessary wind bracing as required.
- .7 Design mullions for maximum deflection of 1/175.
- .8 Design to drain to exterior face of the door assembly, any water entering at joints and any condensation occurring within the door assembly.
- .9 Opening force requirement:
 - .1 Shall be 2.2 kgs (5 lbs) or less for standard door, self-closing mechanism may increase opening force.
- .10 Header capacity: Maximum 90.7 kg (200 lbs) per slide panel.

2.2 Sliding Glass Door System

- .1 Acceptable Product:
 - .1 Horton Automatics 'FlexBarn Series Door and Framing System'.
 - .1 Aluminum Door and Cased Valence with Low-Profile Header X-A61.2.
 - .2 Substitutions: in accordance with Section 01 25 00.

2.3 Configuration

- .1 Single slide, non-breakout, door system:
 - .1 Configuration: Single slide door unit.
 - .2 Minimum clear slide opening width: 914 mm (36").
 - .3 Self closing.
 - .4 Soft close and soft open dampening system.

Interior Aluminum Sliding Glass Doors

- .5 Mounting: Gypsum board cased with interlocked header on exterior.

2.4 Door Units

- .1 Door units, include header with roller track, carrier assemblies with interlocking valance framing system, concealed floor guide(s), slide door panel(s), and accessories required for complete installation.
- .2 Door type:
 - .1 Type 010: Sliding panel(s) shall slide along interior side.
 - .2 Hand: P-X or X-P, as indicated or scheduled.
- .3 Slide panels:
 - .1 Aluminum:
 - .1 44 mm (1-3/4") deep with medium stile construction, with vertical and top horizontal seals.
 - .2 Bottom rail: 254 mm (10") high.
 - .3 Standard glazing prep: 6 mm (1/4") glass.
 - .4 Mid rail (horizontal muntin): 57 mm (2-1/4") high.
- .4 Accessories:
 - .1 Locking hardware: as *Provided* by manufacturer.

2.5 Materials

- .1 Aluminum: Extruded aluminum in accordance with ASTM B221, Aluminum Association alloy AA6063-T5 and temper, anodized.
- .2 Aluminum panels:
 - .1 Aluminum alloy:
 - .1 AA3003-H14 Painting Quality.
 - .2 AA5005H14 Anodizing Quality.
- .3 Glazing materials: Refer to Section 08 80 00.
- .4 Fasteners; aluminum framing: No exposed fasteners. Type as recommended by manufacturer.
- .5 Fasteners: Type as recommended by manufacturer.
- .6 Isolation coating: alkali resistant bituminous paint or epoxy solution.
- .7 Glass and glazing: in accordance with Section 08 80 00.

2.6 Finishes

- .1 Exposed aluminum surfaces; anodized to AAMA 611-20:
 - .1 Clear anodized to AA Designation AA-M12C21A41 or AA-M12C22A41 (Class I) at exterior, AA-M12C21A31 or AA-M12C22A31 (Class II) at interior.

Interior Aluminum Sliding Glass Doors

2.7 Fabrication

- .1 Make allowances for deflection of structure and temperature movement. Ensure that structural loads are not transmitted to aluminum work.
- .2 Fit intersecting members to flush, hairline, and weather tight joints and mechanically fasten together.
- .3 Conceal fastenings from view, unless otherwise indicated.
- .4 Fabricate items fitting to the building from measurements taken on the *Work* as verified from the *Work* as built. Full responsibility for the proper coordination of the different components of the cladding and doors rests with this section.
- .5 Fabricate and assemble work of this section by skilled glazing installers. Do forming operations prior to finishing.

PART 3 - EXECUTION

3.1 Examination

- .1 Take dimensions at the *Place of the Work* to ensure that adjustments in fabrication or installation are incorporated, that allowance is made for possible deflection of structure at heads and that clearance to other constructions have been maintained.
- .2 Ensure that anchors and inserts, installed by others are adequate to meet specified requirements.

3.2 Installation

- .1 Install in accordance with reviewed shop drawings.
- .2 Install work plumb, square, level, free from warp, twist and superimposed loads.
- .3 Secure work in required position. Do not restrict thermal movement.
- .4 Install hardware in accordance with templates.
- .5 Adjust operable parts for correct function.
- .6 Install in accordance with CAN/CSA A440.4-07 and requirements of building code.
- .7 Fasten jambs at 450 mm (18") on centre maximum spacing with corrosion resistant anchors, and aluminum anchor plates as required.
- .8 Explosive actuated or power actuated fasteners will not be permitted.

3.3 Glazing

- .1 Glaze aluminum doors with specified glazing tapes, blocks, and spacer shims in accordance with Section 08 80 00.

3.4 Sealant

- .1 Apply sealant between frame members, sills and adjacent construction as a part of the work of this section and in accordance with Section 07 92 00 – Joint Sealants.

Interior Aluminum Sliding Glass Doors

3.5 Field Quality Control

- .1 Quality control to be in accordance with Section 01 45 00.
- .2 Manufacturer's field review to be in accordance with Section 01 45 00.

END OF SECTION

Aluminum Security Sull Sash System

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Interior aluminum operable security mental health type windows, with motorized blinds.

1.2 Administrative Requirements

- .1 Coordination:
 - .1 Coordinate with other sections to ensure satisfactory and expeditious completion of the *Work*.
 - .2 Coordinate the work of the toggle switch, motorized blinds, and disable switch with the work of Divisions 26, 27, and 28.
- .2 Conduct a pre-installation meeting in accordance with Section 01 31 19.
 - .1 Independent inspection and testing company shall attend the pre-installation meeting.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Shop drawings:
 - .1 Submit engineered shop drawings.
 - .2 Include schedule identifying each unit, with sull sash unit marks and numbers relating to numbering on drawings and schedule.
 - .3 Indicate impact-safety ratings for each glass type for design and performance requirements.
 - .4 Clearly indicate each type of frame and screen, extrusion profiles, method of assembly, section and hardware reinforcement and mounting plates, locations of exposed fasteners, finishes, glazing systems, glass type, hardware, accessories, and as required to completely represent the proposed window system.
 - .5 Indicate fastening system for anchorage of windows to opening, and structural window design for each window type and size, structural designed under seal of qualified professional engineer registered in the *Place of the Work*.
 - .6 Motorized electrified hardware requirements and preparations shall be clearly indicated on shop drawings.
- .4 Samples:

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- .1 Submit samples of frame, sill and mullion sections, blinds, hardware and accessories, fasteners for connection of frame to opening, glazing tape, glass retainers, glazing gaskets, screening and frame, spandrel panels and each finish material and any other material, as requested.
- .2 Samples of colour and finish prepared as specified on respective metal components for both extrusion and sheet.
- .3 Identify samples as to treatment, thickness, alloy, framing composition, colour, manufacture, performance standard and portion of the work to which they apply.
- .4 Fabrication shall not proceed without written acceptance of samples from *Consultant*.
- .5 Test and evaluation reports:
 - .1 Submit relevant test report prepared by accredited independent testing laboratory, showing compliance with the design criteria of this section, including:
 - .1 Glazing units can withstand attack resistance loads as specified in mock-ups paragraph.
 - .2 Performance tests; Mental Health Areas:
 - .1 A recognized certified independent testing laboratory or agency shall perform tests specified herein.
 - .1 Provide certified test results showing that each type, grade, and largest size of operable sull sash unit complies with performance requirements.
 - .2 Submit performance tests reports for body and hard object impact resistance tests.

1.4 Closeout Submittals

- .1 Operation and maintenance data:
 - .1 Submit manufacturer's operation and maintenance instructions for incorporation into the operation and maintenance manuals in accordance with Section 01 78 00.

1.5 Quality Assurance

- .1 Qualifications:
 - .1 Installers:
 - .1 *Subcontractors*: Shall have 5 years' experience, minimum, in application of *Products*, systems and assemblies specified and with approval and training of *Product* manufacturers.
 - .2 Foreperson experience: Shall have 10 years' experience, minimum, as glazing mechanic.
 - .3 Typical glazing mechanic experience: Shall have 3 years' experience, minimum, as glazers.

Aluminum Security Sull Sash System

- .4 Welding: Perform welding of structural components only by fabricators certified by Canadian Welding Bureau to CSA Welding qualification codes; CSA W47.1-19 for welding of steel, and CSA W47.2-11(R2020) for welding of aluminum.
- .2 Mock-ups:
 - .1 Provide in-situ full size panel of sull sash assembly mock-up, including flashings, anchors, shims, complete with finish and glazing, 1 bay minimum in width including 2 vision panels and 1 spandrel panel above, at location as directed by Consultant. Include insulation, and connections to structure, sills, and other related work.
 - .2 Replace mock-up as many times as required for approval. Do not proceed until mock-up has been accepted by Consultant.
 - .3 Reviewed mock-ups shall become the standard for the *Work*.
 - .4 Reviewed mock-ups may remain as part of the finished *Work*.

1.6 Product Handling

- .1 Comply with AAMA CW-10 – Care and Handling of Architectural Aluminum from Shop to Site.

1.7 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranty:
 - .1 System:
 - .1 Labour, materials, and workmanship for work of this section.
 - .2 The warranty is a total system warranty, and includes hardware, sealants, hanging and fitting, and finishing.
 - .3 Duration: 2 years.

PART 2 - PRODUCTS

2.1 Manufacturer

- .1 Comply with design requirements and building code.
- .2 Acceptable Product:
 - .1 Sherwood Windows 'SS 6200 Security System Profile'.
 - .2 Substitutions: in accordance with Section 01 25 00.

2.2 Performance/Design Requirements

- .1 Reinforce units to withstand handling stresses, temperature changes, the effect of shrinkage forces, dead and live loads, and related loads.
- .2 Design, fabricate, and install work of this section in compliance with building code.

Aluminum Security Sull Sash System

- .3 Design components to achieve sufficient freedom of movement of members to allow for thermal expansion and contraction within the range of air and surface temperatures as applicable to the location of the components without causing harmful buckling, opening of joints, distortion, undue stress on fasteners, breakage of sealants, or other detrimental effects.
- .4 Windows to meet impact requirements in accordance with AAMA 501.8-23 and ANSI/NAAMM Standard 863-04.
 - .1 Windows shall withstand 2000 ft-lb impact load from a 305 mm (12") diameter impact object from the interior of the mental health room without any breach, dislodging, or breakage of the system.
- .5 Design system to comply with building code requirements.
- .6 Design and anchor work so that there will be no objectionable distortion or seriously stressed fastenings as metal expands and contracts. Design and fabricate expansion joints to ensure that they will be, and remain, permanently watertight. Locate joints as shown on reviewed shop drawings.
- .7 Deflection limits:
 - .1 A static air design uniform load of 20 psf shall be applied in positive and negative direction in accordance with ASTM E330.
 - .2 Maximum deflection of 1/175 of span or 12 mm (1/2") whichever is less, under design loading.
 - .3 Limit deflection of any members, in direction parallel to wall plane, when members carries its full design load, not to exceed 75% of design clearance dimension between that member and panel, glass or other part immediately below it.
 - .4 *Provide* for deflection of the structure to ensure that structural loads are not transmitted to the glazing and related work.
- .8 Design total system to specified performance and ensure that proper and recommended use of materials forming part of the work.
- .9 Design structural support framing components to CSA A157 under direct supervision of a professional structural engineer experienced in design of work in this section and licensed at the *Place of the Work*.
- .10 Components shall be secured by concealed means. Attach in a manner which shall permit replacement of components or units without dismantling or disturbing adjoining components or units. Such replacement shall be carried out without the use or addition of extra screws, splices, covers and similar items, that alter the original design features.
- .11 Units shall be tamperproof and removable for cleaning and maintenance.

2.3 Materials

- .1 Aluminum:
 - .1 Sheet and plate: in accordance with ASTM B209/B209M-21a, alloy and temper, with special hardness for flat plate application.
 - .2 Extruded aluminum: in accordance with ASTM B221-21.

Aluminum Security Sull Sash System

- .3 Aluminum sheet for enclosures, cover plates, and trims: in accordance with ASTM B221-21.
- .2 Anchors, clips, and accessories:
 - .1 Exposed stainless steel, in accordance with ASTM A167-99(2009), Series Type 304 or Type 300 or hardened aluminum.
 - .2 Shall be of suitable strength to suit Project requirements.
- .3 Miscellaneous metals: in accordance with Section 05 50 00.
- .4 Interior sash frames:
 - .1 Medium security sash framing: Extruded aluminum sections having a minimum wall thickness of 3 mm (1/8"), reinforced as required.
 - .2 Compressible filler: type as recommended by manufacturer.
 - .3 Security screws:
 - .1 In accordance with ANSI B18.6.3.
 - .2 Screws:
 - .1 Tamper resistant Torx Plus/5-Lobe Security Screws complete with post type screws, unless otherwise indicated.
 - .2 Provide flathead security screws where Torx Plus is indicated to be countersunk, otherwise provide Trusshead or buttonhead for Torx Plus.
 - .3 Type as recommended by manufacturer.
 - .4 Fastenings: Stainless steel austenitic, 300 Series.
 - .5 Aluminum screws and bolts: Type as recommended by manufacturer.
- .5 Cover caps: Extruded aluminum with factory finish applied clear anodized finish.
- .6 Interior steel reinforcing: Type as recommended by manufacturer.
- .7 Interior frame sealant; silicone:
 - .1 Acceptable *Products*:
 - .1 Low modulus: DOWSIL '790', as recommended by manufacturer.
 - .2 Medium modulus: DOWSIL '795', as recommended by manufacturer.
 - .3 Substitutions: in accordance with Section 01 25 00.
- .8 Isolation coating: alkali resistant bituminous paint or epoxy solution.
- .9 Primers, joint backing and sealants: as recommended by manufacturer.
- .10 Glass and glazing materials: Refer to requirements specified in Section 08 80 00, and as recommended by manufacturer.
- .11 Glass and glazing:
 - .1 Security glazing for mental health areas:
 - .1 In accordance with ANSI Z97.1-2004.

Aluminum Security Sull Sash System

- .2 Units shall be listed and labelled as capable to meet attack resistance requirements as indicated.
- .3 Glass manufacturers: in accordance with Section 08 80 00, and as recommended by manufacturer.
- .4 Security glazing unit:
 - .1 Glass configuration: Clear tempered glass clad polycarbonate, 17.5 mm (11/16") thick.
 - .1 4.8 mm (3/16") thick tempered glass in accordance with ASTM C1048-18
 - .2 1.27 mm (0.050") thick bonding interlayer.
 - .3 6.4 mm (1/4") thick clear uncoated polycarbonate.
 - .4 1.27 mm (0.050") thick bonding interlayer.
 - .5 4.8 mm (3/16") thick tempered glass in accordance with ASTM C1048-18
- .2 Sull sash hardware:
 - .1 Aluminum perimeter subframe and operable frame complete with mitred corners, reinforced and welded.
 - .2 Fixed / removable sash frame shall have:
 - .1 Concealed heavy duty extruded aluminum keepers with stainless steel pins that allow the sull sash to be removed from the frames.
 - .2 Concealed multipoint locking system with removable cover plate for service.
- .3 In-between glass blinds:
 - .1 25 mm aluminum venetian blinds, silver colour.
 - .2 Operation:
 - .1 Manual operator:
 - .1 Provide non-ligature recess mounted dial operator at sull sash jamb, no higher than 1191 mm above finished floor level.
 - .2 Motorized:
 - .1 Blinds shall be motorized with toggle switch in the patient room, location as directed by *Consultant*.
 - .2 Keyed power disable switch shall be located outside of mental health patient room.
 - .3 Electrical operation:
 - .1 Motor voltage, motor type, and hardware as determined by manufacturer based on glass opening sizes and number of glass panels per motor.

Aluminum Security Sull Sash System

- .2 Electrical motors, controller units, remote pushbutton stations, relays and other electrical components: CSA and ULC/c-UL approved.
- .12 Insulation for packing into frame cavities:
 - .1 Resilient, fibrous glass insulation, in accordance with CAN/ULC S702-14, density 12 kg/m² (0.75 lbs/ft³).
- .13 Primer; zinc rich chromate primer: in accordance with CAN/CGSB 1.40-97.
 - .1 Touch up paint: as recommended by manufacturer.

2.4 Finishes

- .1 Exposed aluminum surfaces; anodized to AAMA 611-20:
 - .1 Clear anodized to AA Designation AA-M10C22A41.
- .2 Finish exposed metal fasteners, if applicable, to related aluminum surfaces.
- .3 Finish steel clips and reinforcing steel with 380 g/m² (13.4 oz/ft²) zinc coating to CAN/CSA G164-M92.

2.5 Fabrication

- .1 Anchors shall be factory prefabricated, bent and formed.
- .2 Make allowances for deflection of structure and temperature movement. Ensure structural loads are not transmitted to aluminum work.
- .3 Incorporate structural steel reinforcement for strength, stiffness and connections, as required.
- .4 Fit intersecting members to flush, hairline, and weather tight joints and mechanically fasten together.
- .5 Conceal fastenings from view, unless otherwise indicated.
- .6 Reinforce aluminum to suit hardware requirements.
- .7 Fabricate items fitting to building from as-built measurements taken at the *Place of the Work*. Full responsibility for proper coordination of different components of cladding and windows rests with this section.
- .8 Fabricate glazed framing to provide uniform rough opening dimension:
 - .1 Maximum tolerance will be +/- 3 mm (1/8") for rough opening joint width.
- .9 Fabricate and assemble work by skilled glazing installers. Do forming operations prior to finishing.
- .10 Insofar as practical, jig assemble components in the shop and partially disassemble where necessary before moving to the *Place of the Work* and re-assemble just prior to installation. Fabricate windows to shape, profiles, spacing, sections and arrangements. Do fitting and assembling in the shop accurately square and true. Carefully fit and screw joints and reinforce with corners permanently sealed to prevent infiltration of air or moisture. Fabricate and erect units to ensure a windproof and watertight installation.

Aluminum Security Sull Sash System

- .11 Utilize aluminum condensate collection channels at bottom of windows at interior face, and aluminum closure strips between windows and underside of concrete slabs, where applicable.
- .12 Fill perimeter frames with rigid insulation.
- .13 Fabricate spandrels with cut-outs at mechanical exhaust vents. Wrap opening and seal to prevent moisture access to spandrel core.
- .14 Fixed frames:
 - .1 Fasten frames to support framing. Provide slotted connections as required to accommodate deflection of opening components.
 - .2 Seal hairline joints at junctions of frame members. Gun-inject sealant from inside ensuring a continuous seal of the joint. Verify that bead in the glazing space does not impair seating of glazing materials. Remove excess sealant which is forced onto face of frame assembly.
 - .3 Provide snap-on aluminum extrusion glazing stops for frames designed for inside glazing. No exposed fixings permitted.
 - .4 Fabricate frame systems designed for glazing complete with mullions, head and sill frames, spigots, and plugs for horizontals, spline gaskets, pressure plates, filler pieces, snap-on caps and other necessary components.
 - .5 Provide fillers, cut-outs and reinforcement in door frames to receive hardware.
 - .6 Provide continuous extruded aluminum angles to form a reveal at junctions of head frames and suspended ceilings where applicable and junctions of jamb frames and adjacent construction.

PART 3 - EXECUTION

3.1 Examination

- .1 Take dimensions at the *Place of the Work* to ensure that adjustments in fabrication or installation are incorporated, that allowance is made for possible deflection of structure at heads and that clearance to other constructions have been maintained.
- .2 Ensure that anchors and inserts, installed by others are adequate to meet specified requirements.

3.2 Installation

- .1 Install work plumb, square, level, free from warp, twist and superimposed loads.
- .2 Secure work in required position. Do not restrict thermal movement.
- .3 Install hardware in accordance with templates.
- .4 Adjust operable parts for correct function.
- .5 Install in accordance with CAN/CSA A440.4-07 and requirements of building code.
- .6 Insulate hollow corner window sections where enclosed within this section's work.

Aluminum Security Sull Sash System

- .7 Fasten window jambs at 450 mm (18") on centre maximum spacing with corrosion resistant anchors, and aluminum anchor plates as required.
- .8 Install slab edge firestopping in accordance with Section 07 84 00, if applicable.
- .9 Explosive actuated or powder actuated fasteners will not be permitted.

3.3 Glazing

- .1 Glaze aluminum windows with specified glazing tapes, blocks, and spacer shims in accordance with Section 08 80 00.

3.4 Sealant

- .1 Apply sealant between frame members, sills and adjacent construction as part of the work of this section and in accordance with Section 07 92 00.

3.5 Electrical Wiring

- .1 Power shall be brought up to circuit breaker/disconnect switch adjacent to controller under Divisions 26, 27, and 28 and in conformance with requirements specified therein.
- .2 Wiring from motor to switches, controls, starters, safety devices and other items requiring power shall be carried out under this Section in accordance with requirements of Divisions 26, 27, and 28.
- .3 Use EMT conduit for fixed wiring. Use purpose-made and approved type flexible cables or cords at applicable locations; adequately support so as not to impede access or foul moving parts of equipment.

3.6 Field Quality Control

- .1 Conduct quality control in accordance with Section 01 45 00.
- .2 Manufacturer's field review to be in accordance with Section 01 45 00.

END OF SECTION

Finish Hardware

PART 1 - GENERAL

1.1 Summary

.1 Section includes:

- .1 Supply and off-load to place in a clean, dry, and secure room at the *Place of the Work*, which has been designated for storage of all finish hardware specified including necessary fastening devices.
- .2 Supply all finish hardware required and not supplied under other Sections.
- .3 Check and verify hardware information on door and frame shop drawings, prior to fabrication.
- .4 Packaging, labelling, provision of installation instructions, templates, fixings and similar items, and delivery to the *Work* site.
- .5 Give assistance at the *Place of the Work* to organize hardware storeroom and supply qualified staff to correctly categorize, mark, and arrange each item in groups to enable efficient dispensing in specified hardware groups for each door to installation trades.
- .6 Provide qualified staff at the *Place of the Work* promptly to assist installation trades subsequent to being requested and to ensure that hardware is being correctly installed.
- .7 Upon completion of installation of hardware, hardware *Supplier* shall arrange and conduct, in company of *Consultant* and *Contractor*, inspections to verify that all hardware is installed and functioning satisfactorily, and where necessary shall recommend adjustments of such items as closer arms, valves, door holders and latch and locksets. Report comments in writing to *Consultant* and *Contractor*.
- .8 Supply temporary locking cylinders and keys for construction purposes. Locks used for *Contractor* security shall be keyed as required to conform to building operations' security requirements.

1.2 Administrative Requirements

.1 Coordination:

- .1 Coordinate work of this section to ensure information and material is promptly provided, to ensure orderly and expeditious progress of the *Work*, and to comply with schedule for completion.
- .2 Within 3 weeks of *Contract Award*, submit confirmed orders to manufacturers/*Suppliers* to *Consultant*.
- .3 Assist *Contractor* to organize hardware storeroom and supply qualified staff to correctly categorize, mark, and arrange each item in groups to enable efficient dispensing in specified hardware groups for each door to installation trades.

Finish Hardware

- .4 Coordinate the work of this section to ensure supplied hardware can function as required and can be installed within the particular details of the door and frame assemblies. Hardware that cannot be installed or will not function as intended will be replaced at no cost to the *Owner*.
- .2 Conduct a pre-installation meeting in accordance with Section 01 31 19.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Schedules and samples:
 - .1 Prepare and submit for review, a finish hardware schedule with technical product data sheets for use in the *Work*. List type, selected manufacturer's name and number, location, mounting heights and finish of hardware, and complete cross reference to door schedule.
 - .2 The indication or omission of a hardware component on the hardware schedule does not remove the responsibility of this section to ensure that all hardware can be installed and will function as intended.
 - .3 Submit samples of complete line of hardware and finishes. Identify samples indicating hardware item numbers used in the Finish Hardware Schedule, manufacturer's numbers, names, types, finishes, sizes and indication of door location(s). Approved samples will be retained for comparisons and returned upon completion of the *Work*.
 - .4 Prepare and submit for review, a keying schedule recognizing *Owner* requirements which shall be determined after award of *Contract*.
- .4 Templates:
 - .1 Submit for distribution, 3 copies of templates, template information, installation instructions and details necessary to enable preparation for, and installation of finish hardware in accordance with Door Hardware Institute recommended procedures. Submit templates arranged and marked coincident with specified hardware designations.
 - .2 Submit promptly when requested, the foregoing information in 3-ring plastic hard-covered binders suitably identified.
 - .3 In lieu of 1.3.4.1 arrange for the issue by each hardware manufacturer, the manufacturer's standard book of template drawings, at the option of door and frame manufacturers.
- .5 Jigs:
 - .1 Submit template jigs for each component to be recessed to enable installation trades to prepare doors to preclude misalignment and improper fit.

Finish Hardware

1.4 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Operation and maintenance data:
 - .1 Instruct the *Owner's* designated representative in proper care and preventative maintenance of hardware to assure longevity of operation.
 - .2 Submit maintenance data for cleaning and maintenance of finish hardware.
- .3 Submit to building maintenance staff prior to date of *Substantial Performance of the Work*, two sets of wrenches for door closers, locksets and fire exit hardware.

1.5 Quality Assurance

- .1 Qualifications:
 - .1 *Supplier*:
 - .1 Shall have 5 years' experience, minimum, in *Products*, systems and assemblies specified and with approval of *Product* manufacturers.

1.6 Product Handling

- .1 Package each item of hardware individually, complete with trim and necessary fastenings, and accessories, including wrenches, keys, and other appurtenances required for correct installation. Mark each package as to contents and appropriate use in specified groups.
- .2 Items of hardware subject to handling when installed shall be submitted with an easily removable covering to protect against scratches, abrasions, coating with dissimilar finish materials on adjacent surfaces, and tarnishing.

1.7 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranty:
 - .1 Manufacturer's standard extended warranties.
 - .2 Labour, materials, and workmanship for work of this section.
 - .1 Duration: 2 years.
 - .3 Closers:
 - .1 Duration: 5 years.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

- .1 Comply with codes and requirements of governing authorities, and as specified.
- .2 Provide hardware items with characteristics to meet specified fire ratings, and conform to exit requirements of governing authorities.

Finish Hardware

2.2 Materials

- .1 Finish hardware: in accordance with Finish Hardware Schedule.

PART 3 - EXECUTION

3.1 Examination

- .1 Before furnishing any hardware, carefully check *Contract Documents*, verify door swings, door and frame materials and operating conditions, and assure that hardware will fit work to be attached.
- .2 Check shop drawings and frame and door lists affecting hardware type and installation, and verify to correctness thereof, or advise of required revisions. Check that doors, frames and panels requiring additional support are reinforced.
- .3 Point out special requirements to installer. Make final adjustment of hardware, in particular closer arms, valves and locksets, to work properly.

3.2 Installation

- .1 Install in accordance with manufacturer's written installation requirements. Refer also to installation requirements indicated, and specified in other sections of specifications.
- .2 Accurately locate and adjust hardware to meet manufacturer's written requirements. Use special tools and jigs as recommended.
- .3 Locate door stops to contact doors 75 mm (3") from latch edge.
- .4 Refer to Section 08 14 00 with respect to factory preparation for hardware for wood doors. Install wood doors and applicable hardware, including hinges.
- .5 Take delivery of finishing hardware and install, except hardware specified as part of work of another section. Check each item as received.
- .6 Set, fit and adjust hardware according to manufacturer's directions, at heights later directed by *Consultant*. Hardware shall operate freely. Protect installed hardware from damage and paint spotting.
- .7 Sound and weather seals:
 - .1 Install seals to continuously seal entire perimeter of doors. Secure in place with non-ferrous screws, in accurate alignment.
 - .2 Maintain integrity of seal at head of doors fitted with closers. Adapt seals as required to achieve specified performance.
- .8 Pre-drill kickplates and doors prior to installation of kickplates. Apply with water-resistant adhesive and countersunk stainless steel screws.
- .9 Set thresholds on two continuous beads of polyurethane caulking fastened with a minimum of 4 countersunk screws.
- .10 At wood doors, use screw attachment for exit devices and closers except as follows:
 - .1 Use through-bolt attachment for exit devices and closers at mineral core doors.

Finish Hardware

3.3 Electrified Hardware

- .1 Install electronic components, security components such as magnetic locks, sentronic hold open devices door status switches, card readers, processors, transformers, and other electric devices.
- .2 Power wiring will be supplied and installed by Electrical Divisions 26, 27, and 28 including conduit, boxes and other electrical appurtenances, including connections and terminations. Be responsible for ensuring that all wiring work is done in accordance with the *Suppliers* wiring diagrams and directions.
- .3 Arrange for testing and commissioning of system by the distributor of the system. Submit a copy of reports to the *Consultant*.

3.4 Keying

- .1 Construction Master Keys: Provide cylinders with feature that permits voiding of construction keys without cylinder removal. Provide 10 construction master keys.
- .2 Submit Construction Master Keying (CMK) and Grand Master Keying (GMK) upon completion of the work of this section.

3.5 Field Quality Control

- .1 Field tests and inspections:
 - .1 Inspect the installation of finish hardware on an agreed frequency.
 - .2 Advise in writing of work being performed that will prejudice the installation or correct operation of items of hardware.
 - .3 Ensure items have been installed complete with required trim and accessories, and fastenings are adequately secured and approved. Ensure closer arms, valves, holder devices, locksets and latchsets are correctly adjusted.

3.6 Adjusting and Cleaning

- .1 Adjust doors to swing freely, smoothly and easily, to remain stationary at any point, to close evenly and tightly against stops without binding, and to latch positively when doors are closed with moderate force.
- .2 Adjust hardware so that latches and locks operate smoothly and without binding, and closers act positively with the least possible resistance in use. Lubricate hardware if required by *Supplier's* requirements.
- .3 Ensure that doors equipped with closers operate to close doors firmly against anticipated wind and building air pressure, and to enable doors to be readily opened as suitable for function, location and traffic.
- .4 Clean hardware after installation in accordance with *Supplier's* requirements.

END OF SECTION

DOOR HARDWARE

08 71 00

PROJECT:



THP Credit Valley Hospital
2nd Inpatient Mental Health
Spruce Suite Renovation

ARCHITECT:



401 Wellington St. W.
Suite 100
Toronto, ON

Prepared By: Mohammad Alnabelsi

Date: May 31, 2024

Revised:

Architectural Hardware Finishes

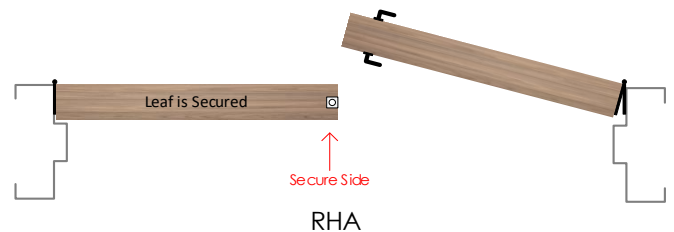
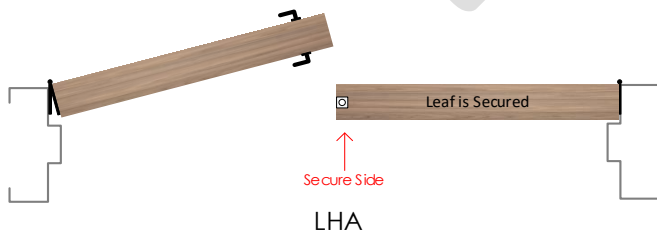
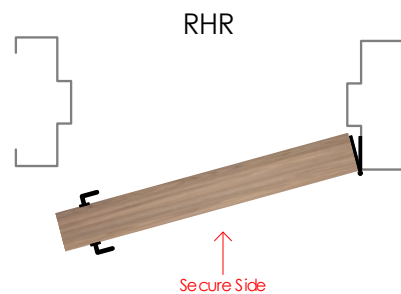
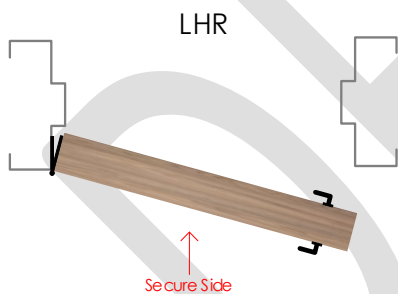
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Clear Anodized				628	689	US28
Satin Nickel	646		619	670		US15
Polished Nickel	645		618	669		US14
Satin Stainless Steel		630				US32D
Polished Stainless Steel		629				US32
Satin Chrome	652		626	702		US26D
Polished Chrome	651		625	672		US26
Satin Brass	633		606	667	678	US4
Polished Brass	632		605	666	677	US5
Satin Bronze	639		612	668	680	US10
Oil Rubbed Bronze	640		613	703	695	US10B
Flat Black / Anodized Black	631		622	671	693	US19

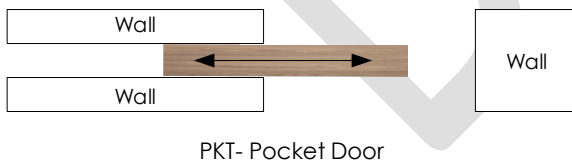
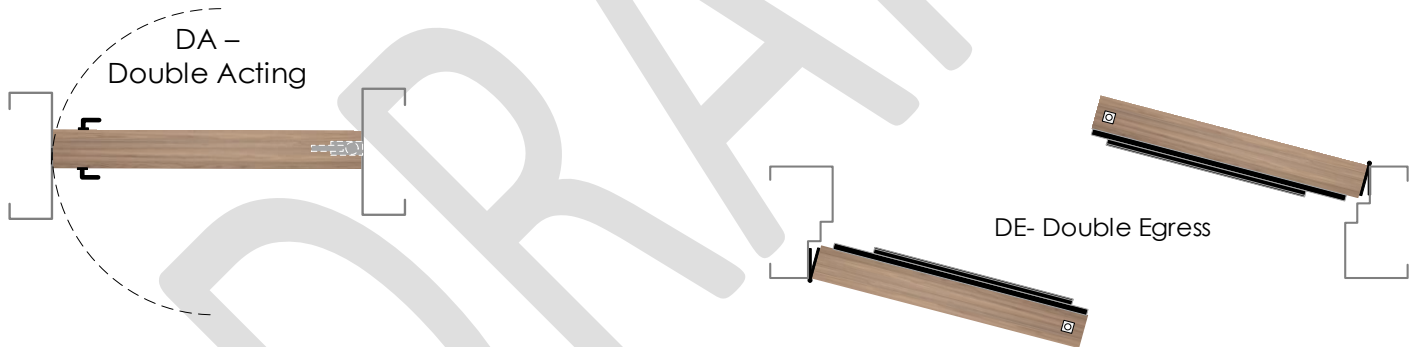
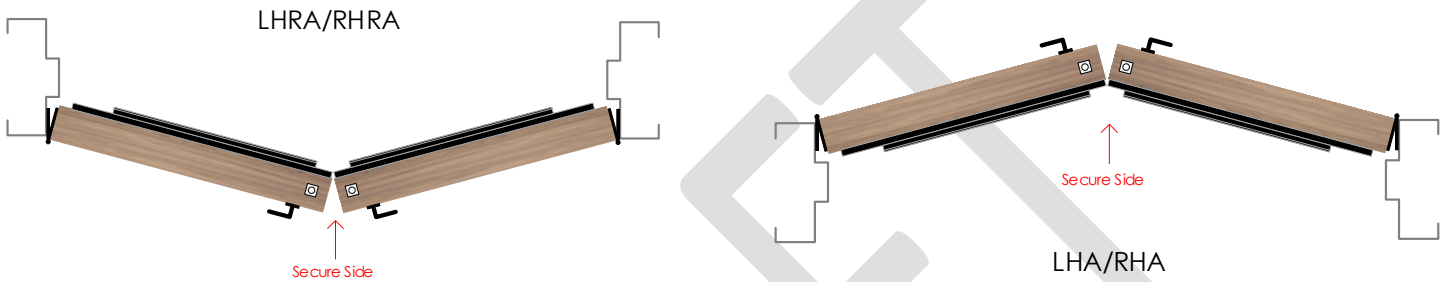
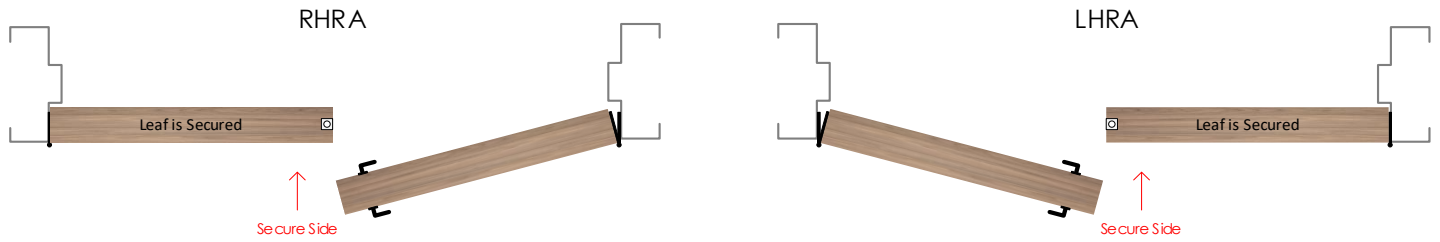
Door Handing's

Abbreviations

RH = Right Hand	RHA = Right Hand Active	SS = Single Slider
LH = Left Hand	LHA = Left Hand Active	BP = Bi-Parting Slider
RHR = Right Hand Reverse	RHA/LHA = Right & Left Hands Active	BF = Bi-Folding Slider
LHR = Left Hand Reverse	RHRA/LHRA = Right & Left Hand Reverse Active	TS = Telescopic Slider
RHRA = Right Hand Reverse Active	DA = Double Acting	PKT = Pocket Slider
LHRA = Left Hand Reverse Active	DE = Double Egress	

NOTE: The handing of a swing door is determined by placing yourself on the secured or keyed side of the door.





Products & Alternatives

NOTE: Only those products / brands listed here are acceptable and should be used to form a bid price. No unsolicited products will be considered. If acceptable alternates are listed here those too can be used to form a bid price provided, they are exactly the same as the specified item. If using an alternate product to form a price it is the bidder's responsibility to ensure that product is identical in every way to the specified item. If no alternates are listed, no alternate products are acceptable.

Product Type	Product#	Manufacturer	Alternate Manufacturer 1	Alternate Manufacturer 2
Heavy Weight Butt Hinges	TA386	McKinney	Ives	Best
Continuous Hinges	CFM83HD1	Pemko	Select	Best
Power Transfers	CEPT-10	Securitron	Von Duprin	Dormakaba
Manual Flush Bolts	550	Rockwood	Ives	Hager
Mortise Locksets	8200 Series	Sargent	Schlage	Best
Exit Devices	8800 Series	Sargent	Von Duprin	Dormakaba
LFIC Mortise Cylinders	9852IC	ASSA	N/A	N/A
LFIC Rim Cylinders	9852IC	ASSA	N/A	N/A
Magnetic Locks	M680E-BD	Securitron	Schlage	Dormakaba
Electric Strikes	1600CS	HES	Von Duprin	Dormakaba
Door Pull	D352-2	Standard Metal	Gallery	CBH
Push Plate	K11B-4	Standard Metal	Gallery	CBH
Offset Door Pull	DA-3512--2	Standard Metal	Gallery	CBH
Offset Door Pulls	D453-2	Standard Metal	Gallery	CBH
Pull Plate	H414	Standard Metal	Gallery	CBH
Concealed Overhead Stops	1000 Series	ABH	Glynn Johnson	Rixson
Closers	351 Series	Sargent	LCN	Dormakaba
Wall Stops	S120	Standard Metal	Gallery	CBH
Coordinators	2672 x FB	Rockwood	Ives	Hager
Kick Plates	K10A	Standard Metal	Gallery	CBH
Mop Plates	K10A	Standard Metal	Gallery	CBH
Armour Plates	K10A/K10F	Standard Metal	Gallery	CBH
Door Edge Guards	K42/K42F	Standard Metal	Gallery	CBH
Frame Guards	K50/K50F	Standard Metal	Gallery	CBH
Frame Guards	K51/K51F	Standard Metal	Gallery	CBH
Gasketing/Weatherstrip	2891APK	Pemko	KN Crowder	National Guard
Auto Door Bottoms	420APKL	Pemko	KN Crowder	National Guard
Auto Door Bottoms	434APKL	Pemko	KN Crowder	National Guard
Door Sweep	18100CNB	Pemko	KN Crowder	National Guard
Astragal Sets	351CP	Pemko	KN Crowder	National Guard
Auto Operators	SW200i	Besam	Tormax	Dormakaba
Wave Actuator	CM-331	Camden	BEA	Dormakaba
Wave to Lock Kit	CX-WC16-PS	Camden	BEA	Dormakaba
Logic Relay	CX-33	Camden	BEA	Dormakaba
Emergency Call Signage	CM-SE21A	Camden	BEA	Dormakaba
Safety Sensor	OLZRFLATSCAN	BEA	Optex	Dormakaba
Door Position Switch	MSS100-4Y	Flair	Interlogix	GRI
Request to Exit	XMS	Securitron	Schlage	Dormakaba
Signage	BC2MW	Dormakaba	KM Thomas	N/A
Power Supply	AQD4-8	Securitron	Schlage	Dormakaba

Symbols



- Door has a fire rating and all associated hardware must have a fire label to suit. Must comply with local requirements.



- Door is automatic and is equipped with an auto operator. Door must meet local barrier free codes



- Door has an electrical requirement and requires power to be brought to the appropriate location above the door or to the latch, for either security or barrier free applications. Refer to security & electrical drawings for further information.



- Door requires security card access. Refer to security / electrical drawings for further information.

Abbreviations

Door:

HMD = Hollow Metal Door
IHMD = Insulated Hollow Metal Door
ALD = Aluminum Door
SSD = Stainless Steel Door
ISSD = Insulated Stainless Steel Frame
STL = Steel Door
IC-ALD = Insulated Clad Aluminum Door
SCWD = Solid Core Wood Door
HCWD = Hollow Core Wood Door
FGD = Frameless Glass Door
FRP = Fiberglass Reinforced Plastic Door
OHD = Overhead Door

Frame:

HMF = Hollow Metal Frame
ALF = Aluminum Frame
Cased Open HMF = Cased Open Hollow Metal Frame
SSF = Stainless Steel Frame
STL = Steel Frame
WDF = Wood Frame
Cased Open WDF = Cased Open Wood Frame
Cased Open Drywall = Cased Open Drywall

Fire Ratings:

0 HR – Zero Hour Fire Rating / Smoke Barrier
20 MIN – 20 Minute Fire Rating
¾ HR – 45 Minute Fire rating
1 ½ HR – 90 Minute Fire Rating
2 HR – 120 Minute Fire Rating
3 HR – 180 Minute Fire Rating

Disclaimer

Weblinks:

Weblinks do change from time to time as manufacturers move around their websites, please inform us if you have a none functioning weblink.

HARDWARE SCHEDULE



Heading# 1

Opening Information					
Opening Type:	Single	Opening Size:	3'-2" x 7'-0" x 1 1/2"	STC Rating	None
Door Material:	HMD	Frame Material:	HMF	Fire Rating	0 HR

2	Total Openings							
1	Door#	2224-1	Location:	Corridor 2359	To	Music Room 2224	Handing:	RH
1	Door#	2372-1	Location:	Corridor 2359	To	Conference Room 2372	Handing:	LH

Web Link

Site Verified

By Hardware Supplier

2	Continuous Hinge	CFM83HD1-HT	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
2	Mortise Storeroom Lockset	LC-8204 LNL	630 / US32D / Satin Stainless Steel	Sargent		<input type="checkbox"/>
2	LFIC Mortise Cylinder	9852IC x CMK x GMK	626 / US26D / Satin Chrome	ASSA		<input type="checkbox"/>
2	Electric Strike	1600CS	630 / US32D / Satin Stainless Steel	HES		<input type="checkbox"/>
2	Concealed Overhead Stop	1024A	630 / US32D / Satin Stainless Steel	ABH		<input type="checkbox"/>
2	Closer	DA-351-O x 351-B (Invert Mounting Plate)	689 / US28 / Painted Aluminum	Sargent		<input type="checkbox"/>
2	Kick Plate	K10A – 12" x 38" x 3M Tape	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
2	Gasketing	2891APK x (2x84" + 1x38")	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
2	Auto Door Bottom	420APKL x 38"	719 Milled Aluminum	Pemko		<input type="checkbox"/>

By Security Supplier

2	Door Position Switch	MSS100-4Y	Black	Flair		<input type="checkbox"/>
2	Card Reader	By Security Supplier				<input type="checkbox"/>
2	Request to Exit	XMS	White	Securitron		<input type="checkbox"/>
2	Access Controller	By Security Supplier				<input type="checkbox"/>
2	Power Supply	By Security Supplier - Located in Central Location				<input type="checkbox"/>

Theory of Operation:

- Door is normally closed and locked.
- Emergency key in lockset will momentarily unlock door.
- To enter present valid credential to unlock then push lever to open door.
- To exit rotate lever and pull to open door.
- Request to exit sensor alerts access control system of authorized exit.
- In the event of fire alarm or loss of power door remains locked.
- Free egress always.

End of Heading

DRAFT



Heading#

2

Opening Information

Opening Type:	Pair	Opening Size:	(2)3'-6" x 7'-0" x 1 1/2"	STC Rating	None
Door Material:	HMD	Frame Material:	HMF	Fire Rating	None

1	Total Openings							
1	Door#	2301	Location:	Corridor 2300	To/From	Corridor 2300	Handing:	DE

Web Link






Site Verified

By Hardware Supplier

2	Elec. Continuous Hinge	CFM83HD1-HT-PT	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
2	Power Transfer	CEPT-10	630 / US32D / Satin Stainless Steel	Securiton		<input type="checkbox"/>
2	Latch Retraction Exit Device / Exit Only	12-56-NB-MD8610G	630 / US32D / Satin Stainless Steel	Sargent		<input type="checkbox"/>
2	Concealed Overhead Stop	1025A	630 / US32D / Satin Stainless Steel	ABH		<input type="checkbox"/>
2	Armour Plate	K10F - 34" x 39 1/2" x 3M Tape	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
2	Amour Plate	K10A - 34" x 40" x 3M Tape	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
2	Door Edge Guard	K42F x 84" x 3M Tape (Size to Suit Door Height)	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
2	Frame Guard	K51F x 48" x 3M Tape (Width to Suit Jamb Profile)	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
1	Gasketing	2891APK x (2x84" + 2x42")	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
2	Door Sweep	18100CNB x 42"	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
1	Astragal Set	351CP x 84"	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
1	Power Supply	AQD4-8 - Located in Central Location	Grey	Securiton		<input type="checkbox"/>

By Security Supplier

2	Magnetic Lock	M680E-BD	630 / US32D / Satin Stainless Steel	Securiton		<input type="checkbox"/>
2	Door Position Switch	MSS100-4Y	Black	Flair		<input type="checkbox"/>
2	Card Reader	By Security Supplier				<input type="checkbox"/>
1	Access Controller	By Security Supplier				<input type="checkbox"/>

2	Fire Alarm Pull Station	By Electrical Supplier				<input type="checkbox"/>
2	Signage	BC2MW - "EMERGENCY EXIT UNLOCKED BY FIRE ALARM"	White/Red	Dormakaba		<input type="checkbox"/>
By Automatics Supplier						
1	Auto Operator	SW200i-SA-5x5 Dbl Egress-Simultaneous x 87" Header	628 / US28 / Clear Anodized	Besam		<input type="checkbox"/>
2	Wave Actuator	CM-331/42W-SGLR	630 / US32D / Satin Stainless Steel	Camden		<input type="checkbox"/>
1	Logic Relay	CX-33		Camden		<input type="checkbox"/>
2	Safety Sensor Kit	10LZRFLATSCAN-SWB	Black	BEA		<input type="checkbox"/>

Notes:

- Auto operator to be connected to fire alarm system and access control system.
- 120VAC is required at the head of the door for all barrier free door operators, 15A dedicated circuit. Wall/Frame must be reinforced for automatic operator mounting, all conduit and back boxes with pull cords are to be provided by the electrical contractor.
- Electrician to confirm with auto operator supplier the location and quantity of wires required prior to pulling wires.
- Magnetic lock to be connected to fire alarm system.

Theory of Operation:

- Door is normally closed and locked.
- To enter present valid credential to momentarily unlock door. Then wave hand at exterior actuator to simultaneously open doors or press exit device push bar to open door.
- When doors are opened, the door contact signals magnetic locks on existing double egress doors to energize and lock.
- Card reader on existing doors become inactive for interlock functionality.
- To exit present valid credential to momentarily unlock door. Then wave hand at interior actuator to simultaneously open doors or press exit device push bar to open door.
- When doors are opened, the door contact signals magnetic locks on existing double egress doors to energize and lock.
- Card reader on existing doors become inactive for interlock functionality.
- Doors can be remotely unlocked by push button release from Nurses Station.
- In the event of stage-1 fire alarm or loss of power door remains unlocked.
- In the event of an emergency pull fire alarm pull station to unlock door.
- Free egress always unless magnetic lock is energized.

.....End of Heading.....



Heading#

3

Opening Information					
Opening Type:	Single	Opening Size:	3'-6" x 7'-0" x 1 1/2"	STC Rating	None
Door Material:	HMD	Frame Material:	HMF	Fire Rating	None

2	Total Openings							
1	Door#	2362A-1	Location:	Spruce 2363	From	3PC WR 2362A	Handing:	RHR
1	Door#	2362B	Location:	Spruce 2363	From	2PC WR 2362B	Handing:	LHR

Web Link

Site Verified

By Hardware Supplier

2	Continuous Hinge	CFM83HD1-HT	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
2	Mortise Storeroom Lockset	LC-8204 LNL	630 / US32D / Satin Stainless Steel	Sargent		<input type="checkbox"/>
2	LFIC Mortise Cylinder	9852IC x CMK x GMK	626 / US26D / Satin Chrome	ASSA		<input type="checkbox"/>
2	Electric Strike	1600CS (Fail Safe)	630 / US32D / Satin Stainless Steel	HES		<input type="checkbox"/>
2	Concealed Overhead Stop	1023A	630 / US32D / Satin Stainless Steel	ABH		<input type="checkbox"/>
2	Kick Plate	K10A – 12" x 40" x 3M Tape	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
2	Mop Plate	K10A – 6" x 41" x 3M Tape	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
6	Silencers	By Hollow Metal Frame Supplier	Grey			<input type="checkbox"/>

By Automatics Supplier

2	Auto Operator	SW200i x SGL x Push x 45" Header	628 / US28 / Clear Anodized	Besam		<input type="checkbox"/>
2	Wave to Lock Kit	CX-WC16-PS	630 / US32D / Satin Stainless Steel	Camden		<input type="checkbox"/>
2	Emergency Call Signage	CM-SE21A	White/Red	Camden		<input type="checkbox"/>

Notes:

- Nurse call system by others.
- 120VAC is required at the head of the door for all barrier free door operators, 15A dedicated circuit. Wall/Frame must be reinforced for automatic operator mounting, all conduit and back boxes with pull cords are to be provided by the electrical contractor.
- Electrician to confirm wire locations with auto door operator supplier prior to pulling wires.

Theory of Operation:

- Door is normally closed and unlocked.
 - To enter wave hand at exterior actuator or push lever to open door.
- Once inside and the door is closed, wave hand at wave to lock button to disable exterior actuator and electric strike.
- When exterior actuator is disabled, a red circular light on actuator illuminates to indicate the washroom is occupied.
 - To exit wave hand at interior actuator or rotate lever and pull to open door.
 - In the event of an emergency press nurse call system button for assistance.
 - In the event of fire alarm or loss of power door remains unlocked.
 - Free egress always.

.....End of Heading.....

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Heading#

4

Opening Information					
Opening Type:	Single	Opening Size:	4'-0" x 7'-0" x 1 1/2"	STC Rating	None
Door Material:	HMD	Frame Material:	HMF	Fire Rating	1 HR

1	Total Openings							
1	Door#	2363	Location:	Corridor 2300	To	Spruce 2363	Handing:	RH

Web Link

Site Verified

By Hardware Supplier

1	Continuous Hinge	CFM83HD1-HT	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
1	Mortise Storeroom Lockset	LC-8204 LNL	630 / US32D / Satin Stainless Steel	Sargent		<input type="checkbox"/>
1	LFIC Mortise Cylinder	9852IC x CMK x GMK	626 / US26D / Satin Chrome	ASSA		<input type="checkbox"/>
1	Electric Strike	1600CS	630 / US32D / Satin Stainless Steel	HES		<input type="checkbox"/>
1	Concealed Overhead Stop	1024A	630 / US32D / Satin Stainless Steel	ABH		<input type="checkbox"/>
1	Closer	DA-351-O x 351-B (Invert Mounting Plate)	689 / US28 / Painted Aluminum	Sargent		<input type="checkbox"/>
1	Armour Plate	K10F - 34" x 45 1/2" x 3M Tape	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
1	Amour Plate	K10A - 34" x 46" x 3M Tape	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
1	Door Edge Guard	K42F x 84" x 3M Tape (Size to Suit Door Height)	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
1	Frame Guard	K51F x 48" x 3M Tape (Width to Suit Jamb Profile)	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
1	Gasketing	2891APK x (2x84" + 1x48")	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
1	Auto Door Bottom	420APKL x 48"	719 Milled Aluminum	Pemko		<input type="checkbox"/>

By Security Supplier

1	Magnetic Lock	M680E-BD	630 / US32D / Satin Stainless Steel	Securitron		<input type="checkbox"/>
1	Door Position Switch	MSS100-4Y	Black	Flair		<input type="checkbox"/>
2	Card Reader	By Security Supplier				<input type="checkbox"/>

1	Fire Alarm Pull Station	By Electrical Supplier				<input type="checkbox"/>
1	Signage	BC2MW - "EMERGENCY EXIT UNLOCKED BY FIRE ALARM"	White/Red	Dormakaba		<input type="checkbox"/>
1	Access Controller	By Security Supplier				<input type="checkbox"/>
1	Power Supply	By Security Supplier - Located in Central Location				<input type="checkbox"/>

Theory of Operation:

- Door is normally closed and locked.
- Emergency key in lockset will momentarily unlock door.
- To enter present valid credential to momentarily unlock door then push lever to open door.
- To exit present valid credential to momentarily unlock door then rotate lever and push to open door.
- In the event of fire alarm or loss of power door remains locked.
- In the event of an emergency pull fire alarm pull station to unlock door for egress.
- Free egress always unless magnetic lock is energized.

.....End of Heading.....



Heading#

5

Opening Information

Opening Type:	Pair	Opening Size:	(1)4'-0" + (1)2'-0" x 7'-0" x 1 1/2"	STC Rating	None
Door Material:	HMD	Frame Material:	HMF	Fire Rating	None

4	Total Openings							
1	Door#	2363A-1/-2	Location:	Spruce 2363	To/From	Spruce 1 2363A	Handing:	DE
1	Door#	2363B-1/-2	Location:	Spruce 2363	To/From	Spruce 2 2363B	Handing:	DE
1	Door#	2363C-1/-2	Location:	Spruce 2363	To/From	Spruce 3 2363C	Handing:	DE
1	Door#	2363D-1/-2	Location:	Spruce 2363	To/From	Spruce 4 2363D	Handing:	DE

Web Link


Site Verified

By Hardware Supplier

8	Elec. Continuous Hinge	CFM83HD1-HT-PT	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
4	Power Transfer	CEPT-10	630 / US32D / Satin Stainless Steel	Securitron		<input type="checkbox"/>
4	Ligature Resistant Electric Latch Retraction Lockset (Entry Door)	AE-LM-CH M9158ELR-SEC	630 / US32D / Satin Stainless Steel	Accurate		<input type="checkbox"/>
4	Ligature Resistant Storeroom Lockset (Emergency Door)	CH 9134-SEC (Less Inside Trim)	630 / US32D / Satin Stainless Steel	Accurate		<input type="checkbox"/>
4	Concealed Closer w/ Hold Open	268-H	689 / US28 / Painted Aluminum	Sargent		<input type="checkbox"/>
4	Kick Plate	K10A – 12" x 46 1/2" x 3M Tape	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
4	Kick Plate	K10A – 12" x 22 1/2" x 3M Tape (Pull Side)	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
4	Mop Plate	K10A – 6" x 47" x 3M Tape	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
4	Mop Plate	K10A – 6" x 23" x 3M Tape (Push Side)	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
4	Wall Stop	S120	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
4	Gasketing	2891APK x (2x84" + 1x48" + 1x24")	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
4	Astragal Set	351CP x 84"	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>

By Security Supplier

SPYDER SC

8	Door Position Switch	MSS100-4Y	Black	Flair		<input type="checkbox"/>
4	Card Reader	By Security Supplier				<input type="checkbox"/>
4	Remote Release Button	By Security Supplier				<input type="checkbox"/>
4	Access Controller	By Security Supplier				<input type="checkbox"/>
4	Power Supply	By Security Supplier - Located in Central Location				<input type="checkbox"/>

Notes:

- Two doors per opening with fixed mullion.

Theory of Operation:

- Door is normally closed and locked.
- Door can be set to manual hold open as required by staff.
- To enter present valid credential to momentarily unlock door. Then push the handle to open the door.
- To exit the door is unlocked from Charting Room or release the hold-open by pulling door closed to leave the room.
- If the door accidentally closed, nurses could press the nurse call system for assistance.
- Door can be remotely unlocked by push button release from Charting Room.
- If patient barricades the door, nurses can access via emergency door by using emergency key.
- In the event of fire alarm or loss of power door remains locked. Nurses can access via emergency door to evacuate the patient.

.....End of Heading.....



Heading#

6

Opening Information

Opening Type:	Single	Opening Size:	3'-2" x 7'-0" x 1 1/2"	STC Rating	None
Door Material:	HMD	Frame Material:	HMF	Fire Rating	None

1	Total Openings							
1	Door#	2370-1	Location:	Spruce 2363	To	Vestibule 2370	Handing:	LH

Web Link

Site Verified

By Hardware Supplier

1	Continuous Hinge	CFM83HD1-HT	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
1	Mortise Storeroom Lockset	LC-8204 LNL	630 / US32D / Satin Stainless Steel	Sargent		<input type="checkbox"/>
1	LFIC Mortise Cylinder	9852IC x CMK x GMK	626 / US26D / Satin Chrome	ASSA		<input type="checkbox"/>
1	Electric Strike	1600CS	630 / US32D / Satin Stainless Steel	HES		<input type="checkbox"/>
1	Concealed Overhead Stop	1024A	630 / US32D / Satin Stainless Steel	ABH		<input type="checkbox"/>
1	Closer	DA-351-O x 351-B (Invert Mounting Plate)	689 / US28 / Painted Aluminum	Sargent		<input type="checkbox"/>
1	Kick Plate	K10A - 12" x 38" x 3M Tape	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
1	Gasketing	2891APK x (2x84" + 1x38")	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>

By Security Supplier

1	Door Position Switch	MSS100-4Y	Black	Flair		<input type="checkbox"/>
1	Card Reader	By Security Supplier				<input type="checkbox"/>
1	Request to Exit	XMS	White	Securitron		<input type="checkbox"/>
1	Access Controller	By Security Supplier				<input type="checkbox"/>
1	Power Supply	By Security Supplier - Located in Central Location				<input type="checkbox"/>

Theory of Operation:

- Door is normally closed and locked.
- Emergency key in lockset will momentarily unlock door.
- To enter present valid credential to unlock then push lever to open door.
- To exit rotate lever and pull to open door.
- Request to exit sensor alerts access control system of authorized exit.
- In the event of fire alarm or loss of power door remains locked.
- Free egress always.

End of Heading

DRAFT



Heading#

7

Opening Information					
Opening Type:	Single	Opening Size:	3'-2" x 7'-0" x 1 1/2"	STC Rating	None
Door Material:	HMD	Frame Material:	HMF	Fire Rating	1 HR

1	Total Openings							
1	Door#	2370-2	Location:	Corridor 2401	To	Vestibule 2370	Handing:	LH

Web Link

Site Verified

By Hardware Supplier

1	Continuous Hinge	CFM83HD1-HT	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
1	Mortise Storeroom Lockset	LC-8204 LNL	630 / US32D / Satin Stainless Steel	Sargent		<input type="checkbox"/>
1	LFIC Mortise Cylinder	9852IC x CMK x GMK	626 / US26D / Satin Chrome	ASSA		<input type="checkbox"/>
1	Electric Strike	1600CS	630 / US32D / Satin Stainless Steel	HES		<input type="checkbox"/>
1	Concealed Overhead Stop	1024A	630 / US32D / Satin Stainless Steel	ABH		<input type="checkbox"/>
1	Closer	DA-351-O x 351-B (Invert Mounting Plate)	689 / US28 / Painted Aluminum	Sargent		<input type="checkbox"/>
1	Kick Plate	K10A - 12" x 38" x 3M Tape	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
1	Gasketing	2891APK x (2x84" + 1x38")	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
1	Auto Door Bottom	420APKL x 38"	719 Milled Aluminum	Pemko		<input type="checkbox"/>

By Security Supplier

1	Door Position Switch	MSS100-4Y	Black	Flair		<input type="checkbox"/>
1	Card Reader	By Security Supplier				<input type="checkbox"/>
1	Request to Exit	XMS	White	Securitron		<input type="checkbox"/>
1	Access Controller	By Security Supplier				<input type="checkbox"/>
1	Power Supply	By Security Supplier - Located in Central Location				<input type="checkbox"/>

Theory of Operation:

- Door is normally closed and locked.
- Emergency key in lockset will momentarily unlock door.
- To enter present valid credential to unlock then push lever to open door.
- To exit rotate lever and pull to open door.
- Request to exit sensor alerts access control system of authorized exit.
- In the event of fire alarm or loss of power door remains locked.

- Free egress always.

-----End of Heading-----

DRAFT

Heading# 8

Opening Information					
Opening Type:	Single	Opening Size:	3'-6" x 7'-0" x 1 1/2"	STC Rating	None
Door Material:	HMD	Frame Material:	HMF	Fire Rating	None

2	Total Openings							
1	Door#	2372-2	Location:	Conference Room 2372	To	Charting 2373	Handing:	SS
1	Door#	2373-3	Location:	Nurse Station 2375	To	Charting 2373	Handing:	SS

Web Link

Site Verified

By Hardware Supplier

2	Sliding Door Hardware Kit	Crowder Slide x 3'-6" W x 7'-0" H	628 / US28 / Clear Anodized	KN Crowder		<input type="checkbox"/>
2	Door Pull Set	D352-2 x #3 MTG x 24"	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>

End of Heading



Heading#

9

Opening Information					
Opening Type:	Single	Opening Size:	3'-2" x 7'-0" x 1 1/2"	STC Rating	None
Door Material:	HMD	Frame Material:	HMF	Fire Rating	1 HR

1	Total Openings							
1	Door#	2373-1	Location:	Spruce 2363	To	Charting 2373	Handing:	RH

Web Link

Site Verified

By Hardware Supplier

1	Continuous Hinge	CFM83HD1-HT	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
1	Mortise Storeroom Lockset	LC-8204 LNL	630 / US32D / Satin Stainless Steel	Sargent		<input type="checkbox"/>
1	LFIC Mortise Cylinder	9852IC x CMK x GMK	626 / US26D / Satin Chrome	ASSA		<input type="checkbox"/>
1	Electric Strike	1600CS	630 / US32D / Satin Stainless Steel	HES		<input type="checkbox"/>
1	Concealed Overhead Stop	1024A	630 / US32D / Satin Stainless Steel	ABH		<input type="checkbox"/>
1	Closer	DA-351-O x 351-B (Invert Mounting Plate)	689 / US28 / Painted Aluminum	Sargent		<input type="checkbox"/>
1	Kick Plate	K10A - 12" x 38" x 3M Tape	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
1	Gasketing	2891APK x (2x84" + 1x38")	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
1	Auto Door Bottom	420APKL x 38"	719 Milled Aluminum	Pemko		<input type="checkbox"/>

By Security Supplier

1	Door Position Switch	MSS100-4Y	Black	Flair		<input type="checkbox"/>
1	Card Reader	By Security Supplier				<input type="checkbox"/>
1	Request to Exit	XMS	White	Securitron		<input type="checkbox"/>
1	Access Controller	By Security Supplier				<input type="checkbox"/>
1	Power Supply	By Security Supplier - Located in Central Location				<input type="checkbox"/>

Theory of Operation:

- Door is normally closed and locked.
- Emergency key in lockset will momentarily unlock door.
- To enter present valid credential to unlock then push lever to open door.
- To exit rotate lever and pull to open door.
- Request to exit sensor alerts access control system of authorized exit.
- In the event of fire alarm or loss of power door remains locked.

- Free egress always.

-----End of Heading-----

DRAFT



Heading#

10

Opening Information				
Opening Type:	Single	Opening Size:	3'-2" x 7'-0" x 1 1/2"	STC Rating: None
Door Material:	HMD	Frame Material:	HMF	Fire Rating: 1 HR

2	Total Openings						
1	Door#	2374-1	Location:	Charting 2373	To	Med Room 2374	Handing: RH
1	Door#	2375-1	Location:	Corridor 2300	To	Nurse Station 2375	Handing: RH

Web Link

Site Verified

By Hardware Supplier

2	Continuous Hinge	CFM83HD1-HT	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
2	Mortise Storeroom Lockset	LC-8204 LNL	630 / US32D / Satin Stainless Steel	Sargent		<input type="checkbox"/>
2	LFIC Mortise Cylinder	9852IC x CMK x GMK	626 / US26D / Satin Chrome	ASSA		<input type="checkbox"/>
2	Electric Strike	1600CS	630 / US32D / Satin Stainless Steel	HES		<input type="checkbox"/>
2	Concealed Overhead Stop	1024A	630 / US32D / Satin Stainless Steel	ABH		<input type="checkbox"/>
2	Closer	DA-351-O x 351-B (Invert Mounting Plate)	689 / US28 / Painted Aluminum	Sargent		<input type="checkbox"/>
2	Kick Plate	K10A – 12" x 38" x 3M Tape	630 / US32D / Satin Stainless Steel	Standard Metal		<input type="checkbox"/>
2	Gasketing	2891APK x (2x84" + 1x38")	628 / US28 / Clear Anodized	Pemko		<input type="checkbox"/>
2	Auto Door Bottom	420APKL x 38"	719 Milled Aluminum	Pemko		<input type="checkbox"/>

By Security Supplier

2	Door Position Switch	MSS100-4Y	Black	Flair		<input type="checkbox"/>
2	Card Reader	By Security Supplier				<input type="checkbox"/>
2	Request to Exit	XMS	White	Securitron		<input type="checkbox"/>
2	Access Controller	By Security Supplier				<input type="checkbox"/>
2	Power Supply	By Security Supplier - Located in Central Location				<input type="checkbox"/>

Theory of Operation:

- Door is normally closed and locked.
- Emergency key in lockset will momentarily unlock door.
- To enter present valid credential to unlock then push lever to open door.
- To exit rotate lever and pull to open door.
- Request to exit sensor alerts access control system of authorized exit.
- In the event of fire alarm or loss of power door remains locked.

- Free egress always.

-----End of Heading-----

END OF SCHEDULE

DRAFT

Glass and Glazing

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Glass and glazing.
- .2 Section excludes:
 - .1 Integrated blinds: in accordance with Section 08 88 61.

1.2 Administrative Requirements

- .1 Conduct a pre-installation meeting in accordance with Section 01 31 19.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Shop drawings:
 - .1 Show details of each type of glazing system in conjunction with the framing system indicating type of glass, sizes, shapes, glazing material and quantity. Show details indicating glazing material, glazing thickness, bite on the glass and glass edge clearance.
 - .2 Indicate analysis of glass including maximum deflection and allowable stresses from imposed dead/live loads and thermal loads.
- .4 Samples:
 - .1 Submit 305 mm (12") square samples of each type of glass indicated except for clear monolithic glass products, and 305 mm (12") long samples of each color required, except black, for each type of sealant or gasket exposed to view.
 - .1 Submit 3 control samples for each glass type showing maximum range of visible difference between units for the *Project*.
 - .2 Submit samples of glass showing each type of shape and finish of glass edge for exposed glass edges.
- .5 Test and evaluation reports:
 - .1 Obtain compatibility and adhesion test reports from sealant manufacturer indicating that glazing materials were tested for compatibility and adhesion with glazing sealant as well as other glazing materials including insulating units.
- .6 Manufacturer reports:

Glass and Glazing

- .1 Submit glass fabricator's product information and structural calculations indicating compliance with glazing standards established by the Glass Association of North America (GANA). Submittal to include thermal stress and structural load analysis of the proposed glass types, configuration and sizes.
- .7 Submit sample glazing warranty.
- .8 Submit letter from insulating glass unit fabricator that insulating glass units supplied will bear the certification mark of IGMAC or IGCC/IGMA.CAN/CGSB 12.8-97

1.4 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Operation and maintenance data:
 - .1 Submit maintenance and cleaning instructions for glass and glazing for incorporation into the operating and maintenance manuals.

1.5 Quality Assurance

- .1 Qualifications:
 - .1 Manufacturers: Fabrication processes, including low emissivity and reflective coatings, insulating, laminated, and tempering shall be manufactured by a single manufacturer with a minimum of ten (10) years of fabrication experience and meet ANSI / ASQC 9002 1994.
 - .2 Installers / applicators / erectors:
 - .1 *Subcontractor:*
 - .1 Shall be thoroughly trained and experienced in skills required.
 - .2 Shall be completely familiar with referenced standards and requirements of the work of this section.
 - .3 Shall personally direct installation performed under this section.
 - .2 Foreperson experience: Shall have 10 years' experience, minimum, as glazing mechanic.
 - .3 Glazing mechanic experience: Shall have 3 years' experience, minimum, as glazers.

1.6 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranty:
 - .1 General extended warranty:
 - .1 Labour, materials, and workmanship for work of this section.
 - .2 Duration: 2 years.
 - .2 Special product warranty for tempered glass products:

Glass and Glazing

- .1 Warrant that tempered glass will not break spontaneously as a result of Nickel Sulfide (NiS) inclusions at a rate exceeding 0.8% (8/1000) for a period of five years from the date of manufacture. Warranty shall be manufacturer's standard form in which tempered-glass manufacturer agrees to replace tempered-glass units.
- .2 Duration: 5 years from date of manufacture for fully tempered glass.
- .3 Special product warranty for laminated glass products:
 - .1 Warranty shall cover deterioration due to normal conditions of use and not to handling, installing, and cleaning practices contrary to the glass manufacturer's published instructions. Warranty shall be manufacturer's standard form in which laminated-glass manufacturer agrees to replace laminated-glass units.
 - .2 Duration: 5 years from date of manufacture for laminated glass.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

- .1 General:
 - .1 Publications: Comply with recommendations in the publications below, except where more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this section.
 - .1 GANA Glazing Manual.
 - .2 GANA Engineering Standards Manual.
 - .3 GANA Laminated Glazing Reference Manual.
 - .4 GANA Sealant Manual.
- .2 Regulatory requirements:
 - .1 Fire rated glass:
 - .1 Each lite shall bear permanent, non-removable label by accredited and recognized independent testing agency certifying it for use in tested and rated fire protective assemblies.
- .3 Glass strength:
 - .1 Design glass in conformance with the building code and the following requirements:
 - .1 Minimum thickness of annealed or heat-treated glass products to be selected so the worst case probability of failure does not exceed the following:
 - .1 8 breaks per 1000 for glass installed vertically less than 15 degrees from the vertical plane and under wind action.
 - .2 Maximum lateral deflection; insulating glass units:

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- .1 For insulating glass units supported on four edges, limit centre-of-glass deflection at design wind pressure to not more than 1/175 times the long-side length or 19 mm (3/4") maximum.
- .2 Glass at guards, balustrades, and where glass is likely to be subjected to human impact shall comply with safety glass requirements of CAN/CGSB 12.20-M89 and CAN/CGSB 12.1-M90, DIN EN 14179-1:2005, where applicable, and building code.
- .3 Provide annealed, heat strengthened, and tempered lights where required by the building code, and where required for the various solar exposures on the building.
- .4 Glass thicknesses and glass types specified, indicated, or scheduled in the *Contract Documents* are minimums required. Modify glass thickness as required to satisfy design and building code requirements, and requirements of authorities having jurisdiction, and any such modifications shall be clearly indicated on shop drawings.
- .4 Provide glass *Products* of uniform appearance, reflectivity, hue, shade, visible light transmittance, and colour when viewed from distance of 3 m (10 ft) to 30 m (100 ft) perpendicular to the glass or from 45 degree angle to the glass.
- .5 Protect laminated glass interlayer from damage or discolouration resulting from contact with deleterious and incompatible sealants, substances, and materials. Comply with manufacturer's recommended installation requirements.

2.2 Glass Manufacturers

- .1 Subject to compliance with the requirements of the *Contract Documents*, provide primary glass by one of the following float glass manufacturers:
 - .1 Cardinal Glass Industries.
 - .2 Guardian Industries, LLC.
 - .3 Pilkington North America.
 - .4 Vitro Architectural Glass.

2.3 Glass Materials

- .1 General:
 - .1 Single source responsibility: Provide materials from a single manufacturer or fabricator for each kind and condition of glass indicated and composed of primary glass obtained from a single source and manufacturing plant for each type and class required.
- .2 Heat treated (tempered or heat strengthened) float glass:
 - .1 In accordance with CAN/CGSB 12.1-M90.
 - .2 Minimum thickness: 6 mm (1/4").
 - .3 Fabrication process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.

Glass and Glazing

- .4 For uncoated glass, comply with requirements for Condition A in accordance with ASTM C1048-18.
- .5 For coated vision glass, comply with requirements for Condition C (other coated glass) in accordance with ASTM C1048-18.
- .6 Heat strengthened glass shall have surface compression of 24-52 MPa (3,500-7,500 psi).
- .3 Laminated glass;
 - .1 In accordance with CAN/CGSB 12.1-M90.
 - .2 Construction: Laminate glass shall have 4 ply PVB (polyvinyl butyral) interlayer. Use materials that have a proven record of no tendency to bubble, discolour, or lose physical and mechanical properties after fabrication and installation.
 - .3 Glass layers minimum 5 mm (0.197") thick unless otherwise indicated.
 - .4 Glass colour: Clear.
 - .5 Glass type: Low iron tempered, as required to suit design requirements.
 - .6 Laminated glass products to be fabricated free of foreign substances and air or glass pockets in autoclave with heat plus pressure.
 - .7 Interlayer:
 - .1 Interlayer thickness: Provide thickness as needed to comply with requirements and not less than the following:
 - .1 Vertical glazing: not less than 0.76 mm (0.030") unless otherwise indicated.
 - .2 Interlayer colour: To be selected by *Consultant*.
 - .3 Coloured or frosted interlayer where indicated:
 - .1 Acceptable Product:
 - .1 Eastman 'Vanceva'.
 - .2 Substitutions in accordance with 01 25 00.

2.4 Fire-Rated Glass

- .1 Fire-resistive rated, impact safety resistant, heat barrier glass (non-wired):
 - .1 In accordance with CAN/ULC-S104-15/CAN/ULC-S106-15, CPSC 16 CFR 1201, Category II.
 - .2 Glass with intumescent interlayer:
 - .1 Fire-protective-rated and impact safety-rated, clear, high visible light transmission glass laminated with an intumescent interlayer, and listed for use in doors, sidelites, transoms, borrowed lites, and wall applications in both interior and exterior applications, and functioning as a barrier to both radiant and conductive heat.
 - .2 Acceptable *Product*:

Glass and Glazing

- .1 Safti First 'SuperLite II-XL'.
- .2 Saint Gobain 'ContraFlam'.
- .3 Technical Glass Products 'Pilkington Pyrostop'.

2.5 Glazing Materials (Non-Fire Rated)

- .1 Glazing materials; general: Select glazing sealants, tapes, gaskets and additional glazing materials of proven compatibility with other materials they will contact, including glass products, seals of insulating glass units and glazing channel substrates, under conditions of installation and service, as demonstrated by testing and field experience.
- .2 Glazing gaskets: Moulded or extruded gaskets of profile and hardness required to maintain watertight seal, made from the following:
 - .1 Preformed silicone to ASTM C1115-17(2022).
- .3 Setting blocks: Moulded or extruded material with Shore, Type A Durometer hardness of 85, plus or minus 5, made from the following:
 - .1 Preformed silicone to ASTM C1115-17(2022).
- .4 Spacers: Moulded or extruded blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated made from the following:
 - .1 Preformed silicone to ASTM C1115-17(2022).
- .5 Edge blocks: Moulded or extruded material of hardness needed to limit glass lateral movement (side walking) made from the following:
 - .1 Preformed silicone to ASTM C1115-17(2022).
- .6 Cleaners, primers and sealers: Type recommended by sealant or gasket manufacturer.
- .7 Polyurethane foam glazing tape:
 - .1 High density, closed-cell, flexible, non-extruding tape, adhesive backed one side only; recommended by manufacturer for exterior applications with nominal pressure in glazing channel.
 - .2 Acceptable *Products*: As recommended by manufacturer suitable for conditions of application and use.
- .8 Silicone glazing (Weatherseal) sealant:
 - .1 Non-staining, low dirt pick-up, medium-modulus, neutral-curing silicone sealant; complying with ASTM C920-11, Type M or S, Grade NS, Class 50.
 - .2 SWRI Validation.
 - .3 Colour: to later selection by *Consultant* from full range.

2.6 Fire Rated Glazing Accessories

- .1 Glazing tape; fire-rated glass (non-wired):

Glass and Glazing

- .1 Closed cell polyvinyl chloride (PVC) foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent, designed for compression of 25 percent to effect an air and vapour seal.
- .2 Silicone sealant: One-part neutral curing silicone, medium modulus sealant, to ASTM C920-14, Type S; Grade NS; Class 25 with additional movement capability of 50 percent in both extension and compression (total 100 percent); Use (Exposure) NT; Uses (Substrates) G, A, and O as applicable.
 - .1 Acceptable *Products*:
 - .1 DOWSIL '795'.
 - .2 Momentive 'Silglaze-II 2800'.
 - .3 Tremco 'Spectrem 2'.
- .3 Setting blocks: Neoprene or other resilient blocks of 40 to 50 Shore A durometer hardness, adhesive-backed on one face only, tested for compatibility with specified glazing compound.
- .4 Cleaners, primers, and sealers: Type recommended by manufacturer of glass and gaskets.
- .5 Pass through bottom channels:
 - .1 Aluminum channel, satin anodized finish, size to match glass thickness as indicated.

2.7 Fabrication of Glazing Units

- .1 Fabricate glazing units in sizes required to fit openings, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
 - .1 Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
- .2 Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.
- .3 Grind smooth and chamfer, and polish exposed glass edges and corners, unless otherwise indicated.

PART 3 - EXECUTION

3.1 Examination

- .1 Examine framing, glazing channels, and stops, with glazing installer present, for compliance with the following:
 - .1 Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - .2 Inspect butt and mitre joints in framing. Seal joints found to be open with a compatible sealant prior to glazing.

Glass and Glazing

- .3 Glazing pockets and surfaces are free of dust, construction debris, and contaminants.
 - .4 Presence and functioning of weep systems.
 - .5 Minimum required face and edge clearances as per FGIA and GANA standards.
 - .6 Effective sealing between joints of glass-framing members.
- .2 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Preparation

- .1 Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
- .2 Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.
- .3 Clean contact surfaces with solvent and apply primers to surfaces to receive tapes and sealants in accordance with the manufacturer's requirements. Ensure surfaces are free of moisture and frost.

3.3 Glazing - General

- .1 Comply with combined written requirements of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- .2 Adjust glazing channel dimensions as required by conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
- .3 Protect glass edges from damage during handling and installation. Remove damaged glass from *Project* site and legally dispose of off *Project* site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- .4 Clean glazing rebate surfaces of traces of dirt, dust, or other contaminants.
- .5 Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- .6 Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- .7 Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- .8 Provide spacers for glass lites where length plus width is greater than 1270 mm (50").
 - .1 Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.

Glass and Glazing

- .2 Provide 3.2 mm (1/8") minimum bite of spacers on glass and use thickness equal to sealant width.
- .9 Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel.
- .10 Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- .11 Set glass lites with proper orientation so that coatings face exterior or interior as specified.
- .12 Glaze hollow metal doors and frames specified under work of Section 08 11 13 using tape glazing installation.
- .13 Install fire rated glazing in accordance with fire rated glazing *Product* manufacturer's written requirements and with current fire-resistance listing for each *Product*. Field cutting or tampering is not permissible.

3.4 Tape Glazing

- .1 Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- .2 Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- .3 Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
- .4 Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- .5 Do not remove release paper from tape until right before each glazing unit is installed.
- .6 Centre glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centres of openings.

3.5 Gasket Glazing (Dry)

- .1 Allow gaskets to relax and cut compression gaskets to lengths recommended by gasket manufacturer to fit openings to suit frame dimensions.
- .2 Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- .3 Installation with drive-in wedge gaskets: Centre glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centres of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

Glass and Glazing

- .4 Installation with Pressure-Glazing Stops: Centre glass lites in openings on setting blocks and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- .5 Install gaskets so they protrude past face of glazing stops.

3.6 Sealant Glazing (Wet)

- .1 Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- .2 Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- .3 Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.7 Field Quality Control

- .1 Conduct quality control in accordance with Section 01 45 00.
 - .1 Performing random testing on:
 - .1 Surface compression tests on heat strengthened and tempered glass.
- .2 Manufacturer's field review to be in accordance with Section 01 45 00.

3.8 Adjusting and Cleaning

- .1 Immediately remove sealant and compound droppings from finished surfaces. Remove labels after work is completed.
- .2 Final cleaning of glass in accordance with Section 01 78 00.

END OF SECTION

Applied Films

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Translucent film; applied to interior glazing.

1.2 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Samples:
 - .1 Submit 3 - 200 mm x 200 mm (8" x 8") samples of each specified film type, pattern and colour.

1.3 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Operation and maintenance data:
 - .1 Submit maintenance and cleaning instructions for incorporation into operating and maintenance manuals.
 - .2 Instruct *Owner's* representative on proper care and maintenance for work of this section.

1.4 Quality Assurance

- .1 Qualifications:
 - .1 *Subcontractor*. Shall have 5 years' experience, minimum, in application of *Products* specified.

1.5 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranty:
 - .1 Film manufacturer's product warranty.
 - .1 Duration: 6 years.

Applied Films

PART 2- PRODUCTS

2.1 Performance/Design Requirements

- .1 Applied film shall function as intended, and exhibit none of the following:
 - .1 Bubbling.
 - .2 Cracking.
 - .3 Crazing.
 - .4 Delamination.
 - .5 Discolouration.
 - .6 Peeling.

2.2 Materials

- .1 Applied films; translucent:
 - .1 Colour and pattern: to be later selected by Consultant.
 - .2 Acceptable *Products*:
 - .1 Basis of Design: 3M 'Fasara'.
 - .2 Substitutions: in accordance with Section 01 25 00.

PART 3 - EXECUTION

3.1 Examination

- .1 Examine glass surfaces to receive film and verify that they are free from defects and imperfections which will affect the final appearance of installed film. Correct such deficiencies before starting film application.

3.2 Preparation

- .1 Prepare surfaces for film application in accordance with film manufacturer's written requirements.
- .2 Window and window framing will be cleaned thoroughly with a neutral cleaning solution. Surface of glass shall be bladed with industrial razor to ensure the removal of any foreign contaminants in accordance with film manufacturer's instructions.
- .3 Towelling or other absorbent material shall be placed on the window sill or sash to absorb moisture accumulation generated by the film application.

3.3 Installation

- .1 Applied film; interior application:

Applied Films

- .1 Apply film to indicated surface of glazing units in accordance with film manufacturer's written requirements, applied plumb, true and level over clean glazing, without air bubbles, wrinkles, blisters, and other defects.
- .2 After installation, applied film shall be flat with no obvious concentrations of moisture, free of creases, free of tears, with no moisture dimples when viewed under normal conditions.
- .3 Film edges shall be cut neatly and square at a uniform distance of 1.5 mm (1/16") to 0.79 mm (1/32") from frame.

3.4 Adjusting and Cleaning

- .1 Clean film and glass surfaces so they are free of foreign matter using cleaners recommended by film manufacturer.

3.5 Protection

- .1 Comply with manufacturer's written requirements respecting protection.

END OF SECTION

Vision Control Glazing

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Manual vision control glazing with integral blinds including:
 - .1 Mental health impact resistant vision control glazing in sidelights and doors.

1.2 Administrative Requirements

- .1 Conduct a pre-installation meeting in accordance with Section 01 31 19.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Shop drawings:
 - .1 Submit engineered shop drawings, including seismic design, connections and restraint.
 - .2 Include details of each vision control unit and frame type, finish hardware types and locations, frame profiles, elevations, mitre details, glazing preparation details and anchor details, and locations.
 - .3 Include schedule identifying each unit, with vision control unit marks and numbers relating to numbering on drawings and schedule.
 - .4 Indicate impact-safety ratings for each glass type for design and performance requirements.
 - .5 Motorized electrified hardware requirements and preparations shall be clearly indicated on shop drawings.
- .4 Samples:
 - .1 Submit 305 mm (12") square vision control unit for each type indicated in this section. Each type shall include hardware, integral blinds and hardware to demonstrate operation.

1.4 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Maintenance data:
 - .1 Submit maintenance data for incorporation into operations and maintenance manuals.

Vision Control Glazing

1.5 Quality Assurance

- .1 Manufacturers:
 - .1 Company specializing in performing the work of this section with 10 years' documented experience, minimum, including successful completion of work of similar size and character.
- .2 Installer:
 - .1 Company:
 - .1 Authorized by the manufacturer for the installation of their systems.
 - .2 Submit a letter signed by representative of vision control glazing manufacturer with company's authorization stating that installer is acceptable and qualified to install system.
 - .2 Foreperson experience: Shall have 10 years' experience, minimum, as glazing mechanic.
 - .3 Typical glazing mechanic experience: Shall have 3 years' experience, minimum, as glazers.
- .3 Mock-up:
 - .1 Provide sample installation of vision control glazing assembly for each type complete with finishes, hardware, and sealants for review by *Consultant* before proceeding with the remainder of the installation. Location and size of sample installation(s) shall be as directed by *Consultant*. Acceptance of workmanship and performance shall establish basis for acceptance of remainder of the work of this section.
 - .2 If possible, mock-up may become part of finished work, at sole discretion, and with prior written acceptance of *Consultant*.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

- .1 Design glass, glazing, framing system, and accessories to comply with performance/design requirements specified below in and in Section 08 11 13 for frame and door to receive vision control unit.
- .2 Assemblies shall be factory-welded or come complete with factory-installed mechanical joints and shall not require fabrication at the *Place of the Work*.
- .3 Mental Health Impact-Rated Vision Control Glass Units: Certified to AAMA 501.8 for 2000 foot-pound human impact resistance.
- .4 Minimum Impact Safety Resistance unless otherwise noted: in accordance with CAN/CGSB 12.1-M90.

2.2 Manufacturer's System

- .1 Acceptable *Product*.

Vision Control Glazing

- .1 Unicel 'Vision Control'.
- .2 Substitutions: in accordance with Section 01 25 00.

2.3 Materials

- .1 Framing system and integral louvers:
 - .1 Manufacturer's recommended tamper proof framing, louvres and mechanical fasteners meeting specified performance criteria. Door inserts to include ligature resistant beveled framing for installation into door.
- .2 Glass and glazing: in accordance with Section 08 80 00, and as follows:
 - .1 Clear tempered glass:
 - .1 Type: ASTM C1048, Type 1 transparent flat, Class 2 tinted heat absorbing and light reducing, Quality q3 glazing select, Kind FT fully tempered.
 - .2 Laminated Glass: in accordance with ASTM C1172 and ANSI Z97.1.
 - .3 Polycarbonate sheet:
 - .1 Type: ANSI Z97.1; plastic compound, ultraviolet stabilized, non-yellowing, abrasion resistant coated.
 - .2 Colour: Clear.
 - .4 Glazing accessories: as recommended by manufacture.
 - .1 Cleaners, primers, and sealers: Type recommended by manufacturer of glass and gaskets.
 - .5 Glazing stops: Aluminum, base and snap-on on both sides by Unicel Architectural.
 - .1 Finish: to later selection by *Consultant*.
- .3 Manual operator:
 - .1 Ligature resistant, removable key operator.
- .4 Joint sealants: in accordance with manufacturer's written requirements.

2.4 Finishes – Aluminum

- .1 Exposed aluminum surfaces; anodized to AAMA 611-20:
 - .1 Clear anodized to AA Designation AA-M10C22A41.

2.5 Fabrication - General

- .1 Fabricate glass, and sealed insulated glass units in accordance with section 08 80 00 – Glass and Glazing.
- .2 Fabricate vision control glazing units to the design and dimensions indicated. Take field measurements where coordination with adjoining work is necessary.
- .3 Fabricate to be rigid, neat in appearance and free from defects, warp, wave or buckle with all corners square unless otherwise indicated.
- .4 Countersink exposed fasteners unless otherwise shown. Use flat or oval head screws.

Vision Control Glazing

- .5 Allow for anticipated expansion and contraction of frames and supports.
- .6 Fit elements at intersections and joints accurately together, in true planes, and plumb and level.
- .7 Touch up finish damaged during fabrication.
- .8 Attach to suit required fire ratings.
- .9 Motor operated preparation:
 - .1 Coordinate control requirements and electrical connection boxes supplied by Divisions 26, 27, and 28 for installation into frame by work of this section.

PART 3 - EXECUTION

3.1 Examination

- .1 Provide necessary grounds, bracing and strapping for fitting and adequate for securing of the work.
- .2 Cooperate with work of other sections to ensure fastenings set by others are provided and located, their work is installed to their specifications and that those responsible for back priming are notified in sufficient time for them to schedule work.

3.2 Installation

- .1 Install in accordance with manufacturer's written requirements and reviewed shop drawings.
- .2 Frame installation tolerances:
 - .1 Plumbness tolerance, measured through a line from the intersecting corner of vertical members and the head to the floor, shall be $\pm 1.6 \text{ mm}$ ($\pm 1/16"$).
 - .2 Squareness tolerance, measured through a line 90° from one jamb at the upper corner of the product, to the opposite jamb, shall be $\pm 1.6 \text{ mm}$ ($\pm 1/16"$).
 - .3 Alignment tolerance, measured on jambs, through a horizontal line parallel to the plane of the wall, shall be $\pm 1.6 \text{ mm}$ ($\pm 1/16"$).
 - .4 Twist tolerance, measured at face corners of jambs, on parallel lines perpendicular to the plane of the wall, shall be $\pm 1.6 \text{ mm}$ ($\pm 1/16"$).
- .3 Brace frame product rigidly in position while building-in. Remove temporary steel shipping jamb spreaders. Install temporary wood spreaders at mid-point of frame rabbet height to maintain frame widths. Remove wood spreaders after product has been built-in.
- .4 Secure anchorages and connections to adjacent construction.

3.3 Glass and Glazing

- .1 Install vision control glazing of this section to requirements herein and in accordance with Section 08 80 00, and assume total responsibility for sizing, design and other aspects of glass work and accessories.

Vision Control Glazing

3.4 Installation - Sealant

- .1 Provide sealants following the installation procedures specified in Section 07 92 00, and in accordance with sealant manufacturer's and vision control glazing manufacturer's written requirements.

3.5 Adjusting and Cleaning

- .1 Verify that installed vision control glazing system functions properly, and adjust it accordingly to ensure satisfactory operation.
- .2 Refinish damaged or defective work so that no variation in surface appearance is discernible.

3.6 Closeout Activities

- .1 Demonstration:
 - .1 Before acceptance of system, arrange for demonstration of equipment with authorized representatives of *Owner*, to be performed by representative of vision control glazing manufacturer to assure proper function, operation and explanation.
 - .2 Conduct comprehensive demonstration for *Owner's* staff on operation and care of vision control glazing.

END OF SECTION

Metal Supports for Gypsum Board

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Metal support systems for interior gypsum board partitions, interior ceilings, and interior assemblies as indicated.

1.2 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the *Work* of this section, including additional data as may be required to demonstrate compliance with the *Contract Documents*.
- .3 Engineered shop drawings:
 - .1 Submit engineered shop drawings for seismic connections and restraint of wall and ceiling systems.
 - .2 Submit engineered shop drawings for metal support systems at interior mental health locations required to meet specified load requirements.
- .4 Test and evaluation reports:
 - .1 Submit certified test results for each required fire resistance rated assembly for work of this section.

1.3 Quality Assurance

- .1 Qualifications:
 - .1 Installers / applicators / erectors:
 - .1 *Subcontractor*. Shall have 5 years' experience, minimum, in application of *Products*, systems and assemblies specified and with approval and training of *Product* manufacturers.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements - Engineered Interior Metal Support Systems

- .1 Design system members to withstand own dead load, super-imposed dead loads, to maximum allowable deflection of L/240, without permanent deformation.
- .2 Loads on walls acting as guards: Where the floor elevation on one side of a wall, including a shaftwall, is more than 600 mm (24") higher than the elevation of the floor or ground on the other side, the wall shall be designed to resist the lateral design loads prescribed in the building code or 0.5 kPa (0.07 PSI), whichever produces the greatest effect.
- .3 Loads on wall at mental health areas: Framing at mental health areas shall meet load requirements for impact resistant.

Metal Supports for Gypsum Board

- .4 Metal support systems shall be engineered where indicated in *Contract Documents* as “engineered” or “structural”. Horizontal framing of ceilings shall be engineered. Indicated framing depths are maximum permitted unless approved otherwise by *Consultant*. Seismic design: Design and install suspended ceiling system to withstand the effects of earthquake motions in accordance with ASTM E580/E580M-22.
- .5 Seismic design requirements for partition and ceiling assemblies shall comply with building code requirements.

2.2 Performance/Design Requirements - Fire Resistance Rated Assemblies

- .1 Where gypsum board systems with fire resistance ratings are indicated or required, provide materials and installations that are identical with those of applicable assemblies tested by fire testing laboratories acceptable to authorities having jurisdiction.

2.3 Materials - General

- .1 For sheet metal *Products*: Sheet metal thickness indicated herein pertains to the minimum base steel thickness exclusive of coating.
- .2 Protective coatings for metal supports and framing:
 - .1 Minimum corrosion protection: Z120 (G40) ASTM A653/A653M-13.
 - .2 Heavy duty corrosion protection where scheduled or indicated: Z275 (G90) ASTM A653/A653M-13.
- .3 Sheet metal screws shall have a minimum coating thickness of 0.008 mm (0.0003”) of zinc. Other coatings providing equal or better corrosion protection may be used, subject to acceptance of *Consultant*.
- .4 Screws:
 - .1 Steel screws shall be equal to or exceed minimum diameter indicated on shop drawings.
 - .2 Penetration beyond joined materials shall be not less than 3 exposed threads.
 - .3 Thread types and drilling capability shall conform to manufacturer's recommendations.

2.4 Partition Support Materials

- .1 Interior non-loadbearing channel stud framing: to ASTM C645-18; roll formed from 0.455 mm (0.0179”) minimum thickness unless otherwise indicated or as recommended by gypsum board manufacturer, galvanized steel sheet. Provide service holes starting at 450 mm (18”) from bottom, then 914 mm (36”) on centre to top of studs.
 - .1 Steel studs at door jambs and where indicated: 1.720 mm (0.0677”) minimum thickness.
 - .2 Steel studs; at backer plate locations: 0.836 mm (0.0329”) minimum thickness.
 - .3 Steel studs at abuse resistant gypsum board locations: 0.836 mm (0.0329”) minimum thickness.

Metal Supports for Gypsum Board

- .4 Steel studs at impact resistant gypsum board locations: 0.836 mm (0.0329") minimum thickness.
- .2 Interior engineered metal stud framing: to ASTM C645-18; as indicated; roll formed from 0.836 mm (0.0329") minimum thickness unless otherwise required, galvanized steel sheet. Provide service holes starting at 450 mm (18") from bottom, then 914 mm (36") on centre to top of studs.
- .3 Interior floor and ceiling tracks (runners): to ASTM C645-18; in widths to suit stud sizes.
 - .1 Metal thickness: to match studs.
 - .2 For openings wider than 914 mm (36"), provide 0.836 mm (0.0329") minimum thickness for header.
- .4 Deflection track; for non-fire-rated assemblies: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in metal thickness not less than indicated for studs and in width to accommodate depth of studs.
- .5 Interior floor and ceiling track (runner) fasteners:
 - .1 To concrete and masonry: Use stub nails or power-driven fasteners.
 - .1 Power actuated fastening systems are not permitted.
 - .2 To suspended acoustic ceiling tile grid: Manufactured to fit applicable ceiling grid profile; CGC 'Partition Clip'.
- .6 Bracing channels: Minimum 19 mm x 10 mm x 1.087 mm (3/4" x 3/8" x 0.0428") cold rolled galvanized steel.

2.5 Ceiling Support Materials and Systems

- .1 General: Size ceiling support components to comply with ASTM C754-20 unless otherwise indicated, and as required for seismic design, connections and restraint of wall and ceiling assemblies.
- .2 Main runners: Steel channels, hot or cold rolled; Z180 (G60) galvanized.
- .3 Hanger wire: in accordance with ASTM A641/A641M-19, soft, Class 1 galvanized, minimum 4.064 mm (0.160", 8 AWG).
- .4 Hanger rods and flats: Mild steel with zinc coating, galvanized for exterior applications.
 - .1 General: Size devices for 5 times load imposed by completed system as determined in accordance with ASTM E488/E488M-22 and as required for seismic loading and restraint in accordance with engineered shop drawings.
 - .2 Screws, clips, bolts, concrete inserts or other devices for ceiling hangers whose suitability for use intended has been proven through standard construction practices or by certified test data.
 - .3 Hangers: Comply with ASTM C754-20 for maximum ceiling area and loads to be supported.
 - .4 Interior concrete ceiling anchors:

Metal Supports for Gypsum Board

- .1 *Acceptable Products:*
 - .1 ITW Ramset/Red Head 'Dynabolt Sleeve Anchor TW-1614' or 'Redi-Drive Tie Drive' or 'Redi-Drive' with angle clip.
 - .2 ITW Ramset/Red Head 'Trubolt' or 'Dynabolt' anchors complete with galvanized angle clip.
 - .3 Hilti 'Kwik-Bolt 3' and 'HHDCA 1/4 Ceiling Hangers'.
- .5 Fasteners exposed to weather, condensation, and corrosion: Zinc-plated or stainless steel fasteners in applicable product lines specified in preceding paragraphs.
- .5 Tie wire: 1.19 mm (0.047", 18 AWG) minimum zinc coated, soft-annealed wire, to ASTM A641/A641M-19.
- .6 Furring anchorages: 1.62 mm (0.0637", 16 AWG) galvanized wire ties, manufacturer's standard wire type clips, bolts, nails or screws as recommended by furring manufacturer and complying with ASTM C754-20.
- .7 Runner (carry) channels: 1.367 mm (0.0538") thick cold rolled steel, primer painted or zinc coated for interior locations, to ASTM C754-20, with minimum 228 MPa yield strength:
 - .1 38 mm x 12.7 mm (1-1/2" x 1/2") where supported at centres of 914 mm (36") maximum.
 - .2 38 mm x 19 mm (1-1/2" x 3/4") where supported at centres of 1220 mm (48") maximum.
- .8 Provide compression posts and other system components as required for seismic anchorage, connections and restraint.

2.6 Furring

- .1 Furring channels: 0.836 mm (0.0329") minimum typical thickness, cold rolled steel, wiped coated, nominal size of 22 mm (7/8") depth x 35 mm (1-3/8") face, hat type with knurled face.
- .2 Resilient furring channels:
 - .1 *Acceptable Product:*
 - .1 Bailey Metal 'Resilient Channel'.
 - .2 Substitutions: in accordance with Section 01 25 00.
- .3 Z-furring members: Galvanized steel z-shaped furring members; ASTM A653/A653M-13, G60, 0.836 mm (0.0329") minimum thickness of base metal, of depth indicated, designed for mechanical attachment of insulation boards or blankets.
- .4 Fasteners for furring members: Type and size recommended by furring manufacturer for substrate and application indicated, load rating and spacing to support materials carried by assembly as required for seismic loading and restraint in accordance with engineered shop drawings.

Metal Supports for Gypsum Board

2.7 Accessories

- .1 Backer plates:
 - .1 Metal backer plates: Steel, galvanized; minimum 150 mm (6") wide x 0.836 mm (0.0329") minimum x length and width to suit size of items to be attached; fastened to studs for attachment of surface mounted fittings and accessories.
 - .2 Elimination of backer plates or direct attachment of accessories or equipment to studs will not be permitted.

PART 3 - EXECUTION

3.1 Installation General

- .1 Comply with ASTM C754-20 and manufacturer's requirements, except as modified herein. Do not bridge building expansion joints with support system. Frame both sides of joints with furring and other supports as indicated.
- .2 Provide and install studs, framing, shimming, and furring to provide proper support for gypsum board to achieve the following installation tolerances:
 - .1 Do not exceed 3 mm (1/8") in 3 m (10') variation from plumb, level, and plane.
 - .2 Do not exceed 10 mm (3/8") from drawings locations.
 - .3 Do not exceed 1.5 mm (1/16") variation between planes of abutting edges or ends.
 - .4 Install each framing member so fastening surfaces vary not more than 3.2 mm (1/8") from the plane formed by faces of adjacent framing.
 - .5 In double stud walls, do not bridge across studs on opposite sides of wall with gypsum board or metal cross bracing.
- .3 Give complete cooperation and direction to trades erecting framing and furring over which this work is applied. Coordinate finished joint location with framing.
- .4 Coordinate installation and cooperate with mechanical and electrical work to accommodate mechanical electrical items and any other work required to be incorporated into or coordinated with the partitions, ceiling and soffit systems.
 - .1 Where the presence of suspended ductwork or other mechanical or electrical services or devices above ceiling framing conflicts with ceiling framing suspension points from structure above, provide bridging framing below conflicting work as required to support ceiling framing on specified intervals.
 - .2 Do not suspend ceiling framing from mechanical or electrical suspension systems unless agreement is obtained in writing from engineer for *Subcontractor* installing such framing that additional imposed loads are acceptable; obtain *Consultant's* acceptance before proceeding.
- .5 Provide clearances between work of this section and structural elements to prevent transference of structural loads.
- .6 Do not bridge building expansion joints with steel framing or furring members. Independently frame both sides of joints with framing of furring members or as indicated.

Metal Supports for Gypsum Board

- .7 Size framing systems according to manufacturer's engineered load tables, to meet allowable deflection without permanent deformation.
 - .1 Maximum allowable deflection: L/240.
 - .2 Maximum allowable deflection for tiled partitions: L/360.

3.2 Blocking

- .1 Attach to framing adequate backer plates to support the load of, and to withstand the withdrawal and shear forces imposed by, items installed upon the work of this section.

3.3 Furring - General

- .1 Furring indicated in *Contract Documents* is schematic. Do not regard as exact or complete. Provide all necessary framing and furring to support gypsum board in accordance with manufacturers' specifications.
- .2 Shim furring as required to achieve required installation tolerances.
- .3 Leave finished work rigid, secure, square, level, plumb, curved to detailed radius and erected to maintain finish gypsum board line dimensions and contours. Make allowance for thermal movement.
- .4 Thermally separate metal studs from exterior concrete or masonry.

3.4 Suspended and Furred Ceilings

- .1 Arrange hangers for suspended gypsum board ceilings to provide support independent of walls, columns, pipes, ducts; erect plumb, and securely anchored to structural frame, or embed in concrete slabs.
- .2 Keep lateral braces at hangers back 450 mm (18") minimum unless otherwise noted.
- .3 Space hangers at 914 mm (36") on centre maximum along runner channels, and not more than 150 mm (6") from ends.
- .4 Space runner channels at 1220 mm (48") on centre, maximum, and not more than 150 mm (6") from boundary walls, interruptions of continuity, and changes in direction. Run channels transversely to structural framing members.
- .5 Where splices are necessary, lap members at least 200 mm (8") and wire each end with 2 loops. Avoid clustering or lining up of splices.
- .6 Attach to rod hangers by bending hanger sharply under bottom flange of runner, and securely wiring in place with saddle tie.
- .7 Erect cross furring channels transversely across runner channels at 400 mm (16") on centre maximum, 305 mm (12") on centre at fire rated assemblies, at not more than 150 mm (6") from boundary wall openings, interruptions in ceiling continuity, and changes in direction.
- .8 Secure furring channels to each support with purpose-made slips or wire tie. Splice joints by lapping channels and tying together.
- .9 Level cross furring channels to maximum tolerance of 3 mm in 3 m (1/8" in 10 ft).

Metal Supports for Gypsum Board

- .10 Install ceiling framing assemblies at interface with suspended acoustical ceilings specified in Section 09 51 23, to project minimum of 150 mm (6") above acoustic tile suspension assemblies.

3.5 Wall Furring

- .1 Install steel furring for braced walls, free standing walls, walls that are furred out as indicated.
- .2 Frame openings and around built-in equipment, cabinets, access panels, on 4 sides, with channels. Extend furring into reveals. Check clearances with equipment suppliers.
- .3 Provide bulkheads and boxed-in duct shafts, for beams, columns, pipes and around exposed services where indicated. Install 19 mm (3/4") channels at corners and at 305 mm (12") on centre.

3.6 Resilient Furring

- .1 Ceilings:
 - .1 Fasten the resilient furring perpendicular to the ceiling framing every 305 mm (12").
 - .2 Fasten the first furring member 150 mm (6") from the wall.
 - .3 Fasten the second furring member 305 mm (12") from the same wall.
 - .4 Fasten the last furring member 150 mm (6") from the opposite wall.
- .2 Partitions:
 - .1 Install resilient furring with outer leg oriented upward.
 - .2 Fasten the resilient furring maximum 610 mm (24") on centre.
 - .3 Fasten the first furring member 50 mm (2") from the floor. Install 150 mm (6") continuous strip of 12.7 mm (1/2") gypsum board along base of partitions where resilient furring installed.
 - .4 Fasten the second furring member 610 mm (24") from the floor.
 - .5 Fasten the last furring member 150 mm (6") from the ceiling.
- .3 Secure to each support with 25 mm (1") gypsum wallboard screw.
- .4 Provide resilient furring channel transverse to framing members, or as indicated.

3.7 Metal Stud Partition Framing

- .1 Provide partition tracks (runners) at floor and underside of structural assembly and as follows:
 - .1 Align accurately and lay out according to partition layout.
 - .2 Secure runners to concrete, access flooring and to concrete slabs, as applicable, with screwed or shot fasteners located 50 mm (2") from each end and spaced at maximum 610 mm (24") on centre.

Metal Supports for Gypsum Board

- .3 At partition corners, extend one runner to end of corner and butt other runner to it, allowing necessary clearance for gypsum board thickness. Runners should not be mitred.
- .2 Unless otherwise indicated, place interior studs vertically at centres as follows:
 - .1 Provide studs at 400 mm (16") on centre, and as specially spaced in accordance with details indicated.
 - .2 Provide studs not more than 50 mm (2") from abutting walls, openings and each side of corners.
 - .3 Provide freedom for 19 mm (3/4") deflection under beams, structural slabs and the like to avoid transmission of structural loads to studs, or install 50 mm (2") leg ceiling tracks.
- .3 Install studs in tracks at floor and ceiling.
- .4 Where horizontal runs of service lines are scheduled to be installed, arrange with applicable trades and install studs simultaneously with services.
- .5 At openings in stud walls, erect track at head and sills to accommodate intermediate studs. At each end of track, cut out flanges, turn up web, and fasten to studs. Install intermediate studs above and below openings in same manner and spacing as wall studs. Install double studs at each jamb, and double tracks at head of door openings.
- .6 At partitions requiring fire rating, erect in accordance with requirements of listing.
- .7 Size studs, connections, and runners to carry loads according to stud manufacturer's load tables, at 24 kg/m² (5 lb/ft²) live load to meet maximum allowable deflection limits. Where depth of stud is indicated, size metal thickness to meet allowable deflection limits.
- .8 Provide three studs at corner and intermediate intersections of partitions.
- .9 Coordinate work with others installing horizontal runs of service lines so that work is done simultaneously. Where standard holes are too small for installed services, notch studs, and splice notched flanges with splice pieces 305 mm (12") longer than notches, each fastened with 2 screws.
- .10 Coordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
- .11 Coordinate erection of studs with installation of door/window frames and special supports or anchorage for work specified in other sections.
- .12 Unless otherwise indicated, partitions, together with gypsum board facings, shall extend above ceilings to underside of structure above.
- .13 Chase walls:
 - .1 Provide chase walls consisting of two parallel steel stud partitions.
 - .2 Provide cross bracing consisting of metal furring, located at quarter points on each pair of studs. Attach cross bracing to studs with metal screws.
- .14 Lateral support bracing channels:

Metal Supports for Gypsum Board

- .1 Stiffen partitions over 3 m (10') in vertical span, at mid-height to maximum vertical spacing of 2440 mm (8') on centre, with at least one 19 mm (3/4") horizontal bracing channel, extending full length of partition, overlapping at least two stud spaces at ends of bracing channels.
- .2 Stiffen partitions at not more than 150 mm (6") from the top and bottom of openings and across two full stud spaces at each side of openings with horizontal bracing channel.
- .15 Install steel stud reinforcement 1.720 mm (0.0677") at door frames and brace above ceiling. Secure to top and bottom structure with angle brackets and anchors.

3.8 Control Joints

- .1 Control joints: in accordance with Section 09 29 00.

3.9 Concrete Anchors

- .1 Provide anchors and anchorage points in reinforced concrete floor slab underside in accordance with gypsum board manufacturer's suspension requirements and in compliance with engineered shop drawings. Drill holes with carbide-tipped drill bits conforming to ANSI B212.15-1994 (R2000).
- .2 Provide anchors; minimum installation depth, and method of expansion as recommended by the anchor manufacturer.

3.10 Field Quality Control

- .1 Conduct quality control in accordance with Section 01 45 00.
 - .1 Field tests and inspections:
 - .1 Independent inspection and testing company will perform random load tests for ceiling anchor installation.
 - .2 Allow for testing of 1 in 20 anchors.

END OF SECTION

Gypsum Board

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Gypsum board; paper-faced.
 - .2 Gypsum board; interior mould and moisture resistant; glass scrim (GWB-M).
 - .3 Gypsum board; fire-rated, glass scrim faced.
 - .4 Gypsum board; abuse resistant.
 - .5 Gypsum board; impact resistant.
 - .6 Gypsum board accessories and miscellaneous related materials.

1.2 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Shop drawings:
 - .1 Indicate control joint locations.
- .4 Samples:
 - .1 Submit 250 mm (10") square samples of each type of panel board material.
- .5 Fire-rated assembly listings and STC assembly ratings:
 - .1 Submit fire-rated assembly listings for each required fire resistance rated assembly for work of this section.
 - .2 Submit STC assembly ratings for each required STC rated assembly for work of this section.

1.3 Quality Assurance

- .1 Qualifications:
 - .1 *Subcontractor*. Shall have 10 years' experience, minimum, in successful installation of work of type and quality indicated and specified.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

- .1 Single source responsibility: Obtain gypsum and cement board products from a single manufacturer.
- .2 Fire resistance rating:

Gypsum Board

- .1 Construct fire resistance rated assemblies in accordance with listing and CAN/ULC S101-14.
- .3 Paper-faced gypsum board: in accordance with ASTM C1396/C1396M-17.
- .4 Glass scrim gypsum board: in accordance with ASTM C1658/C1658M-13.
- .5 Fire rated in accordance with listed assemblies where indicated: Type X or Type C.
- .6 Thickness: 16 mm minimum unless otherwise indicated.
- .7 Set bottom edge of gypsum board at 12 mm (0.5") minimum above the finished floor level and seal the gap in accordance with CSA Z8000.

2.2 Gypsum Board Panels

- .1 Gypsum board; paper faced:
 - .1 *Acceptable Products:*
 - .1 CertainTeed 'Regular Gypsum Board'.
 - .2 CGC 'Sheetrock Brand Gypsum Panel'.
 - .3 Georgia-Pacific 'ToughRock Gypsum Board'.
- .2 Gypsum board; interior mould and moisture resistant, glass scrim:
 - .1 Resistant to mould growth with highest level of performance (score of 10) when tested to ASTM D3273-21.
 - .2 *Acceptable Products:*
 - .1 CGC 'Sheetrock Brand Glass-Mat Panels Mold Tough Regular/Firecode X'.
 - .2 Georgia-Pacific 'DensArmor Plus Fireguard High-Performance Interior Panel'.
 - .3 Substitutions: in accordance with Section 01 25 00.
- .3 Gypsum board; fire-rated; glass scrim:
 - .1 *Acceptable Products:*
 - .1 CertainTeed 'GlasRoc Interior Type X'.
 - .2 CGC 'Sheetrock Brand Glass-Mat Panels Mold Tough Firecode X'.
 - .3 Georgia-Pacific 'DensArmor Plus Fireguard and Fireguard C'.
- .4 Gypsum board; abuse resistant:
 - .1 Mould and moisture resistant: in accordance with ASTM D3273-16, with a panel score of 10.
 - .2 Abuse resistance performance:
 - .1 Surface abrasion surface damage: in accordance with ASTM D4977/D4977M-03(2013)e1, Level 3.
 - .2 Surface indentation surface damage: in accordance with ASTM D5420-16, Level 1.

Gypsum Board

- .3 Soft-body impact penetration: in accordance with ASTM E695-03(2015)e1, Level 2.
- .4 Hard Body Impact resistance: in accordance with ASTM C1629/C1629M-18, App.1, Level 1.
- .3 Glass mat faced:
 - .1 Acceptable *Products*:
 - .1 CGC 'Sheetrock Brand Glass-Mat Panels Mold Tough AR Firecode X'.
 - .2 Substitution: in accordance with Section 01 25 00.
- .5 Gypsum board; impact resistant:
 - .1 Mould and moisture resistant: in accordance with ASTM D3273-16, with a panel score of 10.
 - .2 Glass mat faced:
 - .1 Impact resistance performance:
 - .1 Surface abrasion surface damage: in accordance with ASTM D4977/D4977M-03(2013)e1, Level 3.
 - .2 Surface indentation surface damage: in accordance with ASTM D5420-16, Level 1.
 - .3 Soft-body impact penetration: in accordance with ASTM E695-03(2015)e1, Level 3.
 - .4 Hard Body Impact resistance: in accordance with ASTM C1629/C1629M-18, App.1., Level 2.
 - .2 Acceptable *Products*:
 - .1 CGC 'Sheetrock Brand Glass-Mat Panels Mold Tough VHI Firecode X'.
 - .2 Georgia-Pacific 'DensArmor Plus Impact-Resistant Interior Panel'.
 - .3 Substitutions: in accordance with Section 01 25 00.

2.3 Attachment Materials

- .1 Screws; for gypsum board: bugle head, fine thread, self-tapping, Type W or S or S-12 point to suit framing type and metal gauge, with corrosion resistant finish in accordance with ASTM C1002-07/ASTM C954-11.
 - .1 Screw sizing:
 - .1 #6 x 25 mm (1") for single thickness board fastening.
 - .2 #6 x 32 mm (1-1/4") for single thickness 15.9 mm (5/8") board fastening.
 - .3 #7 x 41 mm (1 5/8") for double thickness board fastening.
 - .2 Provide thermoset polyester coated screws formulated to provide enhanced corrosion protection for exterior glass scrim gypsum board and soffit board applications.

Gypsum Board

- .2 Tie wire: 1.6 mm (0.063") diameter galvanized soft annealed steel wire.

2.4 Related Support Assemblies and Backer Plates

- .1 Metal support systems and backer plates at interior assemblies: in accordance with Section 09 22 00.

2.5 Joint Treatment Materials

- .1 General: Comply with ASTM C475/C475M-17(2022).
- .2 Joint tape: in accordance with manufacturer's written requirements.
- .3 Joint compound for interior gypsum board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - .1 Prefilling: Use setting-type compound as recommended by panel board manufacturer.
 - .2 Embedding and first coat: Use setting-type or taping compound as recommended by panel board and trim accessory manufacturers.
 - .3 Fill and finish coats: Use sanding type setting-type or taping compound as recommended by panel board manufacturer.
- .4 Joint compound for tile backing panels: in accordance with manufacturer's written requirements.

2.6 Acoustic Wall Assembly Materials

- .1 Acoustic sealant; concealed locations: to meet material requirements as listed in Part 9 of ASTM C919-22, including ASTM C834-10 or ASTM C920-14:
 - .1 Acceptable *Products*:
 - .1 Hilti Canada Corp 'CS-S SA Light'.
 - .2 Owens Corning 'QuietZone Acoustic Sealant'.
 - .3 Pecora 'BA-98'.
 - .4 Pecora 'AC-20'.
 - .5 Tremco 'Tremflex 834'.
 - .6 Substitutions: in accordance with Section 01 25 00.
- .2 Acoustic sealant; exposed locations, acrylic:
 - .1 Acrylic/latex acoustic sealant, Type S, Grade NS, Class 12.5 to ASTM C920-14, maximum VOC content 60 g/L, non-hardening or ASTM C834-10, Type OP, Grade -18° C.
 - .2 For exposed sealants use paintable sealant products, do use non-skinning type products where they are exposed to view or where sealant products may deteriorate (stain or bleed into) into painted surfaces.
 - .3 Acceptable *Products*:

Gypsum Board

- .1 Hilti Canada Corp 'CS-S SA Light'.
 - .2 Master Builders Solutions Canada 'MasterSeal NP 520'.
 - .3 Owens Corning 'QuietZone Acoustic Sealant'.
 - .4 Pecora 'AC20'.
 - .5 Tremco 'Tremflex 834'.
- .3 Smoke and acoustic sealant; concealed locations, non-fire-rated acoustic assemblies:
- .1 Acrylic smoke and acoustic sealant, in accordance with ASTM C834-10 maximum VOC content 60 g/L, paintable, Flame Spread Value of maximum 25 to CAN/ULC-S102-10.
 - .2 Sealant shall not deteriorate (stain or bleed into) painted surfaces.
 - .3 Acceptable *Products*:
 - .1 Hilti Canada Corp 'CS-S SA Light'.
 - .2 Tremco 'Tremstop Smoke & Sound Sealant'.
 - .3 Substitutions: in accordance with Section 01 25 00.
 - .4 Acoustic sealant for plenum locations: Smoke-seal sealant with flame-spread not more than 25 and smoke developed classification not more than 50 to CAN/ULC-S102-10, in accordance with Section 07 84 00.
 - .5 Acoustic compound: premixed perlite plaster.
 - .6 Acoustic (sound attenuation) insulation:
 - .1 Mineral-fibre sound attenuation batts: in accordance with CAN/ULC S702-14, Type 1, fire resistant and non-combustible to CAN/ULC-S114-05, high density for sag-free, tight fitting installation.
 - .1 Density: minimum 40 kg/m³ (2.5 lbs/ft³).
 - .2 Acceptable *Products*:
 - .1 Johns Manville 'MinWool Sound Attenuation Fire Batts'.
 - .2 Owens-Corning 'Thermafiber SAFB'.
 - .3 Rockwool 'AFB'.
 - .2 Fasteners: use mechanical fasteners where required to secure insulation into position in accordance with insulation manufacturer.

PART 3 - EXECUTION

3.1 Installation

- .1 General:
 - .1 Comply with ASTM C840-18b, GA 216-21, GA 600-21, and manufacturer's written requirements, except as otherwise indicated.
 - .2 Do not bridge building expansion joints with support system.

Gypsum Board

- .3 Frame both sides of joints with furring and other supports as indicated.
- .2 Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1.6 mm (1/16") open space between boards. Do not force into place.
- .3 Cover both faces of stud partition framing with gypsum board in concealed spaces (above ceiling, and the like) unless otherwise indicated, except in chase walls which are properly braced internally.
- .4 Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cut-outs.
- .5 Apply components of fire-rated assemblies in conformance with indicated designs.
- .6 Do not apply gypsum board in close proximity to hot pipes or heating ducts.
- .7 Install materials with the minimum number of joints. Tightly butt joints, without force, and neatly align them.
- .8 Frame openings on every side. Provide clearances with services.
- .9 Work shall include bulkheads over doors, frames, screens, and changes in ceiling levels, pipe space and as indicated.
- .10 Provide clearances between work of this section and structural elements to prevent transference of structural loads in accordance with Section 09 22 00.
- .11 Tolerances:
 - .1 Do not exceed 3 mm (1/8") in 3 m (10') variation from plumb, level, and plane in exposed surfaces, except at end joint between gypsum board panels.
 - .2 Do not exceed 10 mm (3/8") from indicated location.
 - .3 Do not exceed 1.5 mm (1/16") variation between planes of abutting edges or ends.
 - .4 Surface flatness shall not exceed 1.5 mm (1/16") within 305 mm (12") straight edge. For non-tapered-edge end joints between boards, measure flatness tolerance with end of straight end at centreline of joint.

3.2 Accessories

- .1 At external corners install corner trim secured to framing at 230 mm (9-1/16") on centre on both flanges with screw fasteners or clinch tool.
- .2 Secure casing trim at board edges where exposed to view, where board butts against other materials with no trim to conceal junction, at perimeter of ceiling surfaces at tops of partitions where they stop against continuous ceiling surfaces, and where indicated.
- .3 Erect accessories straight, plumb or level, rigid and at proper plane.
- .4 Use full length pieces.
- .5 Make joints tight, accurately aligned and rigidly secured. Mitre and fit corners, free from rough edges. Secure in accordance with manufacturer's specifications unless otherwise required.
- .6 Installation tolerances:

Gypsum Board

- .1 Alignment with board panels shall not exceed tolerances specified above.
- .2 End joints shall be flush aligned to maximum offset of 0.5 mm (0.020").

3.3 Board Application - General

- .1 Before installation of board commences, ensure that internal services have been installed, tested, and approved; conduits, pipes, cables, and outlets are plugged, capped, or covered; and that fastenings and supports installed by others are in place.
- .2 Extend board into door, window, and other openings, reveals, behind fitments, and other applied items and on metal stud partitions to structure above unless indicated otherwise.
- .3 Apply board with long dimension perpendicular to supports, unless otherwise indicated.
- .4 Locate joints on opposite sides of partitions on different studs, and at least 305 mm (12") from opening jambs.
- .5 Install board to minimize joints, and align end joints to be the least objectionable (where they are unavoidable), according to the indicated lighting design. Locate joints in ceilings where least prominently discerned, and never line them up with opening edges.
- .6 Form smooth joints at ends and at field cut edges of board panels.
- .7 Fasten board to metal support members by metal gypsum board screws, 9.5 mm (0.374") minimum to, and 12.7 mm (1/2") maximum from, centre of joints.
 - .1 Space screws:
 - .1 At fire rated board as per fire-rated assembly.
 - .2 At typical board walls at 400 mm (16") on centre at edges and field unless otherwise required.
 - .3 At typical board ceilings at 305 mm (12") on centre at edges and field unless otherwise required.
- .8 Offset gypsum board joints 150 mm (6") minimum from corners of openings.
- .9 Locate gypsum panel product joints so that no joint will align with the edge of an opening unless control joints are to be installed at these locations.
- .10 Replace damaged or weathered sheathing boards.

3.4 Interior Mould and Moisture Resistant Gypsum Board Application

- .1 Apply water resistant sealant to edges, ends, cut-outs which expose gypsum core and to fastener heads. Do not apply joint treatment on areas to receive tile finish.

3.5 Abuse Resistant Board Application

- .1 Install abuse resistance gypsum board in accordance with gypsum board manufacturer's written requirements.

Gypsum Board

- .2 Where both abuse resistant gypsum panels and plain gypsum board are used together on the same surface plane adjacent to one another, a smooth transition between the two types of boards is required. Finish the work in a manner such that the transition provides an inconspicuous joint when viewed by a person at normal viewing angles while standing in front of the boards from a distance of not less than 1000 mm (39").

3.6 Impact Resistant Board Application

- .1 Install impact resistance gypsum board in accordance with gypsum board manufacturer's written requirements.
- .2 Where both impact resistant gypsum panels and plain gypsum board are used together on the same surface plane adjacent to one another, a smooth transition between the two types of boards is required. Finish the work in a manner such that the transition provides an inconspicuous joint when viewed by a person at normal viewing angles while standing in front of the boards from a distance of not less than 1000 mm (39").

3.7 Acoustic Wall Assemblies

- .1 Acoustical sealant and plaster:
 - .1 Apply acoustical sealant to seal gaps in accordance with ASTM C919-22 and in accordance with the STC rated assembly.
 - .2 Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C919-22 and with manufacturer's written requirements for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.
 - .3 Clean substrate, remove debris and deleterious substances.
 - .4 Apply sealant to close voids; no leaks around track and gypsum board.
- .2 Sound attenuation insulation:
 - .1 Install sound attenuation insulation to fill cavity unless otherwise indicated.
 - .2 Trim insulation to provide close-fit contact to framing assemblies and fill the partition cavity or acoustic insulation assemblies to thicknesses specified or indicated.
 - .3 Maintain air space between backs of sound attenuation insulation and back of opposite partition face layer, as applicable.
 - .4 Cut insulation to provide close-fit contact around electrical boxes, pipes, and other obstructions and penetrations through and within acoustic assemblies.
 - .5 Extend acoustic partition assemblies to underside of structure. Incorporate approved provision to prevent transmittance of structural deflection to partition assembly.
 - .6 Staple sound attenuation insulation where required by manufacturer's installation requirements.

Gypsum Board

- .7 Where studs are not faced with gypsum board on both sides, mechanically fasten wire mesh to non-faced side of stud to retain insulation.
- .8 Mechanically attach sound attenuation insulation in wall assemblies where cavity of wall assembly is greater than 150 mm (6").
- .9 Secure insulation in such a manner that it will not sag or settle away from required locations.
- .3 Sound flanking paths:
 - .1 Where sound rated partition walls intersect non rated gypsum board partition walls, extend sound rated construction to completely close sound flanking paths through non rated construction.
 - .2 Seal joints between face layers at vertical interior angles of intersecting partitions.

3.8 Finishing

- .1 Provide levels of gypsum board finish for locations as follows, in accordance with GA 214-21.
 - .1 Level 1: Ceiling plenum areas and concealed areas, except provide higher level of finish as required to comply with fire resistance ratings and acoustical ratings.
 - .2 Level 2: Gypsum board substrate at applied hard surfaces, except remove tool marks and ridges.
 - .3 Level 4: Exposed gypsum board surfaces, except where another finish level is indicated.
- .2 Interior gypsum board:
 - .1 Prefill:
 - .1 Use setting-type joint compound. Mix joint compound according to manufacturer's written requirements.
 - .2 Fill joints between boards flush to top of eased or beveled edge.
 - .3 Fill joints of gypsum board above suspended ceilings in fire rated partitions.
 - .4 Wipe off excess compound and allow compound to harden.
 - .5 Prefill joint gaps not greater than 3.2 mm (1/8") with either ready-mix or setting type joint compound; prefill joint gaps greater than 3.2 mm (1/8") with setting-type joint compound.
 - .2 Taping (Level 1):
 - .1 Butter taping compound into inside corners and joints.
 - .2 Centre tape over joints and press down into fresh compound.
 - .3 Remove excess compound.
 - .4 Tape joints of gypsum board above suspended ceilings.
 - .3 First coat (Level 2):

Gypsum Board

- .1 Use taping or all-purpose drying-type compound.
- .2 Immediately after bedding tape, apply skim coat of compound and allow to dry completely in accordance with manufacturer's written requirements.
- .3 Apply first coat of compound over flanges of trim and accessories, and over exposed fastener heads and finish level with board surface.
- .4 Cover fastener heads and accessories with 1 coat of joint compound.
- .4 Second coat (Level 3): After first coat treatment is dried, apply second coat of compound over tape and trim, feathering compound 50 mm (2") beyond edge of first coat.
 - .1 Cover fastener heads and accessories with total of 2 separate coats of joint compound.
- .5 Third coat (Level 4):
 - .1 After second coat has dried, sand surface lightly and apply thin finish coat to joints, fasteners and trim, feathering compound 50 mm (2") beyond edge of second coat.
 - .2 Allow third coat to dry. Apply additional compound, and touch-up and sand, to provide surface free of visual defects, tool marks, and ridges, and ready for application of finish.
 - .3 Finished joints will be accepted with a camber not greater than 1 mm (1/32") and shall be seamless, plumb, true and flush and with square, neat corners.
 - .4 Cover fastener heads and accessories with total of 3 separate coats of joint compound.
 - .5 Where new partitions align with existing gypsum board, apply required amount of skim coats to make transition inconspicuous from a distance of 914 mm (36").
 - .6 Completed installation at interface between new and existing construction shall provide an inconspicuous joint.
- .6 Skim coat (Level 5):
 - .1 After the fourth coat has dried, apply skim coat over exposed surfaces of gypsum board in accordance with manufacturer's written requirements.
 - .2 After skim coat has dried, touch-up and sand to provide surface free of visual defects, tool marks, and ridges, and ready for application of finish.
- .3 Interior mold and moisture resistant gypsum board: Treat fastener heads and joints with setting-type joint compound.
 - .1 For joints to be covered with tile, apply tape and joint compound bedding coat and skim coat only; do not apply finish coats.
 - .2 Do not crown joints or leave excess compound on panels.
 - .3 Remove tool marks and ridges.
 - .4 For fastener heads to be covered with tile, apply one coat of joint compound.

Gypsum Board

- .4 Joint compound:
 - .1 Apply finish coat of compound feathering 75 to 100 mm (3" to 4") beyond tape edges.
 - .2 Feather coats onto adjoining surfaces so that camber is maximum 0.79 mm (1/32").
- .5 Trim:
 - .1 Use same fasteners to anchor trim accessory flanges as required to fasten gypsum board to supports, unless otherwise recommended by trim manufacturer.
 - .2 Install metal corner beads at external corners.
 - .3 Install metal casing bead trim whenever edge of gypsum base would otherwise be exposed or semi exposed, and where gypsum base terminates against dissimilar material.
 - .4 Erect beads plumb or level, with minimum joints.
- .6 Control joints:
 - .1 Provide control joints set in board facing. Support control joints with studs or furring channels on both sides of joint.
 - .2 Provide control joints in required locations
 - .1 Review control joint locations with *Consultant* prior to installation.
 - .3 Install control joints where a partition, wall, or ceiling traverses a construction joint (expansion, seismic or building control element) in the building structure.
 - .4 Install control joints where a wall or partition runs in an uninterrupted straight plane exceeding 9100 mm (30 linear feet).
 - .5 Install control joints in interior ceilings:
 - .1 With perimeter relief:
 - .1 Linear dimensions between control joints shall not exceed 15000 mm (50 ft) and total area between control joints shall not exceed 230 m² (2500 ft²).
 - .2 Without perimeter relief:
 - .1 Linear dimensions between control joints shall not exceed 9100 mm (30 ft) and total area between control joints shall not exceed 84 m² (900 ft²).
 - .6 Install control joints where ceiling framing members change direction.
 - .7 Where a control joint occurs in an acoustical or fire-rated system, provide blocking behind the control joint by using a backing material such as 16 mm (5/8") Type X gypsum panel products, mineral fibre, or other tested equivalent. Construct through-wall control joints at fire-rated assemblies in accordance with assembly listing requirements.

Gypsum Board

- .8 Line up control joints with joints in other construction or with centre lines of mullions, columns, piers, or similar building elements, where accepted by *Consultant*.
- .9 Install control joints straight and true.
- .10 Ceiling height door frames may be used as control joints. Less than ceiling height frames shall have control joints extending to the ceiling from both corners. If control joints are not used, additional reinforcement is required at corners to distribute concentrated stresses.
- .11 Locate board joints so that no joint will align with the edge of an opening unless control joints are to be installed at these locations.

3.9 Fire Separations

- .1 Install fire-rated assemblies in accordance with assembly listing requirements in order to obtain fire ratings indicated and as required by authorities having jurisdiction.
- .2 Vertical bulkheads in ceiling spaces over fire rated partitions, doors and the like shall have same fire rating as the partition over which they occur. Such bulkheads shall be of gypsum board construction unless otherwise indicated.
- .3 Use fire rated gypsum wallboard as specified.
- .4 Where lighting fixtures, diffusers, and the like are recessed into fire rated ceilings or bulkheads, provide enclosure to maintain required fire rating. Form removable panel to give access to fixture outlet box.
- .5 Where fire hose cabinets or other fixtures or equipment are recessed in fire rated walls or partitions, provide gypsum board enclosure or backing to maintain required fire rating, unless otherwise detailed.

3.10 Adjusting and Cleaning

- .1 Clean up and remove surplus materials and rubbish resulting from the work of this section upon completion.
- .2 Clean off beads, casings, joint compound droppings and the like, leave the work of this section ready for painting trades.

END OF SECTION

Acoustical Tile Ceiling Systems

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Acoustical tile ceiling systems; ACT1.
 - .2 Acoustical tile ceiling system, security type; ACT2.

1.2 Administrative Requirements

- .1 Coordination:
 - .1 Cooperate with mechanical and electrical *Subcontractors*.
 - .2 Coordinate layout and installation of acoustic ceiling units and suspension systems components with other work supported by or penetrating through ceilings, including light fixtures, HVAC equipment, partition system, fire suppression system components and other work required to be incorporated in or coordinated with the ceiling system.
- .2 Conduct a pre-installation meeting in accordance with Section 01 31 19.
 - .1 Independent inspection and testing company shall attend the pre-installation meeting.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Shop drawings:
 - .1 Submit engineered shop drawings, including seismic design, connections and restraint.
 - .2 Submit manufacturer's standard details.
 - .3 Indicate lay-out, insert and hanger spacing and fastening details, splicing method for main and cross runners, location of access splines, and acoustical unit support at ceiling fixture.
 - .4 Submit reflected ceiling plans for special grid patterns as indicated.
- .4 Samples:
 - .1 Submit sample of each component of ceiling system. Samples shall fully represent materials to be supplied in colour, texture, finish and construction.
 - .2 Submit samples, load test data and design tables for each type of insert to be used in the *Work* for hanger supports.
- .5 Certificates:

Acoustical Tile Ceiling Systems

- .1 Submit certificate of compliance stating that the suspension system provided, including materials and installation, comply with the requirements of the *Contract Documents*.

1.4 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Maintenance data:
 - .1 Submit maintenance and cleaning instructions for acoustical ceiling systems for incorporation into the maintenance manuals.
- .3 Maintenance materials:
 - .1 Deliver for maintenance use, 2% of each type and colour of suspension components and acoustical tiles used in the *Work*.
 - .2 Pack panels in suitable containers, clearly dated and identified as to type and location of installation in the *Work*, and store where directed by *Owner*.

1.5 Quality Assurance

- .1 Qualifications:
 - .1 Installers / applicators / erectors:
 - .1 Installers: Shall have 5 years' experience, minimum, in application of *Products*, systems and assemblies specified and with approval and training of *Product* manufacturers.
- .2 Mock-ups:
 - .1 Construct in locations acceptable to *Consultant* a typical sample ceiling installation 10 m² (108 ft²) in area, complete with perimeter wall trim, and cut tegular tile demonstrating rectified edge. Modify sample as directed and as required to obtain approval. Upon acceptance retain sample as standard of quality for acoustical ceiling.
 - .2 Do not begin fabrication and erection of remainder of ceiling system until sample installation has been reviewed and accepted. Accepted sample may become a part of the final *Work*, subject of approval of *Consultant*.

1.6 Site Conditions

- .1 Interior temperature of building shall be between 15°C and 30°C, and relative humidity shall be not more than 70% before and during installation. Maintain uniform temperatures for 72 hours prior to commencement of the work of this section and maintain temperature until completion of the work of this section.

1.7 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranties:
 - .1 System:

Acoustical Tile Ceiling Systems

- .1 Labour, materials, and workmanship for work of this section.
- .2 Duration: 2 years.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

- .1 Design suspension systems for a maximum mid-span deflection not exceeding L/360 in accordance with ASTM C635/C635M-22 deflection test.
- .2 Seismic design: Design and install suspended ceiling system to withstand the effects of earthquake motions in accordance with ASTM E580/E580M-22.
- .3 Design suspension system to support safely, and without distortion, the superimposed loads of:
 - .1 Air supply diffusers and return grilles.
 - .2 Lighting fixtures.

2.2 General

- .1 Single source responsibility: Obtain each type of acoustical ceiling unit and suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the *Work*. Products installed as part of the work of this section shall be from same production run.

2.3 Acoustical Tiles

- .1 ACT1; Lay-in acoustical tiles:
 - .1 Classification: Type IV, Form 1 & 2, Pattern E & G in accordance with ASTM E1264-23.
 - .2 Size: 610 mm x 1220 mm (24" x 48").
 - .3 NRC: 0.75.
 - .4 Material: Mineral fibre.
 - .5 Surface texture: Fine.
 - .6 Edge: Square.
 - .7 Colour: White.
 - .8 Flame spread:
 - .1 Maximum values in accordance with CAN/ULC-S102-10:
 - .1 Flame Spread Value (FSV): 25.
 - .2 Smoke Developed Value (SDV): 50.
 - .9 Acceptable *Products*:
 - .1 USG 'Mars Panels'.
 - .2 Substitutions: in accordance with Section 01 25 00.

Acoustical Tile Ceiling Systems

- .2 ACT2; Lay-in security acoustic ceiling tile:
 - .1 Classification: Unperforated Type XX, Pattern G.
 - .2 Size: 610 mm x 610 mm (24" x 24").
 - .3 Material: Electrogalvanized steel, 18 gauge thickness.
 - .4 Surface texture: Smooth.
 - .5 Colour: White.
 - .6 Flame spread:
 - .1 Maximum values in accordance with CAN/ULC-S102-10:
 - .1 Flame Spread Value (FSV): 25.
 - .2 Smoke Developed Value (SDV): 50.
 - .7 Point-load tested to withstand up to 385.5 kgs (850 lbs) and a minimum of 195 kg (430 lbs).
 - .8 Protection against contraband concealment.
 - .9 Concealed locking.
 - .10 Acceptable *Products*:
 - .1 Armstrong 'Metalworks Securelock'.
 - .2 Substitutions: in accordance with Section 01 25 00.

2.4 Metal Suspension Systems

- .1 Hanger anchorage devices: Screws, clips, bolts, concrete inserts or other devices applicable to the indicated method of structural anchorage for ceiling hangers and whose suitability for use intended has been proven through standard construction practices or by certified test data. Size devices for 3 x calculated load supported except size direct pull-out concrete inserts for 5 x calculated loads.
- .2 Concrete hanger anchors; post installed: Steel eye bolts and nuts to suit ceiling hangers with capability to sustain, without failure, a load equal to 4 times that imposed by ceiling construction, as determined by testing per ASTM E488/E488M-22, conducted by a qualified independent testing laboratory.
 - .1 Dynabolt Sleeve Anchor 'TW-1614' or Rendi-Tie-Drive 'TD4-112' tie wire anchor by ITW Ramset/Red Head.
 - .2 Kwik-Bolt III 'HHDCA 1/4' tie wire anchor by Hilti Corporation.
 - .3 Fasteners exposed to weather, condensation, and corrosion: Zinc-plated or stainless steel fasteners in applicable product lines specified in preceding paragraphs.
- .3 Hangers and tie wire: Galvanized wire, recommended by manufacturer of suspension system, minimum 2.66 mm (0.1") (12 gauge).
- .4 Suspension system accessories:

Acoustical Tile Ceiling Systems

- .1 Splices, clips, and perimeter moulding, of manufacturer's standard type to suit the applicable conditions unless special conditions and access area are shown or specified.
- .2 Hold-down clips; manufacturer's standard type for fire-rated applications.
- .3 Angle wall mouldings; hemmed with prefinished exposed flanges:
 - .1 For 24 mm (15/16") grid applications; angle moulding with exposed bottom flange of 22 mm (7/8").
 - .1 CGC 'M7'.
- .4 Stepped wall mouldings; hemmed with prefinished exposed flanges:
 - .1 For 24 mm (15/16") grid applications; shadow moulding with exposed bottom flange of 22 mm (7/8") and reveal of 19 mm (3/4").
 - .1 CGC 'MS154'.
- .5 Compression posts: galvanized steel telescoping compression posts to attached to main tees at each splayed wire location preventing upward movement of the ceiling grid system, designed for seismic applications, size to suit ceiling assembly, injection-moulded high impact clip snaps onto main tee for secure positive locking, spring steel top clip attaches to hanger wire, ICBO (International Conference of Building Officials) listed, tested and certified to a minimum compressive load of 408 kg (900 lb); DONN Compression Post as manufactured by CGC Interiors or approved alternative.
- .6 Seismic clips: Ceiling system manufacturer's standard seismic clips designed and spaced to secure tiles in place.
- .5 Standard suspension system, non fire-rated:
 - .1 Heavy duty in accordance with ASTM C635/C635M-22, 24 mm (15/16") interlocking tee system, designed to support acoustical panels in patterns indicated with deflection of main tees less than L/360, consisting of main tees and cross tees. The system shall provide lock joint intersections of cross and main tees.
 - .1 ACT1:
 - .1 *Acceptable Products:*
 - .1 CGC 'DX'.
 - .2 ACT2:
 - .1 *Acceptable Products:*
 - .1 Armstrong 'Prelude XL 15/16" Exposed Tee Systems'.

2.5 Miscellaneous Materials

- .1 Acoustical sealant: Non-drying, non-hardening, non-skinning, non-staining, non-bleeding, gunnable sealant complying with requirements specified in Section 07 92 00.

Acoustical Tile Ceiling Systems

2.6 Accessories:

- .1 ACT2:
 - .1 Provide accessories as recommended and required by panel manufacturer.

2.7 Metal Finish

- .1 Metal exposed in finished work shall have a pre-coated baked enamel finish in non-yellowing colour. Submit paint formulation of grid system to lighting fixture, speaker grille, sprinkler and diffuser manufacturers to ensure consistency of colour, sheen and texture of exposed metal components in the ceiling assemblies.
 - .1 Colour: Flat white.

PART 3 - EXECUTION

3.1 Installation - General

- .1 Install ceiling panels and metal suspension system in accordance with manufacturer's directions. Where manufacturer's directions are at variance with *Contract Documents*, notify *Consultant* before proceeding with installation.
- .2 Do not commence installation until work above suspended ceiling has been completed, inspected and accepted.

3.2 Installation - Suspension System

- .1 Install suspension system rigid, secure, square, level and plumb, framed and erected to maintain dimensions and contours indicated, and in accordance with ASTM C636/C636M-19, ASTM E580/E580M-22, Cisca installation standards, and any other applicable national or local code requirements. Make allowance for thermal and structural movement.
 - .1 Install acoustical ceiling suspension system to resist seismic disturbance in accordance with ASTM E580/E580M-22.
 - .2 Coordinate work of this section with work of the mechanical and electrical trades for seismic restraint. Install seismic fixture clamps, supplied by Divisions 21, 22, and 23 and Divisions 26, 27, and 28.
- .2 Attach hangers to structure with inserts and hanger supports. Do not use powder activated fasteners.
- .3 Support hangers for suspended ceiling grid independent of walls, columns, pipes and ducts.
- .4 Space hangers for ceilings at maximum 1220 mm (48") on centre in both directions. Provide additional hangers as required to comply with manufacturer's written installation requirements.
- .5 Locate hangers at not more than 150 mm (6") from ends of main tee members.
- .6 Seismic clips: Install seismic clips to secure tiles in place in accordance with ceiling system manufacturer's written requirements.

Acoustical Tile Ceiling Systems

- .7 Install exposed tee members to pattern indicated. Securely attach hangers to main tee members.
- .8 Exposed tees shall be as long as possible to minimize joints. Make joints square, tight, flush and reinforce with splines. Distribute joints to prevent clustering in one area.
- .9 Space tee bars to suit ceiling panels and as detailed, and to accommodate lighting fixtures, diffusers and return grilles.
- .10 Cooperate in the installation of ceiling systems, making adjustments where required to ensure that the lighting fixtures, supply diffusers, exhaust grilles and other built-in items properly fit into ceiling module and finish flush with rest of ceiling.
- .11 Restrict creep inside module panels so that strips are centred on module lines.
- .12 Install edge moulding as detailed where ceiling abuts vertical surfaces. Lap corners, use maximum lengths to minimize joints. Make joints square, tight and flush.
 - .1 Screw attach mouldings to substrates at intervals not more than 400 mm (16") on centre and not more than 210 mm (8") from ends, levelling with suspension system. Lap corners accurately and connect securely.

3.3 Installation - Tiles

- .1 Take precautions during installation to ensure tile edges are not chipped or otherwise damaged.
- .2 Minimize field cutting. Rectify cut tile edges of tile to match factory cut edge profile and colour.
- .3 Install acoustical tiles to form horizontal and level ceiling with parts flush and joints butted tightly to hairline appearance.
- .4 Distribute variations in colour and texture of panels to obtain a uniform appearance.

3.4 Installation - Tolerances

- .1 Allowable tolerances: in accordance with ASTM C636/C636M-19.
- .2 Install suspension systems level to tolerance of 1:1200.
- .3 Install edge mouldings level to tolerance of 3 mm in 3660 mm (1/8" in 12'-0").

3.5 Field Quality Control

- .1 Conduct quality control in accordance with Section 01 45 00 and as follows:
 - .1 Field tests and inspections:
 - .1 Independent inspection and testing company shall perform random load tests for ceiling anchor installation.

3.6 Adjusting and Cleaning

- .1 Replace uneven, defective or damaged materials and finishes, eliminate waves, remove soiled or stained areas.

Acoustical Tile Ceiling Systems

- .2 Clean dirty and discoloured surfaces of acoustical units and suspension system according to manufacturer's recommendations.

END OF SECTION

Resilient Sheet Flooring

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Resilient (rubber) sheet flooring; RSF1, RSF2.
- .2 Section excludes:
 - .1 RSF 3; resilient (vinyl) sheet flooring: in accordance with Section 09 65 18.

1.2 Administrative Requirements

- .1 Conduct a pre-installation meeting in accordance with Section 01 31 19.
 - .1 In addition to the agenda specified under Section 01 31 19, the following items shall be addressed at the pre-installation meeting:
 - .1 Compatibility of materials.
 - .2 Preparation and type of substrate.
 - .3 Testing requirements.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Shop drawings:
 - .1 Show locations of transitions, seams, floor drains, floor plates, and where flooring meets other flooring.
- .4 Samples:
 - .1 Selection samples:
 - .1 Submit manufacturer's range of pattern and colours available for *Consultant's* selection.
 - .2 Samples for verification:
 - .1 Flooring: In manufacturer's standard size, but not less than 150 mm (6") x 230 mm (6" x 9") sections of each different colour and pattern of floor covering required.
 - .2 Heat-welding bead: Manufacturer's standard-size samples, but not less than 230 mm (9") long, of each colour required.
 - .3 Transition trim: Manufacturer's standard size samples, but not less than 100 mm (4") long, of each colour required.

Resilient Sheet Flooring

- .4 Seam samples: For each floor covering product, colour, pattern, and seam required, installer shall provide a 150 mm x 230 mm (6" x 9") sample directly applied to a rigid backing material with the seam running lengthwise and in the center of the sample.
- .5 Test and evaluation reports:
 - .1 Submit moisture and alkalinity test results.
- .6 Manufacturer's instructions:
 - .1 Submit manufacturer's installation instructions for *Products* proposed for use in the work of this section.

1.4 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Operation and maintenance data:
 - .1 Submit manufacturer's operation and maintenance instructions for inclusion in the operation and maintenance manuals.
- .3 Maintenance materials:
 - .1 Submit width of material x 2% of each colour in full running length, pattern and type flooring material required for this project for maintenance use.
 - .2 Maintenance materials to be same production run as installed materials.
 - .3 Suitably package for protection and storage, each identified with name of manufacturer and flooring material.
 - .4 Tag and store where directed by *Owner*.

1.5 Quality Assurance

- .1 Qualifications:
 - .1 Installers:
 - .1 Shall have 5 years' experience, minimum, in application of *Products*, systems and assemblies specified and with approval and training of *Product* manufacturers.

1.6 Field Conditions

- .1 Ambient conditions:
 - .1 Install materials of this section only when surfaces and air temperatures have been maintained between 18.4°C and 29.4°C for 48 hours preceding installation, and will be so maintained during installation and for 48 hours thereafter. Maintain a minimum temperature of 13°C after above period. Relative humidity shall be 50 +/- 10%.
 - .2 Ensure that adequate ventilation is provided during installation and curing of materials of this section.

Resilient Sheet Flooring

- .3 In areas that are exposed to intense or direct sunlight, *Products* shall be protected during the conditioning, installation, and adhesive curing periods, by covering the light source.
- .4 Allow products to acclimatize in installation area for a minimum 24 hour prior to installation.

1.7 Delivery, Storage, and Handling

- .1 Package flooring materials and identify contents of each package.
- .2 Store materials for a minimum of 24 hours immediately before installation to comply with temperatures specified under Field Conditions.

1.8 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranty:
 - .1 Labour, materials, and workmanship for work of this section.
 - .2 Duration: 2 years.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

- .1 Slip resistance: Floors shall have a dry Static Coefficient of Friction (SCOF) of 0.50 or greater in accordance with ASTM D2047-17.
- .2 Rubber sheet flooring shall not:
 - .1 Become stained or discoloured due to slab markings.
 - .2 Delaminate from substrates.
 - .3 Have welded seams which separate.

2.2 General

- .1 Single source responsibility: Obtain each *Product* from a single source with resources to provide products of consistent quality in appearance and physical properties, same production run. Products installed as part of the work of this section shall be from same production run.

2.3 Resilient Sheet Flooring

- .1 Resilient sheet flooring:
 - .1 Prefabricated resilient rubber flooring: in accordance with ASTM F1859-21a, Type I.
 - .2 Thickness: 3.2 mm (0.125").
 - .3 Surface texture: Smooth.
 - .4 RSF 1:

Resilient Sheet Flooring

- .1 Colour/patterns:
 - .1 Allow for two selections.
 - .1 One wood look finish, to later selection by *Consultant* from manufacturer's range
 - .2 One finish to later selection by *Consultant* from manufacturer's range.
 - .2 Acceptable *Products*:
 - .1 Mondo 'Harmoni'.
 - .2 Nora 'Noraplan Envirocare'.

2.4 Miscellaneous Materials

- .1 Seam construction:
 - .1 Hot welded joints: provide welding rod matched to floor pattern/colour selected.
 - .2 Colours: To later selected by *Consultant* from full colour range.
- .2 Primers and adhesives:
 - .1 Types as recommended by resilient flooring manufacturer compatible with materials and to suit substrate types and to comply with warranty requirements.
- .3 Sealant: Pick-resistant, in accordance with Section 07 92 00.
- .4 Patching and levelling compound:
 - .1 Trowel applied Portland cement based, moisture, mildew, and alkali-resistant.
 - .2 Minimum compressive strength after 28 days shall be minimum 3,500 psi when tested in accordance with ASTM C109 or ASTM C472.
 - .3 Gypsum based compounds are not acceptable.
 - .4 Acceptable manufacturers:
 - .1 Ardex.
 - .2 Mapei.
 - .3 Substitutions: in accordance with Section 01 25 00.
 - .5 Acceptable *Product*: type as recommended by flooring manufacturer for existing substrate conditions.
- .5 Cleaning solution:
 - .1 Acceptable *Products*: type as recommended by flooring manufacturer.
- .6 Prefabricated flash cove base:
 - .1 Acceptable manufacturer:
 - .1 FlashCove Prefabricated Bases Inc.
 - .2 Description: 3 m (10') factory fabricated lengths, with puncture resistant aluminium reinforcing attached through the cove radius, using project specific sheet flooring in run to match specified flooring material and colours.

Resilient Sheet Flooring

- .3 Riser: 150 mm (6") riser with 75 mm (3") toe.
- .4 Cove cap:
 - .1 Stainless steel "chiklet" cap, adhered in place at time of cove installation. Distributed by FlashCove Prefabricated Bases Inc.
- .7 Floor transition strips:
 - .1 Resilient transition trims:
 - .1 Acceptable *Product*:
 - .1 Tarkett 'VT-XX-M6', 1-3/4" exposed surface threshold.
 - .1 Colours: to later selection by *Consultant*.

PART 3 - EXECUTION

3.1 Examination

- .1 Verify that field conditions have been provided as requested and specified.
- .2 Verify that substrates have been provided as specified without holes, protrusions, cracks greater than 1.6 mm (0.06") wide, unfilled control joints, depressions greater than 3 mm (1/8") deep, or other major defects.
- .3 Substrates shall be firm, structurally sound, sufficiently porous, and dry.
- .4 Examine substrate to ensure clean lines, correct level and freedom from cracks, ridges, dusting, scaling and carbonation.
- .5 Examine floors in advance of application of flooring to ensure that floors are protected against entry of water and moisture. Perform compatibility test with primer/adhesive and substrate.
- .6 Report conditions contrary to requirements preventing proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.
- .7 Failure to call attention to defects or imperfections will be construed as acceptance and approval of the substrate. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.
- .8 Defective work resulting from application to unsatisfactory surfaces will be considered the responsibility of those performing the work of this section.

3.2 Preparation

- .1 Comply with recommendations of ASTM F710-22.
- .2 Substrates shall be free of wax, oil, silicone, soap, grease, dust, solvents, sealers, curing compounds, hardeners, alkaline salts, excessive carbonation or laitance, mould, mildew, paints, varnish, asphalt, residual adhesives, adhesive removers, or other contaminants or deleterious material that may inhibit bond strength or act as a bond breaker. Remove such contaminants and deleterious material using mechanical methods recommended by manufacturer. Do not use chemical abatement methods.

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- .3 Concrete substrates that are loose, sandy, scaly, or have a white powdery surface are not acceptable. Substrates shall be mechanically prepared.
- .4 Flooring substrates shall be smooth and level within a tolerance of 3 mm (1/8") in a 3 m (10'-0") radius.
- .5 Fill surface cracks, holes, score marks, depressions, and grooves, and repair surface spalls with Portland cement patching or levelling compound.
- .6 At door opening locations where finished flooring is adjacent to weather-stripping or automatic door bottoms provide trowel-applied levelling compound to provide full contact between finished flooring and weather-stripping or automatic door bottoms. Taper trowel-applied levelling compound to transition with adjacent flooring substrate to provide smooth and seamless transition at maximum slope of 3:1000 (height to distance) ratio.
- .7 Expansion joints, isolation joints, and other movement joints in substrates shall not be filled with patching or levelling compound.
- .8 Remove bumps, high spots, peaks and ridges to produce a uniform and smooth substrate.
- .9 Prepare substrates so that installation of flooring shall not show telegraphing of substrate.
- .10 Remove chalking and dusting and loose material from concrete surfaces with wire brushed or by scraping.
- .11 Sweep and vacuum clean substrates minimum 24 hours prior to alkalinity and moisture testing. Do not use sweeping compounds.
- .12 Notify *Consultant* of any substrate or levelling compound defects or installation conditions that may result in unsatisfactory performance.
- .13 Prepared concrete substrate shall have a finish equivalent to a magnesium trowel finish. Shiny, slick, non-porous, or overly porous substrates are not acceptable and shall require additional preparation prior to installation of flooring products. Prepared concrete substrates shall have a Concrete Surface Profile #3 to #5 in accordance with International Concrete Repair Institute (ICRI).
 - .1 Substrate to be approved in writing by flooring manufacturer prior to application of flooring.
 - .2 Submit written report to *Consultant* following procedures for manufacturer's field review in accordance with Section 01 45 00.
- .14 Alkalinity and moisture testing:
 - .1 Test substrates in accordance with paragraph 3.6 Field Quality Control after mechanically preparing subfloor or applying patching and levelling compounds.
 - .2 Proceed with installation only after substrates pass testing. Document tests performed and submit in writing to *Consultant*.
- .15 Do not install floor coverings until they are same temperature as space where they are to be installed.
 - .1 Move floor coverings and installation materials to acclimatize in spaces where they will be installed at least 48 hours in advance of installation.

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- .16 Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation. Do not use sweeping compounds.
- .17 Where flooring adjoins thicker floor materials, apply levelling screed, feather out to make up difference in level between materials to achieve flush floor finish between adjacent flooring materials unless otherwise indicated.
- .18 Spray paints, permanent markers and other indelible ink markers shall not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through and permanently stain the flooring material. If such contaminants are present on the substrate they shall be mechanically removed prior to the installation of the flooring material.

3.3 Flooring Installation

- .1 Apply adhesive uniformly and install flooring in accordance with flooring manufacturer's requirements. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- .2 Allow material to relax unrolled overnight, minimum 12 hours in installation areas.
- .3 Install rolls and cuts in sequence following manufacturer's installation requirements/diagrams.
 - .1 Lay flooring with joints parallel to building lines to produce symmetrical pattern and minimum joints.
 - .2 Place seams in inconspicuous and low-traffic areas, at least 150 mm (6") away from parallel joints in levelling underlayment, concrete joints, saw cuts and other type of joints.
 - .3 Avoid cross seams.
 - .4 Lay sheet flooring centered in corridors, with equal sized sheet to either side of center sheet.
 - .5 Mitre intersections at corridors typically. "T" type corridors shall be butt type installation.
 - .6 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.
 - .7 Layout seaming uniformly, using full length flooring typically, minimum flooring size of not less than roll width. Limit quantity of less than full length floor pieces at corridors to maximum of 1.
 - .8 Layout flooring to match reviewed shop drawings floor pattern including borders and accents.
 - .9 Match edges of floor coverings for colour shading at seams.
- .4 Cutting and fitting sheets:
 - .1 Cut pieces to length allowing approximately 75 mm (3") to 150 mm (6") excess for trimming.
 - .2 Cut sheet and fit neatly around fixed objects without gaps.

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- .3 Install one sheet at a time in wet adhesive.
- .4 Roll the flooring immediately in both directions using 45 kg (100 lb) three-section roller.
- .5 As installation progresses, roll flooring with 75 kg (165 lb) roller to ensure full adhesion, remove adhesive ridges, and entrapped air.
- .6 Where cove base is not required, seal joint at wall with manufacturer's approved sealant.
- .7 Apply adhesive uniformly and at spreading rates in accordance with adhesive manufacturer's requirements. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- .8 Obtain 100% adhesive coverage to flooring backing.
- .9 Install flooring to entire area indicated or scheduled, including coverplates occurring within finished floor areas. Maintain overall continuity of colour and pattern with pieces of flooring installed on cover plates. Tightly butt edges to perimeter of floor around cover plates and to cover plates. Cut flooring to floor drains occurring within finished floor
- .10 Heat-welded seams:
 - .1 In accordance with manufacturer's written installation requirements.
 - .2 Weld seams in accordance with ASTM F1516-13(2018).
 - .3 Wait minimum number of hours as indicated on manufacturer's written installation requirements after flooring installation before grooving and heat welding seams.
 - .4 Prepare, weld, and trim seams to produce flat surfaces flush with adjoining floor covering surfaces.
 - .5 Trimming of welded joint while warm is not permitted unless final trimming is performed after weld has cooled to flooring temperature. Excess weld shall be removed using a heated standard putty knife.
 - .6 Maximum variation of welds from plane or from straight: 6 mm (1/4") in 3 m (10 ft) length using a 3 m (10 ft) straight edge.
- .11 Flooring installation shall not show telegraphing of substrate. Flooring installation shall be homogenous free of substrate lines, pockets, bumps and unevenness.

3.4 Prefabricated Flash Cove Base Installation

- .1 Butt joints to be square cut; inside and outside corners to be mitre cut on site using appropriate power mitre saw. Joints to be seam welded according to manufacturer's requirements.
- .2 Seal ends of cove, where the cove meets a doorframe, walls, and other surfaces with colour matched sealant.
- .3 Scribe and fit to door frames and other obstructions.
- .4 Joints shall be tightly fitted, straight and vertical, and not less than 610 mm (24") from corners.
- .5 Provide joints in base over substrate control joints.

Resilient Sheet Flooring

3.5 Installation - Transition Trim

- .1 Protect exposed edges of flooring, where finished and unfinished areas adjoining, by means of a transition trim butting to and flush with the finished surface of the flooring covering material and securely adhered to the substrate material.
- .2 Coordinate transitions with work of other sections.
- .3 Allow coiled vinyl material to lay flat for at least 24 hours at ambient temperatures specified above prior to installation.
- .4 Set to ensure installation is free of gaps.
- .5 Install in longest lengths possible.
- .6 Install straight to maximum allowable variation of 3 mm (1/8") over 3 m (10'-0").
- .7 Scribe and fit to obstructions.
- .8 Fit joints tightly, straight and vertical as applicable and not less than 610 mm (24") from corners.
- .9 Cope mitre corners.

3.6 Field Quality Control

- .1 Conduct quality control in accordance with Section 01 45 00 and as follows:
 - .1 Field tests and inspections:
 - .1 Moisture and alkalinity:
 - .1 Test for moisture vapour transmission in accordance with ASTM F710-22 and ASTM F1869-22 or ASTM F2170-19a in accordance with manufacturer's written flooring installation requirements. Results must not exceed 170 µg/m² (3 lb per 1,000 ft²) in 24 hours when tested to ASTM F1869-22, or exceed 75% when tested to ASTM F2170-19a.
 - .2 Test for surface pH. Levels of pH shall not exceed the written recommendations of the flooring manufacturer and adhesive manufacturer. Test in accordance with ASTM F710-22.
 - .3 For each test type: Conduct 3 tests for flooring applications up to 93 m² (1000 ft²) in area, and 1 additional test for each additional 93 m² (1000 ft²) of flooring area.
 - .4 Testing shall be conducted by independent inspection and testing company and in accordance with Section 01 45 00.
 - .2 Manufacturer's field review to be in accordance with Section 01 45 00.

3.7 Adjusting and Cleaning

- .1 Remove excess adhesive from surfaces of the sheet flooring and base as work progresses.
- .2 Thoroughly clean surfaces in accordance with manufacturer's recommendations.

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3.8 Protection

- .1 Prohibit foot traffic on installed flooring for a period of 24 hours after installation. No heavy traffic, rolling loads, or furniture placement are permitted for a minimum of 72 hours after installation.
- .2 Protect new floors from time of final set of adhesive until final inspection.
- .3 Install floor protection in areas where work, repairs and installation of equipment, and foot traffic will occur.

3.9 Maintenance

- .1 Perform initial maintenance according to the manufacturer's written requirements.
- .2 Allow flooring to dry prior to applying protection.

END OF SECTION

Slip Resistive Vinyl Sheet Flooring

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Resilient sheet (slip resistive vinyl sheet) flooring; RSF3.

1.2 Administrative Requirements

- .1 Coordination:
 - .1 Coordinate installation of resilient flooring and pencil cove bases in this section with the work of wall covering panels.
- .2 Conduct a pre-installation meeting in accordance with Section 01 31 19.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Shop drawings:
 - .1 Submit shop drawings to show layout, transitions, treatment at walls, floor drains, and other objects. Indicate details of proposed treatment, where flooring materials meet other floor materials.
- .4 Samples:
 - .1 Flooring: Manufacturer's standard size, but not less than 150 mm x 230 mm (6" x 9") sections of each different colour and pattern of floor covering required.
 - .2 Heat-welding bead: Manufacturer's standard-size Samples, but not less than 230 mm (9") long, of each colour required.
 - .3 Seam samples: For each floor covering product, colour, pattern, and seam required, installer shall provide a 150 mm x 230 mm (6" x 9") sample directly applied to a rigid backing material with the seam running lengthwise and in the center of the sample.
 - .4 Transition trim: Manufacturer's standard size samples, but not less than 100 mm (4") long, of each colour required.
- .5 Test and evaluation reports:
 - .1 Submit moisture and alkalinity test results.

1.4 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Operation and maintenance data:

Slip Resistive Vinyl Sheet Flooring

- .1 Submit manufacturer's operation and maintenance instructions for inclusion in the operation and maintenance manuals.
- .3 Maintenance materials:
 - .1 Submit width of material x 2% of each colour in full running length, pattern and type flooring material required for this project for maintenance use.
 - .2 Maintenance materials to be same production run as installed materials.
 - .3 Suitably package for protection and storage, each identified with name of manufacturer and flooring material.
 - .4 Tag and store where directed by *Owner*.

1.5 Quality Assurance

- .1 Qualifications:
 - .1 *Subcontractor*.
 - .1 Has adequate equipment and skilled workers to perform the work expeditiously.
 - .2 Has successfully completed installations similar to that specified during a period of at least the immediate past 5 years and 2 years of successful experience installing specific resilient safety flooring specified and heat welding seams of vinyl flooring.
 - .3 Shall be approved in writing by manufacturer as a qualified applicator of the manufacturer's flooring system.

1.6 Delivery, Storage, and Handling

- .1 Package flooring materials and identify contents of each package.
- .2 Store materials for a minimum of 24 hours immediately before installation to comply with temperatures specified under Field Conditions.

1.7 Field Conditions

- .1 Ambient conditions:
 - .1 Install materials of this section only when surfaces and air temperatures have been maintained between 18°C and 32°C for 48 hours preceding installation, and will be so maintained during installation and for 48 hours thereafter. Maintain a minimum temperature of 13°C after above period.
 - .2 Verify that adequate ventilation is provided during installation and curing of materials of this section.
 - .3 In areas that are exposed to intense or direct sunlight, *Products* shall be protected during the conditioning, installation, and adhesive curing periods, by covering the light source.
 - .4 Allow products to acclimatize in installation area for a minimum 24 hour prior to installation.

Slip Resistive Vinyl Sheet Flooring

1.8 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranty:
 - .1 System:
 - .1 Labour, materials, and workmanship for work of this section.
 - .2 Duration: 2 years.
 - .2 Provide manufacturer's 10 year *Product* warranty.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

- .1 Slip resistance: Floors shall have a wet Dynamic Coefficient of Friction (DCOF) of 0.42 or greater in accordance with ANSI A326.3.
- .2 Fire safety: Class 1 in accordance with ASTM E648-19ae1 and in accordance with CAN/ULC S102.2-10.
- .3 Vinyl sheet flooring shall not:
 - .1 Become stained or discoloured due to slab markings.
 - .2 Delaminate from substrates.
 - .3 Have welded seams which separate.

2.2 General

- .1 Single source responsibility: Obtain each *Product* from a single source with resources to provide products of consistent quality in appearance and physical properties, same production run. Products installed as part of the work of this section shall be from same production run.

2.3 Slip Resistant Sheet Flooring

- .1 Slip resistant sheet vinyl:
 - .1 In accordance with ASTM F1303-04(2021), Type 2, Grade 1, sheet vinyl flooring with moisture resistant backing Class A, with integrated bacteriostat.
 - .2 Thickness: 2.0 mm (0.08").
 - .3 Colour: to later selection by the *Consultant* from manufacturer's full range.
 - .4 Provide pencil cove where indicated.
 - .5 Acceptable *Products*:
 - .1 Altro 'Aquarius'.
 - .2 Substitutions: in accordance with Section 01 25 00.

Slip Resistive Vinyl Sheet Flooring

2.4 Miscellaneous Materials

- .1 Seam construction:
 - .1 Hot welded joints, provide welding rod matched to floor pattern/colour selected.
 - .2 Colours: To later selected by *Consultant* from full colour range.
- .2 Primer/adhesives:
 - .1 Low VOC, water soluble types designed for wet areas as recommended by resilient flooring manufacturer compatible with materials and to suit substrate types and to comply with warranty requirements.
 - .2 Adhesives shall be appropriate for equipment, cart, and patient bed/stretcher rolling load traffic where applicable.
- .3 Patching and levelling compound:
 - .1 Type as recommended by product manufacturer compatible with materials and to suit substrate types and to comply with warranty requirements.
 - .2 Trowel applied Portland cement based, moisture, mildew, and alkali-resistant.
 - .3 Minimum compressive strength after 28 days shall be minimum 3,500 psi when tested in accordance with ASTM C109/C109M-21.
 - .4 Gypsum based compounds are not acceptable.
 - .5 Acceptable manufacturers:
 - .1 Ardex.
 - .2 Mapei.
 - .3 Substitutions: in accordance with Section 01 25 00.
 - .6 Acceptable *Product*: type as recommended by flooring manufacturer for existing substrate conditions.
- .4 Cleaning solution:
 - .1 Acceptable *Products*: type as recommended by flooring manufacturer.
- .5 Floor transition strips:
 - .1 Resilient transition trims: in accordance with Section 09 65 15.
- .6 Sealant: Mildew resistant sealant in accordance with Section 07 92 00.
- .7 Contact tape for pencil cove base: type as recommended by manufacturer.

PART 3 - EXECUTION

3.1 Examination

- .1 Verify that field conditions have been provided as requested and specified.
- .2 Verify that substrates have been provided as specified without holes, protrusions, cracks greater than 1.6 mm (0.06") wide, unfilled control joints, depressions greater than 3 mm (1/8") deep, or other major defects.

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- .3 Substrates shall be firm, structurally sound, sufficiently porous, and dry.
- .4 Examine substrate to ensure clean lines, correct level and freedom from cracks, ridges, dusting, scaling and carbonation.
- .5 Examine floors in advance of application of flooring to ensure that floors are protected against entry of water and moisture. Perform compatibility test with primer/adhesive and substrate.
- .6 Report conditions contrary to requirements preventing proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.
- .7 Failure to call attention to defects or imperfections will be construed as acceptance and approval of the substrate. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.
- .8 Defective work resulting from application to unsatisfactory surfaces will be considered the responsibility of those performing the work of this section.

3.2 Preparation

- .1 Comply with recommendations of ASTM F710-22.
- .2 Substrates shall be free of wax, oil, silicone, soap, grease, dust, solvents, sealers, curing compounds, hardeners, alkaline salts, excessive carbonation or laitance, mould, mildew, paints, varnish, asphalt, residual adhesives, adhesive removers, or other contaminants or deleterious material that may inhibit bond strength or act as a bond breaker. Remove such contaminants and deleterious material using mechanical methods recommended by manufacturer. Do not use chemical abatement methods.
- .3 Concrete substrates that are loose, sandy, scaly, or have a white powdery surface are not acceptable. Substrates shall be mechanically prepared.
- .4 Flooring substrates shall be smooth and level within a tolerance of 3 mm (1/8") in a 3 m (10'-0") radius except where slope to drain is indicated.
- .5 Fill surface cracks, holes, score marks, depressions, and grooves, and repair surface spalls with Portland cement patching or levelling compound.
- .6 At door opening locations where finished flooring is adjacent to weather-stripping or automatic door bottoms provide trowel-applied levelling compound to provide full contact between finished flooring and weather-stripping or automatic door bottoms. Taper trowel-applied levelling compound to transition with adjacent flooring substrate to provide smooth and seamless transition at maximum slope of 3:1000 (height to distance) ratio.
- .7 Expansion joints, isolation joints, and other movement joints in substrates shall not be filled with patching or levelling compound.
- .8 Remove bumps, high spots, peaks and ridges to produce a uniform and smooth substrate.
- .9 Prepare substrates so that installation of flooring shall not show telegraphing of substrate.
- .10 Remove chalking and dusting and loose material from concrete surfaces with wire brushed or by scraping.
- .11 Sweep and vacuum clean substrates minimum 24 hours prior to alkalinity and moisture testing. Do not use sweeping compounds.

Slip Resistive Vinyl Sheet Flooring

- .12 Notify *Consultant* of any substrate or levelling compound defects or installation conditions that may result in unsatisfactory performance.
- .13 Prepared concrete substrate shall have a finish equivalent to a magnesium trowel finish. Shiny, slick, non-porous, or overly porous substrates are not acceptable and shall require additional preparation prior to installation of flooring products. Prepared concrete substrates shall have a Concrete Surface Profile #3 to #5 in accordance with International Concrete Repair Institute (ICRI).
 - .1 Substrate to be approved in writing by flooring manufacturer prior to application of flooring.
 - .2 Submit written report to *Consultant* following procedures for manufacturer's field review in accordance with Section 01 45 00.
- .14 Alkalinity and moisture testing:
 - .1 Test substrates in accordance with paragraph 3.5 Field Quality Control after mechanically preparing subfloor or applying patching and levelling compounds.
 - .2 Proceed with installation only after substrates pass testing. Document tests performed and submit in writing to *Consultant*.
- .15 Do not install floor coverings until they are same temperature as space where they are to be installed.
 - .1 Move floor coverings and installation materials to acclimatize in spaces where they will be installed at least 48 hours in advance of installation.
- .16 Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation.
- .17 Where flooring adjoins thicker floor materials, apply epoxy levelling screed, feather out to make up difference in level between materials.
- .18 Spray paints, permanent markers and other indelible ink markers shall not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through and permanently stain the flooring material. If such contaminants are present on the substrate they shall be mechanically removed prior to the installation of the flooring material.

3.3 Flooring Installation

- .1 Verify product type, size, thickness, and colour prior to commencing installation. Do not install flooring with visual imperfections, colour variations or apparent defects.
- .2 Allow material to relax unrolled overnight, minimum 12 hours in installation area.
- .3 Install rolls and cuts in sequence following manufacturer's installation requirements / diagrams.
 - .1 Lay flooring with joints parallel to building lines to produce symmetrical pattern and minimum joints.
 - .2 Place seams in inconspicuous and low-traffic areas, at least 150 mm (6") away from parallel joints in levelling underlayment, concrete joints, saw cuts and other type of joints.

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- .3 Avoid cross seams.
- .4 Lay sheet flooring centered in corridors, with equal sized sheet to either side of center sheet.
- .5 Mitre intersections at corridors typically. "T" type corridors shall be butt type installation.
- .6 Terminate flooring at centerline of door in openings where adjacent floor finish or colour is dissimilar.
- .7 Layout seaming uniformly, using full length flooring typically, minimum flooring size of not less than roll width. Limit quantity of less than full length floor pieces at corridors to maximum of 1.
- .8 Layout flooring to match reviewed shop drawings floor pattern including borders, accents and pencil cove height requirements.
- .9 Match edges of floor coverings for colour shading at seams.
- .4 Cutting and fitting sheets:
 - .1 Cut pieces to length allowing approximately 75 mm (3") to 150 mm (6") excess for trimming.
 - .2 Remove 12.7 mm (1/2") off the factory seam edge using an edge trimmer or straight edge and knife.
 - .3 Cut sheet and fit neatly around fixed objects without gaps.
 - .4 Position remaining sheets so that the top sheet overlaps the previous sheet by 12.7 mm (1/2") to 19 mm (3/4").
 - .5 Install one sheet at a time in wet adhesive.
 - .6 Roll the flooring immediately in both directions using 45 kg (100 lb) three-section roller.
 - .7 After the material has been laid and rolled in wet adhesive, underscribe the seam using the short scribes with a scribed pin right away.
 - .8 Cut the material along the scribe line using a hooked blade knife and holding it at an angle so to slightly undercut the material.
 - .9 Roll the seam with a hand roller.
 - .10 Where pencil cove base is indicated:
 - .1 Install continuous length of contact tape along wall, to indicated height of pencil cove base, and apply adhesive to flooring as indicated above in this section.
 - .2 Install flooring and use heat to crease resilient floor where it meets the wall, and adhere resilient flooring, straight vertically and level, to contact tape.
 - .3 Scribe and fit to door frames and other obstructions.
 - .4 Install flooring prior to installation of wall panels.
 - .11 Cross seams:

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- .1 Straight edge and undercut at an angle the end of the first sheet.
- .2 Spread adhesive and lay in wet adhesive.
- .3 Roll the flooring immediately in both directions using 45 kg (100 lb) three-section roller.
- .4 Overlap the second sheet at butt seam approximately 25 mm (1")
- .5 Adhere second sheet except for last 450 mm (18") of butt seam; wait 20 – 30 minutes.
- .6 Spread the adhesive for the last 450 mm (18"), lay in material, underscribe the seam to a neat, fit cut, and roll flooring immediately in both directions using 45 kg (100 lb) three-section roller.
- .5 Install one sheet at a time in wet adhesive.
- .6 Install drain clamping rings.
- .7 As installation progresses, roll flooring with 75 kg (165 lb) roller to ensure full adhesion, remove adhesive ridges, and entrapped air.
- .8 Where cove base is not required, seal joint at wall with manufacturer's approved sealant.
- .9 Apply adhesive uniformly and at spreading rates in accordance with adhesive manufacturer's requirements. Do not spread more adhesive than can be covered by flooring before initial set takes place.
- .10 Obtain 100% adhesive coverage to flooring backing.
- .11 Install flooring to entire area indicated or scheduled, including coverplates occurring within finished floor areas. Maintain overall continuity of colour and pattern with pieces of flooring installed on cover plates. Tightly butt edges to perimeter of floor around cover plates and to cover plates. Cut flooring to floor drains occurring within finished floor areas.
- .12 Heat-welded seams:
 - .1 Weld seams in accordance with ASTM F1516-13(2018).
 - .2 Wait minimum of 24 hours after flooring installation before grooving and heat welding seams.
 - .3 Prepare, weld, and trim seams to produce flat surfaces flush with adjoining floor covering surfaces.
 - .4 Rout joints to approximately 2/3 of the thickness of the material and use welding bead to permanently fuse sections into a seamless floor covering. Groove shall be between 3 mm (0.118") and 3.5 mm (0.138") wide.
 - .5 Using a weld plate and skiving knife to make first cut and allow weld rod to fully cure to room temperature.
 - .6 Using a skiving knife only, finish the trimming of the remainder of the weld. The finish should be smooth and on the same level as the flooring.
 - .7 Trimming of welded joint while warm is not permitted unless final trimming is performed after weld has cooled to flooring temperature. Excess weld shall be removed using a heated standard putty knife.

Slip Resistive Vinyl Sheet Flooring

- .8 Roll the seam area with 45 kg (100 lb) three-section roller.
- .9 Maximum variation of welds from plane or from straight: 6 mm (1/4") in 3 m (10 ft) length using a 3 m (10 ft) straight edge.
- .13 Flooring installation shall not show telegraphing of substrate. Flooring installation shall be homogenous free of substrate lines, pockets, bumps and unevenness.

3.4 Installation - Transition Trim

- .1 Protect exposed edges of flooring, where finished and unfinished areas adjoining, by means of a transition trim butting to and flush with the finished surface of the flooring covering material and securely adhered to the substrate material.
- .2 Coordinate transitions with work of other sections.
- .3 Allow coiled vinyl material to lay flat for at least 24 hours at ambient temperatures specified above prior to installation.
- .4 Set to ensure installation is free of gaps.
- .5 Install in longest lengths possible.
- .6 Install straight to maximum allowable variation of 3 mm (1/8") over 3 m (10'-0").
- .7 Scribe and fit to obstructions.
- .8 Fit joints tightly, straight and vertical as applicable and not less than 610 mm (24") from corners.
- .9 Mitre corners.

3.5 Field Quality Control

- .1 Conduct quality control in accordance with Section 01 45 00.
 - .1 Field tests and inspections:
 - .1 Moisture and alkalinity:
 - .1 Test for moisture vapour transmission in accordance with ASTM F710-22 and ASTM F1869-22 or ASTM F2170-19a in accordance with manufacturer's written flooring installation requirements. Results must not exceed 170 µg/m² (3 lb per 1,000 ft²) in 24 hours when tested to ASTM F1869-22, or exceed 75% when tested to ASTM F2170-19a.
 - .2 Test for surface pH. Levels of pH shall not exceed the written recommendations of the flooring manufacturer and adhesive manufacturer. Test in accordance with ASTM F710-22.
 - .3 For each test type: Conduct 3 tests for flooring applications up to 93 m² (1000 ft²) in area, and 1 additional test for each additional 93 m² (1000 ft²) of flooring area.
 - .4 Testing shall be conducted by independent inspection and testing company and in accordance with Section 01 45 00.
 - .2 Manufacturer's field review to be in accordance with Section 01 45 00.

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3.6 Adjusting and Cleaning

- .1 Remove excess adhesive from surfaces of the sheet flooring as work progresses.
- .2 Thoroughly clean surfaces in accordance with manufacturer's written requirements.

3.7 Protection

- .1 Prohibit foot traffic on installed flooring for a period of 24 hours after installation. No heavy traffic, rolling loads, or furniture placement are permitted for a minimum of 72 hours after installation.
- .2 Protect new floors from time of final set of adhesive until final inspection.
- .3 Install floor protection in areas where work, repairs and installation of equipment, and foot traffic will occur.

3.8 Maintenance

- .1 Perform initial maintenance according to the manufacturer's written requirements.
- .2 Allow flooring to dry prior to applying protection.

END OF SECTION

Interior Wall Panel Systems

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Sheet wall protection; WP1.
 - .2 Hygienic wall panel system; WP2.

1.2 Administrative Requirements

- .1 Coordination:
 - .1 Coordination of work: coordinate layout, penetrations and installation of work of this section with work of other sections.
- .2 Conduct a pre-installation meeting in accordance with Section 01 31 19.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data:
 - .1 Submit *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Shop drawings:
 - .1 Submit shop drawings to show layout, elevations of digital printed panels, treatment at walls, pencil cove and flush cove base detail, and other objects. Indicated details of proposed treatment where materials meet other materials.
 - .2 Digital proofs:
 - .1 Submit to Consultant one complete set of colour digital proofs showing placement and typography of final graphic components and images.
 - .2 Proofs shall show final text and images, in place, scaled to accurately assess type spacing, overlay text on images, illustrations and graphic effects such as bleeds, graded colour, etc.
- .4 Samples:
 - .1 Submit sample panels in triplicate on 305 mm x 305 mm (12"x 12") showing each finish and colour.
 - .2 Submit samples of each accessory type product specified.
 - .3 Identify each sample as to project, finish, colour name, number.
- .5 Verification samples:
 - .1 Submit heat welded samples for purpose of verification of compliance with specified requirements, showing welded finish for approval by *Consultant*.

Interior Wall Panel Systems

1.4 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Operation and maintenance data:
 - .1 Submit manufacturer's operation and maintenance instructions for inclusion in the operation and maintenance manuals.

1.5 Quality Assurance

- .1 Qualifications:
 - .1 Manufacturers:
 - .1 *Provide* work of this section, executed by competent graphic fabricators and installers with minimum 5 years' experience in application of *Products*, systems and assemblies specified and with approval and training of *Product* manufacturers.
 - .2 Graphic fabricator shall be able to provide specialized graphic services in order to produce the artwork, including:
 - .1 Computer literacy in the following software applications:
 - .1 Adobe Illustrator.
 - .2 QuarkXpress (or Adobe Pagemaker).
 - .3 Adobe Photoshop.
 - .2 Full service electronic design studio.
 - .3 Qualified to format approved text, provided on computer disk with hard copy, and formatting graphic panels to coincide with specifications outlined in Graphics Standards Manual.
 - .4 Capable of preparing high resolution scanning of images and placement in layout files together with final text. Capable of producing and formatting digital illustrations of Maps and Charts. Capable of producing computer proofs (colour and in B/W for review and approval by the *Consultant* and *Owner*).
 - .2 Installers: Shall have 5 years' experience, minimum, in application of *Products*, systems and assemblies specified and with approval and training of *Product* manufacturers.
- .2 Mock-ups:
 - .1 Provide 610 mm x 610 mm mock-up of digital image panel system on backing showing welded joints for review and acceptance by *Consultant*.

1.6 Field Conditions

- .1 Install hygienic wall system only when surfaces and air temperatures have been maintained between 18°C and 26°C for twenty four (24) hours preceding installation, and will be so maintained during installation and for forty eight (48) hours thereafter.

Interior Wall Panel Systems

- .2 Commence installation after building has been enclosed and dust generating activities have been completed.
- .3 Ensure that adequate ventilation is provided during installation and curing of adhesive.
 - .1 Do not expose wall protection to direct sunlight during or after installation.

1.7 Delivery, Storage and Handling

- .1 Package materials and identify contents of each package.
- .2 Store materials for a minimum of 8 hours before installation on a solid flat surface and preconditioned for approximating the operating environment of the finished room.

1.8 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranty:
 - .1 Manufacturer's warranty.
 - .1 Duration: 7 years.
 - .2 System:
 - .1 Labour, materials, and workmanship for work of this section.
 - .2 Duration: 2 years.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

- .1 Flame spread:
 - .1 Maximum values in accordance with CAN/ULC-S102-10:
 - .1 Flame Spread Value (FSV): in accordance with authority having jurisdiction.
- .2 Graphic Design Responsibilities of Graphic Specialist
 - .1 Design Production - Inclusions: The Graphic Fabricator shall be responsible for:
 - .1 Digital page composition (typesetting) using digital text files and both digital and/or traditional visual imagery approved and provided by Design *Consultant*.
 - .2 Digital file preparation of text and imagery used artwork ready for production.
 - .3 High resolution scanning of all imagery used in the production of Artwork.
 - .4 Some image manipulation (colour correction and image splicing) and placing images into panel layouts.
 - .5 Providing gray and colour proofs, up to one (1) revision as required by the *Consultant*, for review and approval.

Interior Wall Panel Systems

- .6 Submitting a Production Schedule and Method Statements outlining the development of the Artwork indicating dates for Artwork submittals and review/approval stages up to including implementation. This is to be completed in compliance with the schedule prepared by the Design *Consultant* for the delivery of text and visual Information required for production. A draft schedule is to be submitted within two (2) weeks from award of *Contract*. A final schedule is to be submitted within six (6) weeks from award of *Contract*.
- .2 Art Direction for Graphic Specialist *Subcontractor* during Production of Artwork: The Graphic Fabricator shall be responsible for providing the services of an Art Director to provide design direction for the development of Artwork. This position will assist the *Consultant* and Contractor in the successful implementation of the Graphic Design Package. Included in scope of work, but not limited to, are the following tasks for the Art Director:
 - .1 To provide Art Direction for treatment of Photography, Illustration, Map & Chart Design and other pre-production elements included in the Graphic Design Package.
 - .2 To provide Art Direction for electronic page composition (typesetting), and for electronic file preparation of text and imagery artwork ready for production.
 - .3 To attend regular meetings with the Graphic Fabricator and the Project Manager throughout the duration of the production phase
 - .4 To respond with decisions and/or make recommendations to either the *Consultant* and Graphic Fabricator regarding the development of the Artwork.
 - .5 To monitor the quality of the Artwork and see that it conforms to the graphic standards as approved and outlined in the tender documentation.
- .3 Design Production - Exclusions:
 - .1 New Photography.
 - .2 New Illustration.
 - .3 New Map and Chart Illustration/Design.
 - .4 Image Sourcing, procurement, obtaining usage and limited rights or ownerships.
 - .5 Writing of textual information.

2.2 Wall Protection; WP 1

- .1 Semi-rigid sheet:
 - .1 Acceptable *Products*:
 - .1 Construction Specialties 'Acrovyn 4000 High Impact Wall Covering'.
 - .2 Substitutions: in accordance with Section 01 25 00.
 - .2 Description:
 - .1 Colour: to later selection by *Consultant* from manufacturer's full range.

Interior Wall Panel Systems

- .2 Texture: to later selection by *Consultant* from manufacturer's full range.
- .3 Thickness: 1.0 mm (0.040").
- .3 Fire performance:
 - .1 Flame spread: 45 maximum, in accordance with CAN/ULC-S102-10.
- .4 Accessories:
 - .1 Division bars and corner trim: Panel manufacturer's standard length extruded vinyl pieces; longest length possible to eliminate end joints, colour to match panels.
 - .2 Manufacturer's standard adhesive and mounting hardware.

2.3 Hygienic Panel Wall System; WP2A, WP2B, WP2C

- .1 Description:
 - .1 Hygienic, impact resistant, water-resistant, low VOC, antimicrobial, PVC wall system.
 - .2 Thickness: 2.5 mm (0.10").
 - .3 Antimicrobial: HACCP certified.
 - .4 Impact resistance: in accordance with ASTM D5420-21, exceeds 160 inch lbs.
 - .5 Fungi resistance: zero, in accordance with ASTM G21-15(2021)e1.
 - .6 Mold resistance: 10, in accordance with ASTM D3273-21.
 - .7 Performance requirements:
 - .1 Flame spread:
 - .1 Maximum values in accordance with CAN/ULC-S102-10:
 - .1 Flame Spread Value (FSV): 15.
 - .2 Smoke Developed Value (SDV): 200.
- .8 WP2A, WP2B, WP2C:
 - .1 Colours/patterns/finish: to later selection by *Consultant* from manufacturer's range.
 - .2 Acceptable *Products*:
 - .1 Altro 'Whiterock'.
 - .2 BioClad 'Wall Cladding'.
 - .3 Substitutions: in accordance with Section 01 25 00.

2.4 Hygienic Panel Wall System; WP2D, WP2E, WP2F

- .1 Description:
 - .1 Photographic quality photograph/vector image printed on extruded semi-rigid PVCu panels, scratch-resistant, with preformed inside and outside corners.

Interior Wall Panel Systems

- .2 Thickness: 2.5 mm (0.10").
- .3 Impact resistance: in accordance with ASTM D5420-21, exceeds 198 inch lbs in force.
- .4 Performance requirements:
 - .1 Flame spread:
 - .1 Maximum values in accordance with CAN/ULC-S102-10:
 - .1 Flame Spread Value (FSV): 15.
 - .2 Smoke Developed Value (SDV): 155.
- .5 Finish: Matte.
- .6 Digital images:
 - .1 WP2D: Biophilic image; to later selection by *Consultant*.
 - .2 WP2E: Writable to later selection by *Consultant*.
 - .3 WP2F: Wood look, to later selection by *Consultant*.
- .7 Acceptable *Products*:
 - .1 Altro 'Whiterock Digiclad', allow for hard coat or film to be offset from panel edge for heat welding.
 - .2 Substitutions: in accordance with Section 01 25 00.

2.5 Accessories

- .1 Panel fixing method: As recommended by panel manufacturer.
- .2 Welding rod: as recommended by panel manufacturer.
- .3 Sealant: as recommended by panel manufacturer.
- .4 Panel cleaning materials: as recommended by panel manufacturer.

PART 3 - EXECUTION

3.1 Examination

- .1 Examine surfaces to receive wall panel system. Report unsatisfactory conditions immediately to *Consultant*. The work of this section shall not proceed until unsatisfactory conditions have been corrected.
- .2 Substrate surface shall be straight to tolerance of ± 3 mm (± 0.12 ") over 3000 mm (118").
- .3 Ensure that environmental conditions have been provided as requested and specified.
- .4 Defective *Work* resulting from application to unsatisfactory surfaces will be considered the responsibility of those performing the *Work* of this section.

3.2 Installation - General

- .1 Install in accordance with wall panel manufacturer's written recommendations.

Interior Wall Panel Systems

- .2 Provide required cut-outs for electrical outlets and wall penetrations.

3.3 Installation - Adhesive Method Application

- .1 Cut and fit sheet as required. Clean back of panel using safe solvent cleaner. Avoid the use of ketones, acetones or any solvents that may cause damage to panel.
- .2 Apply double sided adhesive tape to top and bottom of sheet.
- .3 Apply adhesive tape to window and door openings where sheet has a tendency to pull away from substrate prior to adhesive cure.
- .4 Prime wall on area directly corresponding to tape position using a non-flammable contact adhesive.
- .5 Apply adhesive to back of sheet using trowel as recommended by panel manufacturer.
- .6 Apply sheet to wall and line up any reference marks before pressing into place.
- .7 Use a white rubber mallet for initial contact with adhesive tape.
- .8 Ensure adequate adhesive transfer by thoroughly rolling entire panel surface using a wall roller.
- .9 Allow 3 mm (1/8") gap at ceiling, door and window frames, pipes, and projections to accommodate panel expansion. Seal gaps with sealant.
- .10 All joints are to be welded, all corners to be heat formed. No trim will be permitted.
- .11 Seal transition and pencil cove with pick resistant sealant.
- .12 Maintain at least 80% coverage of direct transfer of adhesive between panels and wall substrate.

3.4 Sheet to Sheet Jointing

- .1 Heat welding:
 - .1 Apply double-sided adhesive tape flush to panel edges.
 - .2 Remove burrs from panel edges.
 - .3 Place each successive panel allowing for a 1.5 mm (1/16") gap between each panel.
 - .4 Clean both the seam area and the weld rod with safe solvent cleaner - one that will not attach the vinyl or leave a film.
 - .5 Test weld on a scrap piece of panelling before proceeding.
 - .6 Proceed only when temperature and speed have been satisfied.
 - .7 The weld may be trimmed flush when semi-cooled using the round part of the trimming spatula.

3.5 Jointing Sheet to Flooring

- .1 Install wall panelling to pencil cove base, overlapping flooring with full bed of adhesive and finish edge against floor with beveled tamper proof sealant.

Interior Wall Panel Systems

3.6 Digitally Printed Wall Panels

- .1 Install digital print as indicated in reviewed shop drawings, with fully welded and formed corners meeting manufacturers' specifications and installation requirements.

3.7 Field Quality Control

- .1 Manufacturer's field review to be in accordance with Section 01 45 00.

3.8 Adjusting and Cleaning

- .1 Remove the protective film from the panels, clean panels with an anti-static solution.
- .2 Wash with water or a diluted neutral soap/detergent solution. Do not use materials containing abrasives or solvents.

3.9 Protection

- .1 After materials have set, and until completion, co-ordinate *Work* to ensure that panels are not damaged by traffic or adjacent work.
- .2 At completion of panel installation, install protection in areas where finishing *Work*, repairs and installation of equipment will occur.

END OF SECTION

Painting

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Painting of interior paintable surfaces.
 - .2 Repainting of interior surfaces.
- .2 Paintable and non-paintable surfaces:
 - .1 Paint and finish paintable surfaces included in the *Work*, except where excluded by the *Contract Documents*.
 - .2 The following surfaces are considered non-paintable, except as otherwise indicated or scheduled:
 - .1 Material and equipment furnished prime and finish painted.
 - .2 Internal surfaces of steel tanks and stacks.
 - .3 Sprayed fire-resistive materials.
 - .4 Stainless steel, weathering steel, copper, bronze, chromium plate, nickel, anodized or lacquered or mill finished aluminum, Monel metal.
 - .5 Metallic and mastic insulation finishes.
 - .6 Abrasive material finishes on floors, stair treads, stair nosing and landings.
 - .7 Insulated electric cables.
 - .8 Machined parts of machinery and equipment.
 - .9 Concealed surfaces.
 - .10 Manufactured finish materials.

1.2 Administrative Requirements

- .1 Conduct a pre-installation meeting in accordance with Section 01 31 19.
 - .1 Agenda shall include review of preparation requirements for surfaces to be repainted, including clear identification of responsibility for preparation of DSD-4 surfaces. *Contractor* shall be solely responsible for determining which *Subcontractor* shall prepare of each DSD-4 surface.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets and list of *Products* proposed for use in the work of this section as identified in 'Approved Product List' section of the MPI (Master Painters Institute) Architectural Painting Specification Manual and the MPI Maintenance Repainting Specification Manual (MPI Repainting Manual), as applicable. Correlate *Products* to Schedule furnished by *Consultant*.

Painting

.3 Samples:

.1 Samples for initial paint colour and finish selection:

- .1 Submit manufacturer's colour charts showing full range of colours available, including light and deep dark tones, for each type of finish material indicated for colour selection by *Consultant*.
- .2 *Consultant* shall have complete freedom in choice of colours in compiling colour schedule and will not necessarily select colours from standard colour charts of manufacturer of *Products* specified.
- .3 Submit 3 drawdowns of each selected colour for review by *Consultant* and resubmit to *Consultant* as required to obtain approval. Drawdown to be of specified colour, sheen, and paint formula for applicable surface.

.2 Samples for verification:

- .1 Submit 3 samples on 200 mm x 305 mm (8"x 12") material of same type as that on which coating is to be applied, for *Consultant's* approval, at least 30 days before materials are required.
- .2 Identify each sample as to *Project*, finish, formula, colour name, number, gloss name and number, date and name of *Contractor* and painting *Subcontractor*.
- .3 Resubmit as required until colours and gloss value are approved.

.4 MPI (Master Painters Institute) Manual:

- .1 Provide and maintain 1 copy of MPI Manual, latest edition, at site office for reference.

1.4 Closeout Submittals

.1 Submit closeout submittals in accordance with Section 01 78 00.

.2 Operation and maintenance data:

- .1 Submit manufacturer's operation and maintenance instructions for inclusion in the operation and maintenance manuals.

.3 Maintenance materials:

- .1 Provide 2 sealed containers, each of 4 litres (1 gallon) capacity of each paint product in each colour used in the *Work* for *Owner's* maintenance use. Containers shall be new, clearly labelled with manufacturer's name, type of paint, colour and colour number. Store at *Place of the Work* where directed by *Owner*.

1.5 Quality Assurance

.1 Qualifications

.1 Manufacturers:

- .1 Paint manufacturers and *Products* used shall be as listed under the Approved Product List section of the MPI Painting Manual.

.2 Installers / applicators / erectors:

Painting

- .1 Applicators: Shall have minimum 5 years proven satisfactory painting experience of projects of similar size and class subject to *Consultant's* approval.
- .2 Only qualified journeymen who have a "Tradesman Qualification Certificate of Proficiency" shall be engaged in painting work. Apprentices shall work under the direct supervision of a qualified journeyman in accordance with trade regulations.

1.6 Delivery, Storage, and Handling

- .1 Deliver painting materials in sealed, original labelled containers bearing manufacturer's name, brand name, type of paint or coating and colour designation, standard compliance, materials content as well as mixing and/or reducing and application requirements.
- .2 Store paint *Products* and materials in original labelled containers in secure (lockable), dry, heated and well ventilated single designated area meeting minimum requirements of both paint manufacturer and authorities having jurisdiction, and at a minimum ambient temperature of 7°C.
- .3 Protect floor and wall surfaces of storage area. Protect floors with sheets or clean plywood or metal pans where mixing is being carried out.

1.7 Field Conditions

- .1 Ambient conditions:
 - .1 Comply with environmental requirements of MPI Manual.
 - .2 Perform no painting work when ambient air and substrate temperatures are below 10°C for both interior and exterior work, unless suitable weatherproof covering and sufficient heating and ventilation facilities are in place in accordance with MPI Manual.
 - .3 Perform no painting work when relative humidity is above 85% or when dew point is less than 3°C (5°F) variance between air/surface temperature.

1.8 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranties:
 - .1 System:
 - .1 Labour, materials, and workmanship for work of this section.
 - .2 Duration: 2 years.

PART 2 - PRODUCTS

2.1 Performance/Design Requirements

- .1 Except where more stringent requirements are specified, the following reference standard shall govern the work of this section:

Painting

- .1 Master Painters Institute (MPI) Architectural Painting Specification Manual (MPI Manual) and the MPI Maintenance Repainting Specification Manual (MPI Repainting Manual), as applicable, including Identifiers, Evaluation, Systems, Preparation and Approved Product List, latest edition, and referenced herein as the MPI Manual, as issued by the local MPI Accredited Quality Assurance Association having jurisdiction.
- .2 Materials, preparation and workmanship shall conform to requirements of latest edition of Architectural Painting Specification Manual by the Master Painters Institute (MPI) (hereafter referred to as the MPI Painting Manual) as issued by the local MPI Accredited Quality Assurance Association having jurisdiction.
- .3 Painting systems:
 - .1 Shall remain free from failure due to causes including: material failure; surface preparation less than that specified; and paint film thickness less than that specified, or when not specified, less than that coverage recommended by manufacturer.
 - .2 Presence of any of following shall constitute failure: visible corrosion; film peeling, blistering, checking, scaling, embrittling or general film disintegration; and poor adhesion as determined by tape "peel-off" test procedures.

2.2 Materials

- .1 *Products* listed in MPI Manual shall be used in the *Work*, unless specified otherwise.
- .2 Paint and materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, and the like) shall be in accordance with the MPI Manual "Approved Product" listing and shall be from a single manufacturer for each system used.
- .3 Other paint materials, such as linseed oil, shellac, and the like, shall be highest quality *Products* of an approved manufacturer listed in the MPI Manual and shall be compatible with other coating materials as required.
- .4 Paint materials shall have good flowing and brushing properties and shall dry or cure free of blemishes or sags.
- .5 Where required, paints and coatings shall meet flame spread and smoke developed ratings designated by building code requirements and/or authorities having jurisdiction.

2.3 Equipment

- .1 Painting and coating equipment in accordance with written requirements of MPI Manual.

2.4 Mixing and Tinting

- .1 Unless otherwise specified, paints shall be ready-mixed. Re-mix prior to application to ensure colour and gloss uniformity.
- .2 Paste, powder or catalysed paint mixes shall be mixed in accordance with manufacturer's written requirements.
- .3 Perform colour tinting operations prior to delivery of paint to *Place of the Work*.
- .4 Where thinner is used, addition shall not exceed paint manufacturer's recommendations.

Painting

2.5 Colours and Gloss Levels

- .1 Paint colours and gloss levels shall be as selected by the *Consultant*. Locations as indicated or scheduled.
- .2 Colour and gloss schedule: in accordance with Room Finish Schedule General Notes.
- .3 Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following MPI values:

Gloss Level	Description	Units @ 60 degrees	Units @ 85 degrees
G1	Matte or Flat finish	0 to 5	10 maximum
G2	Velvet finish	0 to 10	10 to 35
G3	Eggshell finish	10 to 25	10 to 35
G4	Satin finish	20 to 35	35 minimum
G5	Semi-gloss finish	35 to 70	
G6	Gloss finish	70 to 85	
G7	High-Gloss finish	> 85	

PART 3 - EXECUTION

3.1 Examination

- .1 Prior to commencement of work of this section, examine surfaces scheduled to be painted.
 - .1 For surfaces to be repainted, the degree of surface deterioration (DSD) shall be assessed using assessment criteria in accordance with the MPI Repainting Manual.
- .2 Check moisture content and alkalinity of surfaces to be painted in accordance with paragraph above titled Field Conditions.
- .3 Inspect surfaces to be coated for gouges, marks, nibs, and other defects and properly prepare patching, filling, smoothing or other surface preparation necessary to ensure satisfactory finish.
- .4 Report in writing any condition adversely affecting work of this section.
- .5 Proceed with work only when surfaces and conditions are satisfactory. Remove dust, grease, rust, scale and extraneous matter, tool and machine marks and insects from surfaces which could be detrimental to a satisfactory and acceptable finish.

3.2 Preparation

- .1 Comply with manufacturer's written requirements and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- .2 Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

Painting

- .1 After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- .3 Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, mildew, grease, and incompatible paints, encapsulants, and other deleterious materials.
- .4 Paint surfaces when moisture content or alkalinity of surfaces to be painted comply with Field Quality Control paragraphs in Section 09 91 00.
- .5 Shop-primed steel substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- .6 ZF75 and ZF120 galvanized-metal substrates: Remove grease and oil residue from galvanized sheet metal by methods to produce clean surfaces that promote adhesion of subsequently applied paints.
- .7 Z275 galvanized-metal substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- .8 Substrates to be repainted:
 - .1 Prepare surfaces for repainting in accordance with MPI Repainting Manual requirements.

3.3 Installation

- .1 Do not paint unless substrates are acceptable and/or until Field Conditions (heating, ventilation, lighting and completion of work of other sections) are acceptable for applications of *Products*.
- .2 Apply primer, paint or stain in accordance with MPI Manual finish requirements based on Grade specified below in Section 09 91 00.
- .3 Schedule application of paints and coatings after cleaning to prevent field conditions causing flash-rusting, rusting, weathering or water damage to substrate, or other contamination of the substrate. Comply with MPI manual, MPI Repainting Manual, and manufacturer's written requirements, the most stringent of which shall govern.
- .4 Painting coats specified are intended to cover surfaces satisfactorily when applied at proper consistency and in accordance with manufacturer's recommendations.
- .5 Tint each coat of paint progressively lighter to enable confirmation of number of coats.
- .6 Unless otherwise approved by *Consultant*, apply a minimum of 4 coats of paint where deep or bright colours are used to achieve satisfactory results.
- .7 Sand and dust between each coat to provide an anchor for next coat and to remove defects visible from a distance up to 1000 mm (39").
- .8 Do not apply finishes on surfaces that are not sufficiently dry. Unless manufacturer's directions state otherwise, each coat shall be sufficiently dry and hard before a following coat is applied.
- .9 Prime coat of stain or varnish finishes may be reduced in accordance with manufacturer's directions.

Painting

- .10 Paint finish shall continue through behind wall-mounted items (i.e. chalk and tack boards) and exposed/ visible in complete work including interiors of cupboards and closets, tops of doors, trim, and the like, whether in sight line or not, including behind surface mounted fixtures and heating units.
- .11 *Consultant* shall have right to make changes in colour tone of finishes prior to final coat to obtain desired results without additional cost to *Owner*.
- .12 Access doors, prime coated butts and other prime painted hardware, registers, radiators and covers, exposed piping and electrical panels shall be painted to match adjacent surfaces in terms of colour, texture and sheen, unless otherwise indicated.

3.4 Field Quality Control

- .1 Conduct quality control in accordance with Section 01 45 00.
 - .1 Field tests and inspections:
 - .1 Paint and Coating Quality Assurance Inspections:
 - .1 Field quality control shall be in accordance with Section 01 45 00.
 - .2 Moisture and alkalinity testing:
 - .1 Check moisture content of surfaces to be painted using properly calibrated electronic moisture meter approved by paint manufacturer and *Consultant*, or other approved method. Maximum moisture contents shall be in accordance with manufacturer's recommendations and as follows:
 - .1 Concrete and concrete masonry (clay and concrete brick/block): Maximum 12%.
 - .2 Gypsum board and plaster: Maximum 12%.
 - .3 Wood: Maximum 15%.
 - .2 Conduct moisture tests on concrete floors using cover patch test method.
 - .3 Test concrete, masonry and plaster surfaces for alkalinity.
 - .3 Painted surfaces shall be considered to lack uniformity and soundness if any of the following defects are apparent to the *Consultant*:
 - .1 Brush / roller marks, streaks, laps, runs, sags, drips, heavy stippling, hiding or shadowing by inefficient application methods, skipped or missed areas, and foreign materials in paint coatings.
 - .2 Evidence of poor coverage at rivet heads, plate edges, lap joints, crevices, pockets, corners and re-entrant angles.
 - .3 Damage due to touching before paint is sufficiently dry or any other contributory cause.
 - .4 Damage due to application on moist surfaces or caused by inadequate protection from weather.
 - .5 Damage and/or contamination of paint due to blown contaminants (dust, spray paint, etc.).

Painting

- .4 Painted surfaces shall be considered unacceptable if any of the following are evident under natural lighting source for exterior surfaces and final lighting source (including daylight) for interior surfaces to the *Consultant*.
 - .1 Visible defects are evident on vertical and horizontal surfaces when viewed at normal viewing angles from a distance of not less than 1000 mm (39").
 - .2 Visible defects are evident on ceiling, soffit and other overhead surfaces when viewed at normal viewing angles.
 - .3 When final coat on any surface exhibits a lack of uniformity of colour, sheen, texture, and hiding across full surface area.
- .5 Painted surfaces rejected by the *Consultant* shall be made good at the expense of the *Subcontractor*. Small affected areas may be touched up; large affected areas or areas without sufficient dry film thickness of paint shall be repainted. Runs, sags of damaged paint shall be removed by scraper or by sanding prior to application of paint.
- .6 Painting *Subcontractor* shall obtain from *Contractor* written confirmation of specific surface preparation procedures and primers used for fabricated steel items from the fabricator/*Supplier* to ascertain appropriate and manufacturer compatible finish coat materials to be used before painting any such work.

3.5 Adjusting and Cleaning

- .1 Promptly as work proceeds and on completion of *Work*, remove paint where spilled, splashed or spattered during the progress of the *Work*. Keep the premises free from unnecessary accumulation of tools, equipment, surplus materials and debris; at the conclusion of the work leave the premises clean.

3.6 Interior Paint Systems

- .1 System references listed are based on MPI Manual and are Premium Grade, unless otherwise indicated:
 - .1 Galvanized metal: (doors, frames, railings, misc. steel, pipes, overhead decking, ducts, etc.)
 - .1 INT 5.3M High performance architectural latex (over water based galvanized primer); gloss level G5.
 - .2 Dressed lumber: (including doors, door and window frames, casings, mouldings, etc.)
 - .1 INT 6.3A High performance architectural latex (over latex wood primer); gloss level G5.
 - .3 Plaster and gypsum board: (gypsum wallboard, drywall and textured finishes)
 - .1 INT 9.2B High performance architectural latex finish (over latex primer/sealer):
 - .1 Gloss level:
 - .1 Walls, except as otherwise indicated: G3.

Painting

- .2 Ceilings, except as otherwise indicated: G1.
- .3 Wet and service areas; walls and ceilings: G5.
- .2 Use high-hide primer sealer type at glass mat finished gypsum board.

3.7 Interior Repaint Systems

- .1 System references listed are based on MPI Repainting Manual and are Premium Grade, unless otherwise indicated:
 - .1 Structural steel and metal fabrications (columns, beams, joists, etc.)
 - .1 RIN 5.1RR High performance architectural latex.
 - .2 Galvanized metal: (doors, frames, etc.)
 - .1 RIN 5.3J High performance architectural latex (do not use flat finish on doors and door frames).
 - .3 Dressed lumber: (including doors, door frames, etc.)
 - .1 RIN 6.3T High performance architectural latex.
 - .4 Plaster and gypsum board: (gypsum wallboard, drywall and textured finishes)
 - .1 RIN 9.2B High performance architectural latex finish:

END OF SECTION

Narcotics Cabinets

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Narcotics cabinet.

1.2 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Shop drawings:
 - .1 Submit engineered shop drawings, including seismic design, connections and restraint.
 - .2 Clearly indicate, materials, finishes, fabrication details, dimensions, thicknesses, plans, elevations, hardware, and installation details.
- .4 Samples:
 - .1 Submit 3 samples of each finish specified.
- .5 Templates:
 - .1 Submit templates to *Contractor* for use by installers and fabricators as required for proper location and installation of hardware.

1.3 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Operation and maintenance data:
 - .1 Submit manufacturer's operation and maintenance instructions for inclusion in the operation and maintenance manuals.

1.4 Quality Assurance

- .1 Qualifications:
 - .1 Installers:
 - .1 Shall have 5 years' experience, minimum, in application of *Products* specified and with approval and training of *Product* manufacturer.

1.5 Delivery, Storage, and Handling

- .1 Package or crate, and brace products to prevent damage during shipment and handling. Label packages and crates, and protect finish surfaces from environmental conditions where required.

Narcotics Cabinets

- .2 Deliver products to location at the *Place of the Work* designated by *Contractor*.

PART 2 - PRODUCTS

2.1 General

- .1 Incorporate reinforcing, fastenings and anchorage required for building in of *Products*.

2.2 Narcotics Cabinet

- .1 Description:
- .1 Double keyed lock narcotics cabinet.
 - .2 Material: Stainless steel.
 - .3 Adjustable shelves: 2.
 - .4 Colour: Silver.
 - .5 Dimensions: 610mm x 400 mm x 200 mm (24" x 16" x 8") (h x w x d).
- .2 Acceptable *Products*:
- .1 Global Industrial Stainless Steel Narcotics Cabinet with Double Door/Double Lock, 16" Wx8"Dx24"H'.
 - .2 Substitutions: in accordance with Section 01 25 00.

PART 3 - EXECUTION

3.1 Installation

- .1 Submit manufacturer's information and templates required for installation of work of this section, and assist or supervise, or both, the setting of anchorage devices, and construction of other work incorporated with *Products* specified in this section in order that they function as intended.
- .2 Install work to meet manufacturers' recommended specifications, true, tightly fitted, and level or flush to adjacent surfaces, as suitable for installation.
- .3 Include reinforcing, anchorage and mounting devices required for the installation of each *Product*.
- .4 Fit joints and junction between components tightly and in true planes, conceal and weld joints where possible.
- .5 Fabricate *Products* with materials and component sizes, metal gauges, hardware, reinforcing, anchors, and fastenings of adequate strength to ensure that specified items will remain free of warping, buckling, opening of joints and seams, and distortion within limits of intended use.
- .6 Supply handling instructions, anchorage information, roughing-in dimensions, templates and service requirements for installation of the work of this section, and assist or supervise, or both, the setting of anchorage devices and construction of other work incorporated with *Products* specified in this section.

Narcotics Cabinets

- .7 Back paint components where contact is made with building finishes to prevent electrolysis.

3.2 Adjusting and Cleaning

- .1 Verify under work of this section that installed *Products* function properly, and adjust them accordingly to ensure satisfactory operation.
- .2 Do not remove protective coatings until final cleaning in accordance with Section 01 78 00, or earlier if directed by *Consultant*.
- .3 Refinish damaged or defective work so that no variation in surface appearance is discernible. Refinish work at *Place of the Work* only if approved.

END OF SECTION

Corner Guards

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Corner guards; CG1, CG-SST.

1.2 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Samples:
 - .1 Submit 3 samples, 300 mm (12") long or 300 x 300 mm (12 x 12") in size as applicable, for each *Product* in specified finish.
- .4 Shop drawings:
 - .1 Include plans, elevations, hardware, and installation details.
 - .2 Show seam locations.
- .5 Templates:
 - .1 Submit templates to *Contractor* for use by installers and fabricators as required for proper location and installation of hardware.

1.3 Delivery, Storage, and Handling

- .1 Package or crate, and brace *Products* to prevent distortion in shipment and handling. Label packages and crates, and protect finish surfaces by sturdy wrappings.
- .2 Deliver *Products* to location at the *Place of the Work* designated by *Contractor*.

1.4 Field Conditions

- .1 Install materials of this section only when surfaces and air temperatures have been maintained between 18°C and 24°C for 48 hours preceding installation, and will be so maintained during installation and for 48 hours thereafter. Maintain a minimum temperature of 13°C after above period. Relative humidity shall be 50 +/- 10%.
- .2 Ensure that adequate ventilation is provided during installation and curing of materials of this section.

1.5 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranty:
 - .1 Labour, materials, and workmanship for work of this section.

Corner Guards

- .2 Duration: 2 years.

PART 2 - PRODUCTS

2.1 General

- .1 Incorporate reinforcing, fastenings and anchorage required for building-in of *Products*.
- .2 Heights of corner guards are to be full wall heights.

2.2 Corner Guard Protection

- .1 Corner guard (CG1):
 - .1 Material: Vinyl.
 - .2 Colour/finish: to later selection by *Consultant* from manufacturer's full range.
 - .3 Angle: 90 degrees.
 - .4 Leg length: 75 mm (3").
 - .5 Acceptable *Products*:
 - .1 C/S Construction Specialties 'SM-20N'.
 - .2 Substitutions: in accordance with Section 01 25 00.
- .2 Stainless steel corner guard (CG-SST):
 - .1 Material: Stainless steel.
 - .2 Finish: #4 satin finish.
 - .3 Angle: 90 degrees, end caps, and wider angles as indicated.
 - .4 Leg length: 3-1/2".
 - .5 Acceptable *Products*:
 - .1 C/S Construction Specialties 'CO-8'.
 - .2 Substitutions: in accordance with Section 01 25 00.

PART 3 - EXECUTION

3.1 Installation

- .1 Install work to meet manufacturer's written requirements, true, tightly fitted, and level or flush to adjacent surfaces, as suitable for installation.
- .2 Clean substrates to remove dirt, debris and loose particles prior to installation.
- .3 Fit joints and junction between components tightly and in true planes.
- .4 Install units on solid backing as indicated, and erect with materials and components straight, tight and in alignment.
- .5 Corner guards:
 - .1 Corner guard edges shall be smooth.

Corner Guards

- .2 CG1:
 - .1 Mechanically fasten corner guards in accordance with guard manufacturer's written requirements. Fasteners shall be aligned and equally spaced.
- .3 CG-SST:
 - .1 Adhere corner guards with continuous adhesive beads in accordance with manufacturer's written requirements.
- .4 Visible fasteners are not permitted.
- .5 Install corner guard shall be tightly fitted without gaps.

END OF SECTION

Washroom Accessories

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Washroom accessories.

1.2 Administrative Requirements

- .1 Coordination:
 - .1 Supply manufacturer's handling instructions, anchorage information, roughing-in dimensions, templates, and service requirements for installation of the work of this section, and assist or supervise, or both, the setting of anchorage devices and construction of other work incorporated with *Products* specified in this section in order that they function as intended.

1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Samples:
 - .1 Submit 3 samples of each finish specified.
- .4 Shop drawings:
 - .1 Include plans, elevations, hardware, and installation details.

1.4 Closeout Submittals

- .1 Submit closeout submittals in accordance with Section 01 78 00.
- .2 Operation and maintenance data:
 - .1 Submit manufacturer's operation and maintenance instructions for inclusion in the operation and maintenance manuals.

1.5 Delivery, Storage, and Handling

- .1 Package or crate, and brace products to prevent distortion in shipment and handling. Label packages and crates, and protect finish surfaces by sturdy wrappings.
- .2 Deliver products to location at the *Place of the Work* designated by *Contractor*.

PART 2 – PRODUCTS

2.1 Performance/Design Requirements

- .1 Washroom accessories shall be ligature-resistant.

Washroom Accessories

2.2 Accessories

- .1 Incorporate reinforcing, fastenings and anchorage required for building-in of *Products*.
- .2 Washroom accessories; locations as indicated or scheduled.
 - .1 Toilet tissue roll holder (RTPH):
 - .1 Type 316 stainless steel.
 - .2 Acceptable *Product*:
 - .1 Kingsway Group 'KG13 Ligature Resistant Toilet Roll Holder Recessed'.
 - .2 Substitutions: in accordance with Section 01 25 00.
 - .2 Soap dispenser (SD):
 - .1 Type 316 stainless steel.
 - .2 Acceptable *Product*:
 - .1 Kingsway Group 'KG07 Ligature Resistant Manual Soap Dispenser Surface Mount'.
 - .2 Substitutions: in accordance with Section 01 25 00.
 - .3 Paper towel dispenser (PTD):
 - .1 Stainless steel.
 - .2 Acceptable *Product*:
 - .1 Kingsway Group 'KG02 Ligature Resistant Paper Towel Dispenser'.
 - .2 Whitehall 'Ligature Resistant C-Fold Paper Towel Dispenser Model WH1181'.
 - .3 Substitutions: in accordance with Section 01 25 00.
 - .4 Clothes/robe hook (RH):
 - .1 Collapsible hook:
 - .1 Typical allocations: MH washrooms, MH Spaces where indicated.
 - .2 Acceptable *Product*:
 - .1 Behavioural Safety 'Ligature Resistant Towel Hook #TH770'.
 - .2 Kingsway 'KG180 Anti-Ligature Single Coat Hook'.
 - .3 Substitutions: in accordance with Section 01 25 00.
 - .5 Grab bars:
 - .1 Grab bar, MH, horizontal, no pass through (GB1):
 - .1 Typical allocation: High risk washrooms.
 - .2 Length: 610 mm (24").
 - .3 Acceptable *Product*:
 - .1 Behavioural Safety 'Ligature Resistant Grab Bar #GB730'.

Washroom Accessories

- .2 Kingsway Grab Bar 'KG270-272'.
- .3 Substitutions: in accordance with Section 01 25 00.
- .2 Grab bar; MH, L-shape, no pass through:
 - .1 Typical allocation: High risk washrooms.
 - .2 Size: 750 mm x 750 mm (30" x 30").
 - .3 Acceptable *Product*:
 - .1 Kingsway Grab Bar 'KD53-GA'.
 - .2 Substitutions: in accordance with Section 01 25 00.
- .6 Shower tray; recessed (RST):
 - .1 Acceptable *Product*:
 - .1 ASI '140'.
 - .2 Substitutions: in accordance with Section 01 25 00.
- .7 Towel bar:
 - .1 Acceptable *Product*:
 - .1 To later selection by *Consultant*.
 - .2 Substitutions: in accordance with Section 01 25 00.
- .8 Mirrors (MIR1):
 - .1 Typical allocations: MH Washrooms.
 - .2 Acceptable *Products*:
 - .1 ASI '105-14'.
 - .2 Bobrick 'B942'.
 - .3 Bradley 'SA05'.
 - .3 Substitutions: in accordance with Section 01 25 00.
- .9 Mirror shelf:
 - .1 Acceptable *Product*:
 - .1 ASI '130'.
 - .2 Substitutions: in accordance with Section 01 25 00.

2.3 Fabrication

- .1 Fabricate *Products* with materials and component sizes, metal gauges, hardware, reinforcing, anchors, and fastenings of adequate strength to ensure that washroom accessories will remain free of warping, buckling, opening of joints and seams, and distortion within limits of intended use.

Washroom Accessories

PART 3 - EXECUTION

3.1 Preparation

- .1 Verify that rough-in dimensions and blocking or back-up has been provided to comply with product manufacturer's written requirements.

3.2 Installation of Washroom Accessories

- .1 Comply with product manufacturers written requirements.
- .2 Install washroom accessories in accordance with the New York State Office of Mental Health Patient Safety Standards, Materials and Systems Guidelines at mental health locations.
- .3 Install and secure fixtures rigidly in place using expansion shields in solid masonry or concrete, toggle bolts in hollow masonry or sheet metal screws at metal studs.
- .4 Insulate surfaces to prevent electrolytic action due to contact with dissimilar metals, or concrete or masonry as applicable. Use bituminous paint or other approved means.
- .5 Install on built-in concealed solid backing materials. Grab bar installation shall be able to withstand 250 kg downward force.
- .6 Verify locations and mounting heights with *Consultant* before roughing-in.

3.3 Barrier Free Installation Heights

- .1 Install accessories to permit operable parts and controls to be accessed in accordance with authorities having jurisdiction.

3.4 Installation Tolerances

- .1 Install accessories plumb, level, straight, tight and secured, centred between joints on masonry and tile walls to the following maximum tolerances:
 - .1 Plumb and level: 3 mm (1/8").
 - .2 Variation from indicated position: 3 mm (1/8").

3.5 Adjusting and Cleaning

- .1 Verify under work of this section that installed *Products* function properly and adjust them accordingly to ensure satisfactory operation. Test mechanisms, hinges, locks, and latches and adjust and lubricate to ensure washroom accessories are in perfect working order.
- .2 Do not remove protective coatings until final cleaning, or earlier if directed by *Consultant*.
- .3 Refinish damaged or defective work so that no variation in surface appearance is discernible. Refinish work at *Place of the Work* only if approved.

END OF SECTION

Phenolic Lockers

PART 1 - GENERAL

1.1 Summary

- .1 Section includes:
 - .1 Phenolic lockers.

1.2 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Shop drawings:
 - .1 Indicate thicknesses of panels, fabricating methods, assembled banks of lockers, bases, trim, numbering, filler panels, end panels, sloped tops and manufacturer's installation instructions.
- .4 Samples:
 - .1 Submit sample of colour and finish.

1.3 Warranty

- .1 Warrant work of this section in accordance with Section 01 78 36.
- .2 Extended warranty:
 - .1 Labour, materials, and workmanship for work of this section.
 - .2 Duration: 10 years.

PART 2 - PRODUCTS

2.1 Materials

- .1 Lockers:
 - .1 Type:
 - .1 Single tier full-height locker.
 - .2 2-tier locker.
 - .2 Size:
 - .1 Single tier: 381mm (wide) x 457mm (deep) x 1822mm (high).
 - .2 2-tier: 381mm (wide) x 457mm (deep) x 1822mm (high).
 - .3 Phenolic:

Phenolic Lockers

- .1 Solidly fused plastic laminate with matte-finish melamine surfaces, coloured face sheets, and black phenolic-resin core that is integrally bonded with exposed black edges milled and polished.
- .2 Thicknesses; solid phenolic panels:
 - .1 Doors and frames: 12.7 mm (1/2").
 - .2 Tops, bottoms, and shelves: 12.7 mm (1/2").
 - .3 Backs: 6 mm (1/4").
 - .4 Sides: 10 mm (3/8").
 - .5 Filler and end panels: 12.7 mm (1/2").
 - .6 Sloped top: 6 mm (1/4"), mitred at corners.
- .3 Finish: rough matte finish.
- .4 Colours: To later selection by *Consultant*. from manufacturer's standard range.
- .4 Locking system:
 - .1 Single tier: D-pulls, no lock required.
 - .2 2 tier: Built-in combination lock, with master key control.
 - .1 Acceptable *Product*:
 - .1 Mechanical locker lock - Spectrum Lockr Combi Pro.
 - .2 Substitutions in accordance with 01 25 00.
- .5 Hinges: constructed of stainless steel Type 304, provide 2 per door for multi-tier units and 3 for full height doors.
 - .1 Through-bolted hinges.
 - .2 Hinges tapped into door.
- .6 Coat hooks: fabricated from high impact plastic, 2 prong, mounted to bottom of shelf, 1 per locker.
- .7 Base:
 - .1 Manufacturer's standard, 100 mm (4") high, fabricated from phenolic, colour to match lockers.
- .8 Acceptable *Product*:
 - .1 Spectrum 'Phenolic Lockers, Classic Locker'.
 - .2 Substitutions in accordance with 01 25 00.

PART 3- EXECUTION

3.1 Installation

- .1 Assemble and install lockers complete with bases in accordance with manufacturer's written installation requirements.

Phenolic Lockers

- .2 Securely fasten at least every third locker through to wall studs, masonry or concrete substrate.
- .3 Install trim and filler panels where required for continuous appearance and where obstructions occur. Specific conditions as indicated.
- .4 Install finished end panels to exposed ends of locker banks.

3.2 Installation Tolerances

- .1 Install plumb, level, tight and secured.
- .2 Comply with the following maximum tolerances:
 - .1 Plumb and level: Maximum 3 mm (1/8").
 - .2 Variation from indicated position: plus/minus 3 mm (1/8").

END OF SECTION

Construction Permit

Hospital Site

☐

M

☒

C

☐

Q

Background

Construction can be a cause of hospital outbreaks that lead to significant infections and even deaths. Workers need to be aware of the risks and the necessary precautions when they are working in a health care facility that has a large proportion of seriously ill and immunocompromised patients. Even non-patient care areas within the hospital can impact on patients, e.g., contaminated air ducts, bandages, pharmacy supplies. Therefore, it is most important that the guidelines below are followed during construction. Please note that occasionally during construction, modifications are made to the original specifications. If these will change the level of construction activity, this assessment could need to be updated.

PLEASE COMPLETE ALL BLANKS UP TO IPaC & People Safety SECTION

Permit submitted by: Tia Jantzi

Extension: 437-
488-4212

Department: Capital
Planning

Date: May 13, 2024

Project location: CVH
2D (with impacts to
1D below)

**Department
manager:** 2D
Manager Ashley
Collins, (1D
manager Gina
Dolezel)

Project name: CVH
2D MH Spruce PICU
Reno

**Estimated
duration:** 17
months

Start date: July 2024

End date: Dec
2025

Contractor/Company: TBD

**Team Leader/
Project Manager:** TBD

Phone number:
TBD

Phone number: TBD

Project reason and scope:

Renovate the existing PICU secure mental health inpatient unit, along with the 2D nursing station, med room, conference room and music/family lounge to comply with CSA room areas and increase safety for staff and patients

Population and Geographic Risk Groups (please check (✓) appropriate group)

<p>Group 1 Lowest Risk</p>	<p><input type="checkbox"/> Office areas</p> <p><input type="checkbox"/> Unoccupied wards</p> <p><input type="checkbox"/> Public areas</p>
<p>Group 2 Medium Risk</p>	<p><input checked="" type="checkbox"/> All other patient care areas unless stated in Group 3 or 4</p> <p><input type="checkbox"/> Outpatient clinics (except for oncology & surgery)</p> <p><input type="checkbox"/> Admission/discharge units</p>
<p>Group 3 Medium to High Risk</p>	<p><input type="checkbox"/> Emergency room</p> <p><input type="checkbox"/> Radiology/MRI</p> <p><input type="checkbox"/> Post anesthesia care units</p> <p><input type="checkbox"/> Birthing Suites/Mother and baby (non-operating room)</p> <p><input type="checkbox"/> Normal newborn nurseries</p> <p><input type="checkbox"/> Day surgery</p> <p><input type="checkbox"/> Nuclear medicine</p> <p><input type="checkbox"/> Physiotherapy tank areas</p> <p><input type="checkbox"/> Echocardiography</p> <p><input type="checkbox"/> Laboratories (specimens)</p> <p><input type="checkbox"/> General med/surg wards other than those listed in Group 4</p> <p><input type="checkbox"/> Pediatrics</p> <p><input type="checkbox"/> Geriatrics</p>

Group 4 Highest Risk	<input type="checkbox"/> All ICUs <input type="checkbox"/> All ORs <input type="checkbox"/> Labour & delivery ORs <input type="checkbox"/> Anesthesia and pump areas <input type="checkbox"/> Oncology units and outpatient clinics for patients with cancer <input type="checkbox"/> Transplant units and outpatient clinics for patients who have received bone marrow or solid organ transplants <input type="checkbox"/> Wards and outpatient clinics for patients with AIDS or other immunodeficiency <input type="checkbox"/> Dialysis units <input type="checkbox"/> Tertiary care nurseries <input type="checkbox"/> All cardiac catheterization & angiography areas <input type="checkbox"/> Cardiovascular/cardiology patients <input type="checkbox"/> All endoscopy areas <input type="checkbox"/> Pharmacy admixture rooms <input type="checkbox"/> Sterile processing rooms
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Construction activity type (please check (✓) all that apply)	
Type A	<p>Inspection and non-invasive activities. Includes, but is not limited to</p> <ul style="list-style-type: none"> <input type="checkbox"/> activities that involve a single controlled opening in a wall or ceiling for minor work or visual inspection, that is accessed by <ul style="list-style-type: none"> • removing no more than one ceiling tile; or • opening of an access panel on a wall or ceiling <input type="checkbox"/> painting (but not sanding) and wall covering <input type="checkbox"/> electrical trim work <input type="checkbox"/> minor plumbing work that disrupts the water supply to the localized patient care area (i.e., one room) for less than 15 min <input type="checkbox"/> other maintenance activities that do not generate dust or require cutting of walls or access to ceilings other than for minor work or visual inspection as described in the first bullet above
Type B	<p>Small-scale, short-duration (e.g., less than 2 h) activities that create minimal dust. Includes, but is not limited to</p> <ul style="list-style-type: none"> <input type="checkbox"/> activities that require access to and use of chase spaces <input type="checkbox"/> cutting a small opening in a contained space where dust migration can be controlled, e. g., cutting of walls or ceilings to provide an access point for installing or repairing minor electrical work, ventilation components, telephone wires, or computer cables <input type="checkbox"/> sanding or repair of a small area of a wall <input type="checkbox"/> plumbing work that disrupts the water supply of one or more patient care areas for less than 30 min
Type C	<p>Activities that generate a moderate to high level of dust, cause a moderate service disruption, require demolition, require removal of a fixed facility component (e.g., a sink) or assembly (e.g., a countertop or cupboard) or cannot be completed in a single work shift. Includes, but is not limited to,</p> <ul style="list-style-type: none"> <input type="checkbox"/> activities that require sanding of a wall in preparation for painting or wall covering <input type="checkbox"/> removal of floor coverings, ceiling tiles and casework <input type="checkbox"/> new wall construction <input type="checkbox"/> minor ductwork <input type="checkbox"/> electrical work above ceilings <input type="checkbox"/> major cabling activities <input type="checkbox"/> plumbing work that disrupts the water supply of one or more patient care areas for more than 30 min, but less than 1 h
Type D	<p>Activities that generate high levels of dust, activities that necessitate significant service disruptions, and major demolition and construction activities requiring consecutive work shifts to complete. Includes but is not limited to,</p> <ul style="list-style-type: none"> <input type="checkbox"/> soil excavation <input checked="" type="checkbox"/> new construction that requires consecutive work shifts to complete <input checked="" type="checkbox"/> activities that involve heavy demolition or removal of a complete cabling system <input checked="" type="checkbox"/> Plumbing work that disrupts the water supply of one or more patient care areas for 1 h or more

Enter Preventative Measure Level (I, II, III, IV): ____ IV ____

Preventative Measures Analysis: A permit is required for all shaded areas (III, IV)

Risk Group	Construction Activity			
	Type A	Type B	Type C	Type D
Group 1	I	II	II	III or IV
Group 2	I	II	III	IV
Group 3	I	III	III or IV	IV
Group 4	III	III or IV	III or IV	IV

From CSA Z317.13:22 Annex C: Project Analysis and Infection Control Risk Assessment (ICRA) during the planning stages

1. Multidisciplinary Team (MDT) to identify the areas surrounding the project area, assessing potential impact:

Unit Below	Unit Above	Lateral Left	Lateral Right	Behind	Front
1D =IV	Roof N/A	Ext Courtyard	Exterior	2G -III	Exterior
Risk Group	Risk Group	Risk Group	Risk Group	Risk Group	Risk Group

2. MDT to consider location of high-risk patients in relation to construction activity. Do any populations need to be relocated? **No**
3. MDT to identify the specific site of activity (e.g., patient room, medication room) assessing potential impact: **4 patient rooms, 1 medication room, 1 nursing station, 1 conference room, 1 music/family lounge**
4. MDT considers current HVAC systems, air quality, and filtration. Do the contractors need to supply their own HVAC to the construction site? Will they be permitted to utilize base building HVAC for heating and cooling needs? **Building HVAC may be used**
5. MDT to consider what air monitoring (if any) will be required for the project. Discuss the requirement for the collection of baseline samples prior to project start. **Air audit completed. Negative air to be monitored during construction**
6. MDT to identify and discuss potential issues related to ventilation, plumbing, and electrical in terms of occurrence of probable outages shutdowns and tie-ins, and coordinate arrangements with clinical department manager, operation and maintenance managers, and infection prevention and control. Determine work hours in consultation with clinical area manager, plant maintenance, and infection prevention and control. **Construction will take place over 4 phases. For the inpatient units, some bedrooms will remain operational while others are being renovated and services will have to be altered to ensure continuous operation. Work will be completed during regular hours. Shutdowns and tie-ins will be scheduled in advance. This will be identified as project progresses.**

7. MDT to identify containment measures, using prior assessment. Identify types of barriers and consider how they may impact spaces and operations (e.g., solid walls, 6 mil poly): **Solid gypsum board with 1 hr fire rating. The hoarding accessible to patients needs to be tamperproof, vandal proof and anti-ligature. Security will monitor hoarding construction and removal.**
8. MDT to consider potential risk of water damage. Is there a risk due to compromising structural integrity (e.g., wall, ceiling, roof)? **No**
9. MDT to discuss designated substance concerns and reports, including asbestos, mould, and lead: **No asbestos at CVH. Mould not yet identified.**
10. MDT to plan to discuss the following containment issues with the project team:
 - a) Traffic flow: considerations for patients, health care workers, and contractor, including separation of clean and dirty activities: **Program is aware of traffic flow due to hoarding set-up. Extra security cameras will aid in visibility.**
 - b) Housekeeping: specific cleaning requirements in the specified area (e.g., operating rooms (ORs), medical device reprocessing department (MDRD), pharmacy): **Final cleans to be done during each of the 6 phases prior to hoarding removal and after hoarding removal.**
 - c) Material deliveries and debris removal (how and when?), including path of travel and loading dock access: **Contractor to provide diagram showing travel path to loading and for waste removal. Architect to outline path on keyplan.**
11. MDT to discuss the use of HCF amenities (e.g., washrooms, cafeteria). Will the contractor be given permission to use services inside the facility? **GC can use public washroom 1G850. Contractors may use cafeteria and retail fast food spaces.**
12. MDT to be aware of material delivery and storage. Will there be a designated storage area provided to the contractor? **No additional storage space will be provided outside of the designated construction areas**

Identify and communicate the responsibility for project monitoring that includes infection prevention and control concerns and risks. The ICRA may be modified throughout the project but shall be accepted by infection prevention and control and the project manager.

C.4 Additional requirements for consideration:

Additional Precautions (IPAC): ☐ See additional recommendations

People Safety Requirements (OHSA O.Reg. 67/93):

What are the potential work hazards?	How will you control them to minimize risk?
<input type="checkbox"/> Exposure to biological hazards (mould, viruses, bacteria, etc.)	No risk as areas of work are hoarded and contained
<input checked="" type="checkbox"/> Noise	
<input type="checkbox"/> Chemicals/Noxious odours (Provide MSDS/SDS to PS for review prior to project start)	
<input type="checkbox"/> Possible exposure to hazardous building materials (asbestos, lead, etc.)	No asbestos at CVH
<input type="checkbox"/> High energy sources (electrical, pressure, steam, etc.)	
<input type="checkbox"/> Fire hazard (sparks from open flame, welding, cutting, etc.)	TBD
<input type="checkbox"/> Working at height	
<input type="checkbox"/> Risk of falling objects	
<input type="checkbox"/> Heavy equipment / materials	
<input checked="" type="checkbox"/> Working in an area with high risk of violence	Security will be present during construction for high risk activities and when hoarding is put up and taken down

<input type="checkbox"/> Confined space entry	
<input type="checkbox"/> Other:	

Projected utility outages impacting IPaC: (Check (✓) all that apply and provide details including length of time and all areas affected)

☒ Electrical ☒ Water (Refer to Appendix F) ☒ HVAC (Refer to Appendix G) ☐ Other _____

Please indicate if additional documents are attached: (Phase schedules, floor plans, etc.)

☒ Additional document(s) attached: Preliminary hoarding plan

Traffic

- 1) Proposed traffic pattern for contractors and equipment/supplies: **Contractor to provide drawings for approval**
- 2) Proposed traffic pattern and time for garbage disposal: **Contractor to provide drawings for approval**
- 3) Disposal site: **Contractor to provide drawings for approval**
- 4) Proposed traffic pattern for healthcare workers, patients and public: **Contractor to provide drawings for approval**

Communication

Those requesting the permit are responsible for organizing the following communications:

Communications are required to re-route traffic: ☒ Yes ☐ No

- 1) Construction zone signs are required: ☒ Yes ☐ No
- 2) Manager of affected area(s) aware of project details and dates: ☒ Yes ☐ No

IPaC and People Safety approval sign off

(This permit is to be signed and posted at the construction site)

Permit approved by:	Initials:
<hr/>	<hr/>
Department:	Extension:
<hr/>	<hr/>
Date:	
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Permit approved by:	Initials:
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Department:	Extension:
<hr/>	<hr/>
Date:	
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Preventative Measure Level (PML)

PML I	<p>PML I measures shall be followed</p> <ol style="list-style-type: none"> 1. Review infection control construction agreement before work begins 2. Execute work by methods to minimize raising dust from construction operations. 3. Protect patient care equipment and supplies from dust exposure. 4. Immediately replace any ceiling tile displaced for visual inspection. 5. Report discoloured water and water leaks to maintenance.
PML II	<p>PML I and II measures shall be followed</p> <ol style="list-style-type: none"> 1. Determine a safe route for the transportation of clean or sterile supplies and equipment away from the construction area. 2. Establish traffic patterns for construction workers that avoid, or at the minimum reduce, adverse impacts on patient care areas. 3. Provide active means to prevent airborne dust from dispensing into atmosphere. 4. Water mist work surfaces to control dust while cutting. 5. Seal unused doors with tuck tape. 6. Block off and seal air vents. 7. Wipe work surfaces with disinfectant. 8. Contain construction waste before transport in tightly covered containers. 9. Vacuum the area (with HEPA-filtered vacuum) and wet mop area daily with a Hospital-grade low-level disinfectant. 10. Place dust mat at entrance and exit of work area. 11. Remove or isolate HVAC system in areas where work is being performed. 12. Flush potable water lines in the construction area and adjacent areas before reuse.

PML III	<p>PML I, II and III measures shall be followed</p> <ol style="list-style-type: none"> 1. Obtain infection control permit before construction begins. 2. Isolate HVAC system in area where work is being done to prevent contamination of duct system. 3. Complete all critical barriers or implement control cube method from floor to true ceiling (includes the areas above false ceilings) before construction begins. 4. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units. 5. Do not remove barriers from work area until complete project is thoroughly cleaned by housekeeping. 6. Vacuum the area (with a HEPA-filtered vacuum) and wet mop area daily with a hospital- grade low-level disinfectant. 7. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction. 8. Contain construction waste before transport in tightly covered containers. 9. Cover transport receptacles or carts. Tape cover in place. 10. Remove or isolate HVAC system in areas where work is being performed. 11. Consider hyper-chlorinating or superheating stagnant potable water 12. Some areas (e.g. public corridors) may be exempt in consultation with IPAC.
PML IV	<p>PML I, II, III and IV measures shall be followed</p> <ol style="list-style-type: none"> 1. Construct anteroom at access points to the construction area if access is from within the health care facility. 2. Place walk off mat outside the anteroom in patient care areas and inside the anteroom. 3. Ensure construction workers: <ol style="list-style-type: none"> a. leave the construction area through the anterooms so they can be vacuumed using a HEPA vacuum cleaner before leaving work site; or b. wear protective clothing that is to be removed each time they leave the construction area and before going into patient care areas. 4. Repair holes in walls within 8 h or seal them temporarily. 5. Ensure that ventilation systems are working properly in adjacent areas.



Figure 1 – Image of the future Peter Gilgan Mississauga Hospital

Trillium Health Partners
Queensway Health Centre, Mississauga Hospital & Credit Valley Hospital

Capital Planning & Redevelopment / Facilities
Contractor Handbook
Contractor Guidelines, Policies and Procedures

Issue Date:
March 15, 2024

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Section A: General

1. **PURPOSE OF THIS DOCUMENT:**

- 1.1 The primary purpose of this ‘*Contractor Handbook*’ is to ensure that *Contractors* who attend on the properties of *Trillium Health Partners*, hereafter referred to as the “**Hospital**” in the employ of the *Capital Planning and Redevelopment* or *Facilities Operations Offices* are aware of and committed to meeting or exceeding all of the safety obligations under the **Occupational Health and Safety Act (OHSA)** and all applicable *Regulations*, including specifically the “*Construction Project Regulations*” and applicable “*Health Care Facilities Regulations*”.
- 1.2 The *Capital Planning & Redevelopment Office* “*designate*”, hereafter referred to as the “**Project Manager**” is the Hospital employee responsible for leading the project and the team of internal hospital professionals, department stakeholders, external Consultants and monitoring the work of the “*Contractor*”, unless specified otherwise.
- 1.3 The *Facilities Operations Office* “*designate*”, hereafter referred to as the “**Facilities Project Manager**” is the Hospital employee responsible for leading general facilities maintenance projects where a *Project Manager* has not been assigned, unless specified otherwise.
- 1.4 A **Contractor** is a person or business that undertakes a contract for services, or provides materials or services within the Hospital setting, but is not an employee of the *Hospital*. All *Contractors* shall ensure full compliance with the *Occupational Health & Safety Act (OSHA)*, this “*Contractor Handbook*” and the directions of the *Hospital* or its “*designate*”. All *Contractors* undertaking all or part of a project, as defined under the *Occupational Health & Safety Act*, shall be considered “Constructors” under the *Act*, and shall meet all requirements thereunder, unless the *Hospital* expressly assumes the role of “Constructor” in writing.
 - 1.4.1 Additionally, all *Contractors* are independent operators and assume responsibility for the actions of their employees, agents, and *Subcontractors*, and must ensure that all policies and procedures of the *Hospital* are followed related to health and safety, human rights (accommodation), environmental protection and any applicable governing legislation. The actions of the *Contractor*, its agents or *Subcontractors* shall not compromise the health and safety of patients, staff, guests, visitors, or other *Contractors* on the *Hospital* premises.
- 1.5 Work stoppages as a result of the *Contractor*’s failure to abide by the terms of this document will be at the sole cost of the *Contractor*.
- 1.6 It is the responsibility of the *Project Manager* to ensure that a copy of this document is issued with every Construction RFQ/RFP.
- 1.7 The *Contractor*’s **Project Manager** and **Site Supervisor** are responsible for reviewing this document and any relevant supplementary *Hospital Occupational Health and Safety* requirements with ALL *Subcontractors* it brings on site and with the individual in charge of each employee, agent, or *Subcontractor* group. All associated signatures and/or required *Hospital* permits noted herein are to be provided by the *Contractor*’s **Project Manager** to the *Hospital* “*designate*” **prior to the commencement of any work on any Hospital premises.**
- 1.8 This document is not intended to replace the safety training and supervision required to ensure safe performance of work. Each *Contractor* and its employees, agents or *Subcontractors* is responsible for ensuring that their staff receive the necessary training and supervision to complete their work on any and all *Hospital* premises in a safe and effective manner.
- 1.9 Division 01 of the Project Specifications (if available) shall take precedence over this document.

Section B: Occupant and Workplace Health and Safety

1. **OCCUPATIONAL HEALTH & SAFETY:**

- 1.1 The health and safety of all individuals on *Hospital* premises is to be a primary consideration in all decisions made by the *Contractor*, its agents and *Subcontractors*.
- 1.2 The *Contractor* shall comply with the *Occupational Health and Safety Act*, hereafter referred to as “*OSHA*” and all applicable regulations, including specifically the “*Construction Regulations*” and “*Health Care Facilities Regulations*”. Refer to [Occupational Health & Safety Policy, Appendix ‘A’](#).
- 1.3 The *Contractor* further acknowledges that where the *Contractor* is a “*Constructor*” under the *OHS Act* they shall comply with all the requirements, duties, and obligations of a “*Constructor*” pursuant to the *OHS Act*.
- 1.4 The intent of the *OHS Act* is to designate one person with overall authority for health and safety matters on each project. This person is the “*Constructor*” of the project.
- 1.5 Section 1 of the Act defines “*Constructor*” as “a person who undertakes a project for an owner and includes an owner who undertakes all or part of a project by himself or by more than one employer”. A “*Constructor*” is a person who is responsible for a project. The definition of “*employer*” in section 1 of the Act includes *Contractors* and *Subcontractors*. “*Project*” is also defined in section 1 of the Act.
- 1.6 The “*Constructor*” is the party with the greatest degree of control over health and safety at the entire project and is ultimately responsible for the health and safety of all workers. The constructor must ensure that all the employers and workers on the project comply with the Act and its regulations.
- 1.7 A *Contractor* shall in all cases be the “*Constructor*” unless the *Hospital* expressly assumes the role as “*Constructor*” to the *Contractor* in writing. For reference, the *Contractor* shall be the “*Constructor*” and will accept the responsibility and duties of a “*Constructor*” when:
 - a. Planning the proposed project or construction.
 - b. Exercising control over *Contractors* and *Subcontractors*, including engaging, releasing or discharging *Contractors* and *Subcontractors*.
 - c. Setting and maintaining a project budget.
 - d. Determining the manner and methods of work as per the contract specifications and the directions of the *Project Manager*.
 - e. Providing ongoing supervision on the project.
 - f. Compensating all agents and *Subcontractors* employed by the *Contractor* in completion of the contract.
- 1.8 When the *Hospital* hires only one employer (*Contractor*) to do all the work on a project, then that *Contractor* is undertaking the work and is the “*Constructor*”.
- 1.8.1 Section 23 of *OHS Act* requires a “*Constructor*” to ensure that: The measures and procedures prescribed by the *Occupational Health and Safety Act* and all applicable regulations, including specifically the *Construction Project Regulations* and applicable *Health Care Project Regulations*,
 - a. Are carried out on a construction project.
 - b. Every employer and every worker performing work on the project complies with the *OHS Act* and the regulations.
 - c. The health and safety of workers on the construction project are protected.

1.8.2 “Constructors” contracted by the *Hospital* must:

- a. Register with the *Ontario Ministry of Labour (MOL)* on the prescribed forms (as applicable) before undertaking a project [e.g. **Registration of Constructors and Employers Engaged in Construction Form - 1000 & Notice of Project - Form 1075**];
- b. Affix the ‘*Notice of Project*’ at the Construction site.
- c. Appoint a competent supervisor and assistant, one of whom must supervise all work at all times, inspect machinery and equipment at the site weekly or more frequently as necessary, and ensure that equipment and other facilities and structures at the project do not endanger any person.
- d. Contracting firm supervisors/managers must ensure that their workers are made aware of area rules for departments in which they are working and ensure enforcement at all times. Where there are any concerns over conflicting safety procedures or the safety of any *Hospital* employee as a result of the “Constructor’s” protocols, the “Constructor” will cease work and will confer immediately with the *Project Manager*.

1.9 It is understood that these duties do not cover all situations; therefore, it is essential that the “Constructor” report regularly on the plans and progress of all construction with the *Project Manager*.

1.10 The *Site Supervisor* is responsible for site safety and ensuring that all occupants within the active construction site are wearing appropriate personal protective equipment (PPE) per the *OSHA* and as appropriate for the work being performed, especially prior to certification for “Occupancy” by the local authorities having jurisdiction.

1.11 The *Site Supervisor* shall inform all persons about to enter the construction site of what construction activities are taking place during that time and identify any potential hazards. The *Site Supervisor* must ensure that there are no safety hazards created for *Hospital* patients, staff, learners, guests, visitors or other *Subcontractors*, as a result of the construction, and if concerns are raised by the *Hospital* as to safety hazards created by the construction project, the *Hospital* will request that the “Constructor” stop work until such time as the risk is assessed and, if necessary, removed.

1.12 The *Contractor* must report ALL safety incidents to the *Project Manager* immediately including near misses, hazardous situations, critical injuries, work stoppages or work refusals. Upon request, the *Contractor* shall provide the *Hospital* detailed accounts of all incidents. The *Contractor* shall follow all instructions from *Security Operations* as related to any *Hospital*-wide on-site emergency situations, including fire, floods, violence, etc.

1.13 In the case of a critical injury or fatality, the *Contractor* should follow emergency procedures as outlined in the *Occupational Safety & Health Act (OSHA)* and *Construction Regulations*, including immediate notification of the *Ministry of Labour*.

1.14 The “Constructor’s” work may be inspected by the *Project Manager*, to oversee quality control and to examine what work is being performed, but it must be recognized that it is the role of the “Constructor” to determine how any work will be performed.

1.15 The *Contractor* will post a copy of this ‘*Contractor Handbook*’ document at the *Hospital* work site in a location visible and accessible to all workers. A copy of this document is to be provided by the “Constructor” to all its supervisory personnel and also provided to any of its agents or *Subcontractors*.

1.16 **No work shall commence on Hospital property** until the *Contractor’s Project Manager* and *Site Supervisor* have signed the attached **Contractor Statement of Understanding, Appendix ‘Q’** indicating that they have read the complete ‘*Contractor Handbook*’ and *iLearn e-Learning Module* and have a good working knowledge of the *OHSA*, *CSA* guidelines in health care environments and safe work practices for a construction site. This form must be executed by the assigned *Construction Project Manager* or *Principal* of the *Contractor’s* company/corporation and returned to the *Hospital’s Project Manager*.

2. **EMERGENCY MANAGEMENT:**

- 2.1 The health and safety of patients, employees, *Contractors*, and visitors, as well as the protection of the property and environment are integral to the *Hospital's* operations. Proper planning will ensure a timely and appropriate response to emergencies and critical incidents in compliance with applicable laws, legal codes of practice and industry standards.
- 2.2 In the event of a critical injury or fatality as defined by the *Occupational Safety & Health Act (OSHA)*, under no circumstances shall the scene of such an injury be altered, except to:
- Save life or relieve human suffering.
 - Maintain an essential public service.
 - Prevent unnecessary damage to equipment or other property.
- 2.3 When making an emergency call from anywhere on *Hospital* premises, take the following action:

Immediately Dial 5555 if inside the building OR 9-1-1 if on site but not in building

- ✓ Provide your name (and Company name as appropriate).
- ✓ Provide your exact location.
- ✓ Provide the exact location of the incident/emergency (e.g. Building site, Room #)
- ✓ Describe the nature of the emergency in as much detail as possible.

Parkade emergency phones are located at all stairwell exits and are monitored by telecommunications services 24 hours a day.

2.4 ***Hospital* emergency codes**

- 2.4.1 The *Hospital* Emergency Code system is an internal switchboard operated by the Coordination & Communication Centre (C3) that is accessed by phone by **dialing 5-5-5-5** on any wired *Hospital* telephone to report all emergencies. Code notifications are subsequently announced over the public address system to provide emergency alerts *Hospital*-wide. This extension should be only contacted for emergency situations. Refer to graphic below for an overview of emergency codes.

EMERGENCY CODES	
Blue	Cardiac Arrest
Pink	Paediatric Cardiac Arrest
Red	Fire
Green	Evacuation
Orange	Mass Casualty
White	Violence
LOCKDOWN	Violence with Weapons
Black	Bomb Threat; Suspicious Package
Yellow	Missing Person
Amber Alert	Missing Infant/Child
Brown	Hazardous Material Spill
Purple	Hostage Abduction
Grey	Loss of Essential Service or External Air Contamination
In the event of an emergency Call 5555	

2.4.2 Below is a detailed breakdown of **EMERGENCY CODES** with corresponding “*Contractor Duties*”

CODE	DESCRIPTION	CONTRACTOR DUTIES
BLUE	Cardiac Arrest	<p>No action required unless occupying within the <i>Contractor’s</i> area of work or witnessing a cardiac arrest while on site.</p> <ol style="list-style-type: none"> If in the <i>Contractor’s</i> area: Assess victim for unresponsiveness (shake, shout, call victim by name). Call loudly for help: “CODE BLUE” and give location or dial 5-5-5-5 and give location. If trained, initiate CPR procedures until response team arrives. If incident occurs on site but not in existing building or at an off-site location, dial 9-1-1 and give location and inform them someone will meet the first responders at the front building entrance or closest site landmark. Contact communications by dialing “0” on a THP telephone and describe the situation, location and indicate that 9-1-1 has been called
PINK	Cardiac Arrest – Neonatal/ Pediatric	See CODE BLUE instructions above
OB	Obstetrical Emergency	No Action.
RED	Fire	<p>In the event of a fire around work, the <i>Contractor</i> shall follow these R-E-A-C-T procedures:</p> <ol style="list-style-type: none"> REMOVE: Save at-risk individuals. ENSURE: Ensure doors and windows are closed to contain fire and smoke ACTIVATE: Activate the fire alarm system/use nearest pull station CALL: Dial 5555 or 9-1-1 if on site but not in building or located at any off-site locations (state location and status of the fire) TRY: Try to extinguish the fire if you have training to do so <p>In case of fire NOT in construction area, but <i>Contractors</i> are working in the existing building:</p> <ol style="list-style-type: none"> Close all doors and windows. Remain in area and wait for initiation of a code green evacuation. If fire appears to pose immediate danger, evacuate immediately. Do not use phones except for emergency calls. Do not use elevators. If away from work site, only return to work site if safe to do so and verify that a “CODE RED, ALL CLEAR” was announced through the PA system.

CODE	DESCRIPTION	CONTRACTOR DUTIES
GREEN	Evacuation Crisis – Patients, visitors and staff	Often preceded by CODE RED, GREY, BLACK, BROWN or SILVER . Be prepared to evacuate building per instructions over PA system. <u>Stage 1</u> – <i>Hospital</i> and medical personnel prepare to receive patients from an evacuated area. <u>Stage 2</u> – Entire floor is being evacuated. <u>Stage 3</u> – <i>Hospital</i> block or entire <i>Hospital</i> is being evacuated
ORANGE	External Disaster / Mass Casualty	No Action. External disaster or state of emergency initiated by municipal/provincial/federal authority. May only be activated at CVH and MH sites and anticipated increase in patient intake at <i>Hospitals</i>
ORANGE CBRN	External Disaster - Chemical Biological Radioactive Nuclear	No Action. External disaster or state of emergency initiated by municipal/provincial/federal authority. May only be activated at CVH and MH sites and anticipated increase in patient intake at <i>Hospitals</i>
WHITE	Violent Person	No action. If a violent person is posing a threat to <i>Contractor</i> personnel, dial 5-5-5-5 and give location and move to a secure area.
SILVER	Violent Person with weapons	Retreat to secure area away from doors and windows and await further instruction. Remain in your secure location until notified by appropriate personnel. Call the switchboard only if you have vital information to provide. Only use cell phones to communicate emergency information. Excessive cell use will overload the vital communication lines. Disregard fire alarm bells unless otherwise informed via CODE RED or CODE GREEN
BLACK	Bomb Threat	All bomb threats must be treated seriously. Report any suspicious package by dialing 5-5-5-5 or 9-1-1 at an off-site location. Avoid handling the package, put it down gently and wash your hands immediately. Leave the area where the package is located and leave doors to the area open. Take note of the person who delivered the package. Move to a secure location.
YELLOW	Missing adult	Await description of missing person. Immediately undertake a detailed search within the area of work. If response personnel enter the construction site, they should be equipped with appropriate safety equipment (ie hard hat, safety boots).
In the event of an emergency Dial 5555.		

CODE	DESCRIPTION	CONTRACTOR DUTIES
AMBER ALERT	Missing Infant or Child (up to age 18) abducted or detached from parent or guardian	See CODE YELLOW instructions above
BROWN	Internal Chemical Spill	<p>If the spill is occurring within the area of work Dial 5-5-5-5 to report in order to notify the spill response team. This procedure should only be in place if the spiller does not have the knowledge or equipment to clean up the spill safely or if they perceive that people may be at risk. Immediately report the spill to the nearest department and follow department procedures to determine whether to call CODE BROWN.</p> <p><i>Contractors</i> are responsible for all “hazardous materials” clean-up and removal. Refer to Section B – GENERAL HEALTH AND SAFETY RULES for further instructions.</p>
PURPLE	Hostage Taking or adult Abduction	Police will be in charge of code purple response. This may escalate into a CODE GREEN or CODE SILVER
GREY	Loss of Essential Service	<p>This may include Electricity, Phones, Fire Panel, Cellular Service Wifi, Water, Medical Gases, Air Handling, HVAC Chillers, Code Buttons, Uninterrupted Power Supply.</p> <p><i>Contractor</i> shall suspend activity that involves any medical gasses during a system failure.</p> <p><i>Note that for “planned” systems outages, the Contractor will be notified in advance.</i></p>
<p align="center">In the event of an emergency Dial 5555.</p> <p align="center">ALL CLEAR will be announced on the PA system when <i>Contractor</i> may return to regular duties.</p>		

1.1 Fire Alarms:

- 1.1.1 When a fire alarm is activated, an audible tone will be annunciated, fire doors will close, the ventilation system will be shut down via fire dampers and voice messages will announce fire instructions. All *Contractors* and servicepersons shall await the alarm announcement over the PA system. Immediately implement any request or instruction made by the *Hospital's Fire Marshal*. *Contractors* and servicepersons may continue work if the fire is not located in the immediate fire area and instructions indicate it is safe to continue. Normal duties may be resumed once advised to do so after the code is cleared over the Public Address System dictating: **"CODE RED, ALL CLEAR"** and/or **"CODE GREEN, ALL CLEAR."**

1.2 Access to Fire Extinguishing Equipment and Exits:

- 1.2.1 The *Contractor* must always provide and maintain free access from the street to fire hydrants and to outside connections for standpipes or other fire extinguishing equipment whether permanent or temporary. The *Contractor* must not place material or construction equipment within three (3) meters of hydrants or connections, nor between hydrants or connections and the centre of the street.
- 1.2.2 The *Contractor* must always maintain free access to control valves, fire hoses or fire lines within buildings, portable extinguishers and fire pull stations.
- 1.2.3 Where exits are permanently or temporarily disabled, the *Contractor* must ensure alternate exit routes are clearly defined, meet applicable codes and are well-marked with signage.
- a. Where an exit is blocked-off or deleted because of the Work, an alternative exit shall be provided that is acceptable to the Consultant, the *Project Manager*, and authorities having jurisdiction.
 - b. Where it is necessary for access to be gained to an exit through the Place of the Work, the access shall be clearly defined and protected so that it is separated from construction areas by a smoke tight fire separation equivalent to a minimum of 1-hour fire resistance rating, unless otherwise indicated.
- 1.2.4 For large scale construction projects (e.g. new buildings), the *Contractor* shall have in place a detailed emergency evacuation plan, a copy of which shall be issued to the *Project Manager*.

1.1 Fire Separation Integrity Maintenance:

- 1.1.1 When work requires that holes are to be drilled, or openings cut, through an existing fire separation, any breach must be patched with a fire stop material, approved by the local building authority having jurisdiction, to always maintain the fire rating of the separation.
- 1.1.2 Provide temporary fire-resistant closures at existing areas openings exposed to construction areas for the Work to maintain fire and life safety of existing building.
- 1.1.3 Intersecting corridors:
- a. Provide temporary fire separations between existing corridors on occupied floor areas and new corridors under construction.
 - b. Construct temporary fire separations out of steel studs and gypsum board to provide a construction equivalent to a minimum of 1 hour fire resistance rating, unless otherwise indicated.
 - c. Where access is required, doors shall be constructed of hollow steel construction with a minimum of 1 hour fire resistance rating.
 - d. Finish hardware equivalent to a minimum of 1 hour fire resistance rating, unless otherwise indicated.

3. INTERFERENCE AND INTERRUPTION OF UTILITIES PROCEDURE:

- 3.1 This procedure outlines the planned operational processes required by the *Hospital*, shall any essential service or any life safety system required for the operation of the *Hospital* premises becomes non-operational for any reason. These planned interruptions occur prior to demolition, construction, or maintenance activities.
- 3.1.1 Unplanned service interruptions must be avoided and are referred to as a *CODE GREY*. Refer to [Section B, Emergency Management](#). Special measures must be in place do avoid disrupting essential services and/or activating a fire alarm response and necessitating a building evacuation due to partial system failure, fire and flood. For this reason, such instances must be planned, communicated, and closely monitored, and alternate systems put in place to ensure the ongoing safety of all occupants. *Contractors* and service persons working on the *Hospital* premises shall be aware of the procedures outlines in this section to plan in advance.
- 3.1.2 **Planned Service Advisory:** Prior to any service interruption taking place, the *Project Manager* will issue a *Planned Service Advisory* to inform internal hospital staff in advance. The notice will be posted at the area of work and will be distributed Hospital-wide via email.
- 3.1.3 **Heads-Up Memo:** Prior to any notable operational impacts taking place, the *Project Manager* will issue a *Heads-Up Memo* to inform internal hospital staff of upcoming work. The notice will be posted at the area of work and will be distributed Hospital-wide via email.

3.2 Related Documents:

- [Building Systems Interruption Policy, Appendix 'H.1'](#)
- [Utility Shutdown Precaution Checklist, Appendix 'H.2'](#)
- [Utility Shutdown Request Form, Appendix 'H.3'](#)
- [Hot Work Policy & Permit, Appendix 'H.4'](#)
- [Fire Watch Log, Appendix 'H.5'](#)
- [IPAC Recommendations: Water Shutdowns, Appendix 'K.2'](#)
- [IPAC Recommendations: HVAC Shutdowns, Appendix 'K.3'](#)

3.3 Utility Shutdown Procedures:

- 3.3.1 If the scope of work requires the temporary interruption of any building or site service affecting the correct operation of any life safety system/device, special procedures must be followed. The following is a non-exhaustive list of shutdowns that shall be planned ahead of time for both life safety systems and essential hospital services:

- | | |
|--|---|
| ✓ Power (UPS) | ✓ Communications Systems (landlines, cellular networks, Internet, email) |
| ✓ Fire Systems (Fire alarm panel) | ✓ Nurse Call |
| ✓ Sprinkler/Standpipe | ✓ IT Clinical Applications |
| ✓ Hot Work (requires separate permit) | ✓ Medical Gas (oxygen, medical air, & suctioning) |
| ✓ Steam | ✓ HVAC system |
| | ✓ Domestic Water |

- 3.3.2 Contractors and service personnel are required to complete and submit a [Utility Shutdown Request Form, Appendix 'H.4'](#) to the *Project Manager* a minimum of ten (10) business days in advance. The *Project Manager* will be responsible for obtaining signed approval from the *Facilities Project Manager* and for returning the complete signed form back to the *Contractor* or service person. Failing to submit the appropriate form(s) as required and obtaining prior authorization for work to proceed will subject the *Contractor* to full responsibility for all costs imposed on the *Hospital* by *Toronto Fire* or *Mississauga Fire & Emergency Services* for their unnecessary response to any *Hospital* premises.
- 3.3.3 Refer to [Utility Shutdown Precaution Checklist, Appendix 'H-2'](#) outlining additional *Contractor* responsibilities prior to interruption to any utility.
- 3.3.4 Infection prevention procedures and measures are the responsibility of the *Contractor* and shall be undertaken when essential services (e.g., hot/cold water, ventilation systems, electricity etc) are disrupted. The integrity of the *Hospital's* exterior structure, spatial separations, ventilation, and water supplies for any infection control concerns are to be reviewed and assessed prior to the commencement of construction. Refer to [IPAC Recommendations: Water Shutdowns, Appendix 'K.2'](#) and [IPAC Recommendations HVAC Shutdowns, Appendix 'K.3'](#) for infection control recommendations.
- 3.3.5 No service, maintenance, renovation, or construction activities affecting full operation of *Hospital* life safety systems/devices will proceed without adherence to these utility shutdown procedures. No work is to proceed without confirmation by the *Project Manager* to the person or persons performing the work that fixed fire protection systems have been taken out of service as appropriate.
- 3.3.6 Work scope dependent, different degrees of life safety interference may be anticipated, but will not be initiated prior to the person or persons performing the work requiring such interference presenting themselves on the premises, with the appropriate approvals, ready to perform the work. **Disregard, By-Pass and Disabling of Points Procedures** are as follows:
- Disregard:** The *Facilities Project Manager* is responsible for initiating a disregard only as per the submitted authorization form(s) submitted directly by the *Project Manager*.
'Disregard': Indicates when there is no monitoring of the fire alarm systems for the Hospital premises by the Hospital fire monitoring service, and Toronto Fire or Mississauga Fire & Emergency Services will not respond to the site if there is an alarm.
 - By-Pass:** The *Facilities Project Manager* is responsible for this process alongside the disregard and will initiate only as per the submitted authorization form(s) submitted by the *Project Manager*.
'By-Pass': Indicates when the entire fire alarm system for the Hospital premises is off-line.
 - Disabling of Points:** The *Facilities Project Manager* is responsible for this process and will initiate only as per the submitted authorization form(s) submitted by the *Project Manager*.
'Disabling of Point(s)': Indicates when a specific device such as a smoke or heat sensor, or fire alarm pull station etc., is individually disabled. (This would be the most common occurrence for maintenance or for smaller renovation projects.)
- 3.3.7 All instances of fixed fire protection systems taken out of service is recorded by the *Facilities Project Manager* as noted on the [Utility Shutdown Request Form, Appendix 'H.3'](#). The *Contractor* or service personnel shall abide by the following procedure:
- Either within, or outside of, normal business hours and prior to commencing work, the person or persons performing the work affecting fixed fire protection systems will inform the *Project Manager* of their arrival on site and advise of their intent to commence work and again at the end of every work

day. If shutdown request is required for an extended period of time *Contractors* are required to check in and out with the project manager every day during the approved permit period.

- b. Under no circumstances will any person make any modifications to the monitoring of fire protection systems at the request of any staff member or *Contractor* without proper authority to do so. In ALL cases individuals presenting themselves to perform any work must be prepared to provide a hard copy of the appropriate authorized [Utility Shutdown Request Form, Appendix 'H.3'](#), the name of the *Contractor's Project Manager* or *Site Superintendent* overseeing the project, the location of their work, name of their company or employer, personal photo identification and emergency contacts.
- b. Should individuals presenting themselves to perform any work who have not made prior arrangements as required (sufficient notice and authorization permit) or who are unable to provide the details or identification required as above, they shall be denied access to the premises.

3.4 **HOT WORK: Welding, Grinding and Cutting Equipment Procedures**

- 3.4.1 If work requires the use of an open flame or there is the potential of hot sparks such as when involving welding, grinding and/or cutting, the *Contractor* must obtain a *Hot Work Permit*.

'Hot Work' is defined as work using open flames or sources of heat that could ignite materials in the work area. This kind of work may cause the building's fire alarm system to be activated or create an unwarranted fire risk condition.

- 3.4.2 All personnel involved in the hot work procedure, including facilities staff, *Contractors* or *Subcontractors* should complete the *FM Global Hot Work Training* on the *FM Global Training website*. The person or persons performing the work must present a valid certification of completion prior to the start of the work: <https://training.fmglobal.com/>.
- 3.4.3 Refer to [Hot Work Policy & Permit, Appendix 'H.4'](#) for the Hospital and FM Global's joint *Hot Work Policy* prior to beginning any of this work. A sample blank *FM Global Hot Work Permit* form has been provided for reference in this appendix. A FM Global Hot Work Permit Form shall be obtained by the *Contractor* through the *Project Manager*, filled out and submitted directly back to the *Project Manager* who will obtain final signed approval from the *Facilities Project Manager* for the permit to be issued.
- 3.4.4 The Hot Work Permit must be posted in the area of work or attached to the equipment so that it is easily visible by the person or persons performing the work and returned to the *Facilities Project Manager* via the *Project Manager* upon completion of the work.
- 3.4.5 Prior to welding, the Fire Alarm System shall be by-passed. The *Project Manager* or Maintenance & Engineering Services Manager will notify the communications control center in writing, as to which fire zone is being *by-passed*. Once both the permit and the appropriate communication has been achieved, the work can begin.

'By-Pass': Indicates when the entire fire alarm system for the Hospital premises is off-line.

3.5 **Fire Watch Procedures:**

- 3.5.1 While any life safety device/fire detection system and annunciation system are not operational, the *Contractor* is responsible for maintaining a fire watch.
 - **Fire Watch:** A qualified person or persons physically conducting inspections for any occurrence of fire during times when fixed fire protection systems are intentionally taken out of operation.
 - **Competent Person:** A person who is qualified due to knowledge, training and experience to organize the work and its performance, is familiar with the OSHA and its regulations that apply to the work, and has knowledge of any potential or actual danger to health or safety in the workplace.

- 3.5.2 This inspection will be conducted by a competent person a minimum of once every hour during the entire period that the protection systems are out of service. This person must complete a [Fire Watch Patrol Log, Appendix 'H.5'](#).
- 3.5.3 If hot work is being performed on the work site, a competent person will be in attendance during the entire operation and until a final inspection has been conducted appropriate to the type and location of the work (e.g. concealed spaces are to be re-examined an hour after work completion).
- 3.5.4 Should the fixed fire protection systems be out of service for an extended period or outside of normal working hours, an extended fire watch must be arranged through the *Project Manager*.
- 3.5.5 In all cases staff and/or contractors will complete a 'Fire Watch Patrol Log' (attached as an appendix), to be submitted to the Capital Planning and Redevelopment/Facilities Operations Office or "designate" as soon as possible following each fire watch.
- 3.5.6 Contractors are responsible for any and all costs associated with a fire watch.
- 3.5.7 Whenever a changeover time occurs, which is an outage time of at least a portion of the fire alarm system, the municipal fire department shall be notified of the temporary shutdown and alternative measures shall be devised.
- 3.5.8 **Capping Off Abandoned Water Piping:** Facilities that have undergone extensive renovations over time often contain redundant pipework/dead legs in which water can stagnate. When capping off unused or abandoned water lines, to minimize the potential of bacterial contamination of water supplies, water lines shall only be capped off directly adjacent to active, free-flowing water lines. Water systems shall be designed to prevent stagnant sections therefore Dead leg sections of plumbing pipe shall be avoided. Minimising dead legs in domestic water plumbing is perhaps the most widely recommended Legionella preventive measure. Refer to CSA Z317.1-09 & CSA:6.7.2(f), 21. CAN/CSA-Z317.2-15. Hot water distribution systems shall also be designed to ensure that distribution temperatures are maintained in accordance with CSA Z317.1-09
- 3.5.9 If the water system has a dead leg more than 100mm, the excess must be cut off to prevent the water from stagnating and to ensure the water remains safe. Recirculation lines should return water from a point as close as possible but not further than 150 cm from each distal point. Drainage shall comply with local codes and municipal bylaws.
- 3.6 **Drilling, Coring, Saw Cutting and Excavation:**
- 3.6.1 **Precautions** are to be taken before the drilling/penetration of/excavation of existing construction or sites to ensure that any building services (e.g. conduits, gas/water lines, etc.) are not interrupted or that workers or building occupants are exposed to unsafe conditions. Refer to project specifications (where applicable) for specific requirements to take precedence over this policy.
- 3.6.2 The following are potential implications from failure to follow this procedure:
- **Core Drilling:** Cutting into slab *Contractors* hits a waterline and leaks on an electrical panel below and causes power outages.
 - **Electrical:** Cutting into slab *Contractors* hit a buried conduit causing loss of power to several key areas of the *Hospital*.
 - **Cross wiring:** Shorting several beds in a clinical area, incurring heavy replacement costs.
 - **Plumbing:** Adding services to existing infrastructure and shutting down water lines with out permission and not turning system back on, resulting in clinical care delay.
- 3.6.3 Special precautions must be taken before the drilling/sawing of walls, ceilings and floors to ascertain the location of conduits, electrical cables, water lines, gas lines and other services. Scanning and/or X-Ray of

slabs and walls is to be undertaken by the *Contractor* at their expense for this purpose prior to coring. Employ services of experienced operator. Confirm with Consultant, before coring, saw cutting or drilling, location of reinforcing steel and raceways that may be present.

- 3.6.4 A request in writing to the *Project Manager* must be approved a minimum of 10 Working Days prior to commencing such work. Safety clearances are required before any core drilling or saw cutting begins.
- 3.6.5 The impact to the structural integrity of the building and/or any of its components is to be assessed prior to any cutting and/or coring taking place via a professional engineer at the expense of the *Contractor*. Do not core structural beams or cut conduits or reinforcing steel without written permission from *the Consultant* in consultation with a professional Structural Engineer.
- 3.6.6 Perform coring and drilling after normal working hours, unless specified otherwise.
- 3.6.7 Dry core drilling and saw-cutting is acceptable. Do not use wet core procedures without prior written approval of the *Consultant*.
- 3.6.8 Holes or voids created in assemblies for penetrating mechanical, electrical, or sprinkler service items, shall be of sufficient size to accommodate the penetrating item as well as additional required fill materials, such as sealants, firestopping and smoke sealants, insulation, and the like, without exceeding the maximum opening allowable by the manufacturer of the additional required fill material.
- 3.6.9 Where concrete slab on grade is required to be cut, adequate inspection and testing by a reputable inspection and testing company shall be required at the *Contractor's* expense to ensure continuity of waterproofing material.

1 GENERAL HEALTH AND SAFETY RULES AND RESTRICTIONS:

- 1.1 **Safety Rules:** Obey all operating area's safety rules. If in doubt, request an explanation of the area safety rules from the *Project Manager* before entering a particular area.
- 1.2 **Safety Meetings:** The *Contractor* shall provide copies of the *Contractor's* regular internal safety meetings to the *Project Manager*. *Contractors* required to chair project construction meetings are required to table all health and safety and Infection Prevention and Control (IPAC) updates at the start of every meeting.
- 1.3 **First Aid Stations:** The *Contractor* shall ensure that first aid stations are in place within the construction area and site trailer (if applicable) in accordance with the requirements outlined in the *Workplace Safety and Insurance Act (WSIA)*.
- 1.4 **MOL Orders:** If the Ministry of Labour issues a *Contractor* or *Subcontractor* an order of violation under the *Occupational Health and Safety Act*, the *Contractor* will provide a written copy of the order to the *Project Manager* within 24 hours.
- 1.5 **Personal Protective Equipment (PPE):** Approved personal protective equipment is required on all work sites as per the *Occupational Health and Safety Act* and its *Construction Regulations*. This may include, but is not limited to safety eyewear, face shields, safety footwear, protective gloves, hard hats, hearing protection, respiratory equipment and fall protection equipment.
- 1.6 **Disruption of Utilities:** If it is necessary to disrupt any *Hospital* services for any reason, refer to [Section B: Interference and Interruption of Utilities Procedures](#).
- 1.7 **Compressed Air:** Compressed air can cause fatal injuries. Most compressed air lines carry a pressure up to 100 psi. When using compressed air for cleaning, never direct it towards yourself or another person. Safety glasses with approved side shields, long sleeves buttoned at the wrist or gloves are the minimum protection required when using compressed air for cleaning purposes. Never use compressed air for cleaning a person's body or clothing.
- 1.8 **Powder Activated Fasteners:** Powder activated fasteners shall not be used on any portion of the work.
- 1.9 **Driving:** Use caution when driving vehicles on *Hospital* property. Obey all traffic signs and posted speed limits (generally 25 kph). Do not leave engines idling when parked.
- 1.10 **Construction Barriers:** The *Contractor* shall erect impermeable barriers, rope off, barricade, or otherwise demarcate all work areas as appropriate, such that there will be no danger of exposure to work site hazards by building occupants, or contamination of adjacent areas by construction dust, debris or hazardous materials. Appropriate signage shall be installed restricting access to said work areas. Include appropriate warning signage.
- 1.11 **Overloading:** *Contractors* are responsible for ensuring that all precautions are taken to prevent overloading of any part of the structure/temporary structures, false work, elevators or scaffolding during operations. If doubt exists, obtain approval from the appropriate inspector from the *Ministry of Labour*, or another appropriate agency.
- 1.12 **Elevators:** As per the *Elevating Devices Act*, *Contractors* are not permitted access to *Hospital* elevator control rooms. Furthermore, no person shall construct, install, alter, repair, maintain or test an elevating device or part thereof except in accordance with this *Act*.
 - a. No person shall enter any machine room at the *Hospital* other than a *Technical Standards and Safety Authority (TSSA)* elevator inspector or a licensed elevator mechanic for the purposes of inspections, tests, repairs, maintenance, or alterations, unless authorized to do so by TSSA and accompanied by a licensed elevator mechanic.
 - b. Authorization to enter any elevator machine room will be made through the *Project Manager*.

- c. Obey loading requirements for elevators and do not exceed noted weight capacity.
- 1.13 **Confined Spaces:** If work involves accessing a confined space as defined under the Confined Spaces Regulation, *Contractors* and their employees, agents or *Subcontractors* will be required to have a confined space entry program outline submitted to the *Project Manager* for review and approval, that meets or exceeds the requirements of the *Hospital*.
- 1.14 **Working at Heights:** The *Contractor* will ensure that all employees, agents, or *Subcontractors* working at heights (e.g. ladders, scaffolding, rooftop, raised equipment) have received working at heights training, and have a fall protection plan in place. *Contractors* must supply their own certified equipment.
- 1.15 **Storage in Utility Areas:** Storage of job site materials in electrical/mechanical/utility rooms, and IT closets or similar is strictly forbidden.
- 1.16 **Blocking Open Doors/Door Propping:** Do not block doors, passageways, firefighting or safety equipment and electrical panels. Do not prop/wedge open doors to mechanical/electrical/IT (communications) or utility rooms. Maintain perimeter security and building environments by not propping or wedging open exterior doors.
- 1.17 **Keep Corridors Clear:** Corridors, walkways, and doorways must be kept clear of vehicles, work materials and debris at all times.
- 1.18 **Work Site Cleanliness:** Occupied areas of building affected by the work (construction) will be always kept clean and orderly and shall be left in, or restored to, an “as found” condition after each shift, and/or upon completion of work. The *Contractor* is responsible to ensure that all work areas are vacuum-cleaned and/or wiped down to the satisfaction of the *Project Manager*.
- 1.19 **Fit for Work Assessment:** Each worker shall assess if they are fit to perform work on *Hospital* premises. It is important that while working within the existing *Hospital* and in close proximity to patients, that you remain free from communicable diseases. Examples include active tuberculosis, chicken pox, shingles, eye infections, flu, gastric type viral illness, rashes, or unknown origin. Symptoms of infectious illness include fever (over 38 degrees in the last 24 hours), chills, shakes, nausea, vomiting or diarrhea, new or worsening cough. THP recommends keeping your immunizations up to date. This includes annual flu vaccine, hepatitis B, Tuberculin skin testing, rubella, and measles.
- 1.20 The *Site Superintendent* shall be responsible for assessing all *Constructors* and *sub-Contractors* accessing the construction site and remove anyone who appears to be unfit for work and cannot safely perform the duties of their job or who is showing signs of an infectious illness (seasonal allergies excluded). Workers with airborne allergies are encouraged to wear a medical mask in all patient care areas.
- 1.21 **Minimum Age of Workers:** All *Contractors*, their employees, agents, or *Subcontractors* on *Hospital* premises must be a minimum of 18 years of age.
- 1.22 **Noisy Work:** Always execute work as quietly as possible in and around the existing building. Schedule noisy operations to minimize the disturbance to occupants. Hours when noisy work can be performed shall be verified with the *Project Manager* with at least 2 weeks notice prior to commencement.
- 1.23 **Scents:** Refrain from applying scented products (i.e. perfumes, aftershaves, hairspray, personal care products, etc.) which can have a negative effect on patient health and the health of others. Trillium Health Partners is a scent-free organization. Make every effort to use low and/or non-scented cleaning and building products whenever possible and use low VOC (volatile organic compound) paints.
- 1.24 **Waste Management:** Waste management procedures (e.g. location of waste bins, bin cover requirements for dust and/or hazardous material control, etc.) must be determined with the *Project Manager* prior to work start. Refer to [Section C, Waste Management: Environmental Protection and Sustainability](#) for the *Hospital*’s waste management protocols.
- 1.25 **Theft/Damage:** Theft or willful damage to *Hospital* property is strictly forbidden.

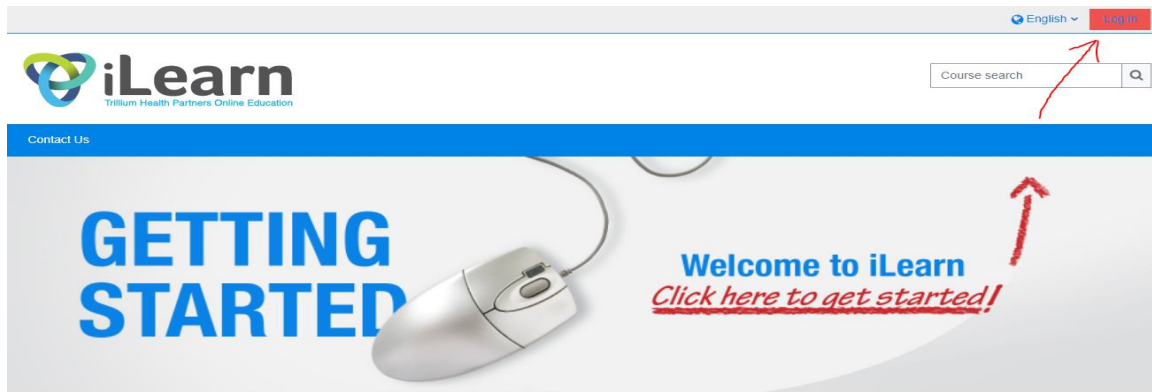
- 1.26 **Alcohol and non-prescription drugs** including cannabis and THC products are not permitted anywhere on the premises including work areas, existing buildings, parking, grounds, roof top, site office or storage trailers. Site Super to immediately remove anyone from the construction site who appears impaired or under the influence. The *Hospital* is not obligated to explain or debate his or her opinion that a worker may be impaired or under the influence of alcohol or drugs.
- 1.27 **Smoking (tobacco, cannabis, e-cigarettes and vapourizers)** is strictly prohibited anywhere on THP property, including personal vehicles. In Ontario, it is illegal to smoke on *Hospital* property and anyone found smoking on a *Hospital* site can be fined. Public Health officers will be visiting THP property without notice and will issue fines to any individual found smoking. Security will be contacted if an individual fails to cooperate. Refer to [Smoke Free Policy, Appendix B](#) for permitted smoking zones outside of *Hospital* property.
- 1.28 **Food and Drinks:** Food and drinks are not to be consumed within construction sites unless an area is set aside by the *Contractor* specifically for that purpose and approved by the *Project Manager*. All food waste is to be properly disposed of on a daily basis.
- 1.29 **Use of Non-Public Areas:** The *Contractor's* employees must not go into any non-public area of the *Hospital* other than that where they are working. Workers utilizing vending machines, cafeteria and public or contractor designated toilet facilities (if not provided on the work site) must abide by all posted signs, keep to marked aisles and take the most direct route. Specific details regarding worker traffic will be discussed with and approved by the *Project Manager* through the *People Safety & Support* prior to work starting on each contract. Refer to [Section D – Worker Identification and Access Cards](#) for access policies and the *Hospital's* [Identification Policy, Appendix 'G'](#).
- 1.30 **Use of Hospital Equipment:** Hospital phones (except during emergency), computer equipment, photocopiers, office equipment, etc. are not to be used by the *Contractor* or its employees or agents.
- 1.31 **Personal Electronics:** Use of personal music and or/audio delivery devices (cell phones or portable speakers with headphones or ear buds) is not permitted on work sites. Sound systems that may negatively impact the delivery of *Hospital* services and/or disrupt/distract *Hospital* employee or *Contractor* productivity or safety are not permitted.
- 1.32 **Photographing or recording video:** Photographing or recording video of staff, guests or patients without their expressed permission on *Hospital* premises is strictly forbidden and will result in immediate and permanent removal from the site. Refer to [Section C: Privacy](#).
- 1.35 **Obey Signage:** All posted signs must be observed. Signs warning of potential dangers must be posted.
- 1.36 **Dust and Dirt Control:** Work site mud, drywall dust or other debris shall not be tracked off the work site. The *Contractor* must diligently apply appropriate dust/dirt control measures, e.g. walk-off mats, sticky pads, and wash floors as necessary to keep surrounding areas clean.
- 1.37 **Clean Work Sites:** *Contractors* are required to maintain working areas in a reasonably clean and tidy condition, as set out herein and in accordance with Health and Safety requirements pursuant to the *OHS*A and its *Regulations*. This includes ensuring that: nails in lumber must be removed or clinched, material must be safely and neatly piled or stacked, and sites must be cleaned up daily. The *Contractor* must take care to ensure that *Hospital* building occupants are not exposed to hazards during any construction. Refer to [Section B: Infection Prevention and Control](#) for specific measures. The *Contractor* is responsible for providing all required cleaning equipment and supplies.
- 1.38 **Cleaning at Contract Completion:** On completion of the contract, the work site must be cleared and cleaned to the satisfaction of the *Project Manager*. *Contractors* are expected to arrange for and remove their own refuse and arrange for and recycle materials, both at their cost as per the cleaning and waste management procedures outlined in [Section C: Waste Management: Environmental Protection and Sustainability](#).

2. **CONTRACTOR ORIENTATION E-LEARNING MODULE:**


To complete the mandatory Trillium Health Partners **iLearn Contractor Onboarding**, follow these steps:

Step 1: Visit the following website for *Contractor* orientation: <https://thp.dualcode.com/>


Step 2: Locate the **red Log-In** button on the top right-hand corner and click once.



Step 3: Use the below credentials to log-in




Complete eLearning




THP managers and the Learning department are available to assist with any issues throughout this process.


2. Complete Contractor Orientation e-learning module




Log into iLearn using:
Employee ID: contractor1
Password: Trillium1



Using the course catalogue, search for **"Contractor Orientation"**

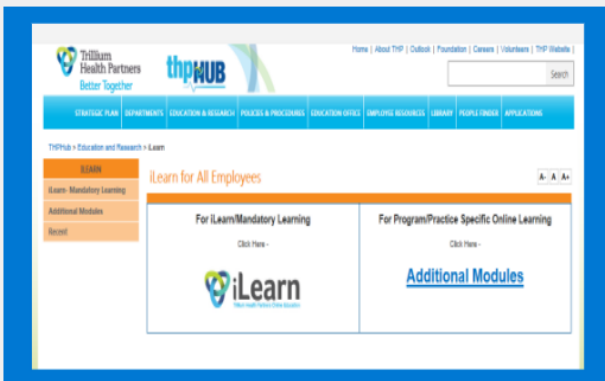


Launch course and complete all actions



Course ends with sending user to JotForm to complete attendance and completion

* iLearn hosts the learning content whereby JotForm stores all completion records for external contractors



Step 4: The **Contractor's Project Manager** and **Site Superintendent** must sign the **Statement of Understanding, Appendix 'Q'** once this '**Contractor Handbook**' and online '**eLearning Module**' is complete and forward to your Construction *Project Manager* prior to construction start. The Construction *Project Manager* shall forward the completed forms to the *Project Manager*.

3. INFECTION PREVENTION AND CONTROL (IPAC)

3.1 Objectives:

This section outlines the process to assess risk and prevent nosocomial infections associated with construction and renovation outlined in the Health Canada and CSA guidelines. The primary objectives are to control the level of dust generated to a minimum and to protect patients, visitors, staff, volunteers, and Contractors from occupational exposure to potential disease-causing microorganisms.

3.2 Governance:

The ***Infection Prevention and Control*** officer, hereafter referred to as “***IPAC***” is the *Hospital* representative responsible for development, implementation, evaluation, and education related to policies, procedures, and practices that impact the prevention of infections at the *Hospital* premises.

The ***People Safety & Support*** officer, hereafter in this section referred to as “***People Safety***” is the *Hospital* representative responsible for development, implementation, evaluation, and education related to policies, procedures, and practices that impact the Hospital’s broader Health and Safety Program. The program is a specific plan of action to prevent workplace accidents, injuries, and occupational diseases.

3.3 IPAC Implementation Policy:

Additional precautions are necessary to reduce risk of exposure and infection during construction, particularly from organisms spread in dust (airborne), water leaks (mould) or stagnant water. Read and be governed by the conditions of the Contract/Purchase Order, Supplemental General Conditions to the Contract, Division 01 of the Specifications (if applicable). *Contractors, Subcontractors* and their agents must adhere to the latest, most stringent standards, guidelines and/or practices as outlined in the following documents (as they change over time).

- *CSA Z317.13-2022 Infection Control During Construction, Renovation and Maintenance of Health Care Facilities*
- *Health Canada “Construction Related Nosocomial Infections in Patients in Health Care Facilities” 2001*
- *CSA Z317.10:2021-F01 Handling of Waste Materials in Health Care Facilities and Veterinary Health Care Facilities*
- *CCA - CSA Mould Guidelines for the Canadian Construction Industry, 2018*
- *Public Hospitals Act*

3.4 Patient Area Access Policy:

If required to work in an active patient room or patient area, *Contractors, Subcontractors*, and their agents are required to check in at the designated care station closest to the area of work prior to or upon entering the designated work area. The nursing staff will identify any additional precautions that must be taken when working in the room/area. The nursing staff shall give direction in consultation with *IPAC, People Safety* and the *Project Manager* to supplement any further risks established at the outset of the project. The *Site Superintendent* who is responsible for site safety must notify the *Project Manager* immediately of any additional precautions required.

3.5 Training:

The *Contractor* shall provide *Subcontractors*, staff, suppliers, workers, own forces, or anyone for whom the *Contractor* may be responsible for, with training on the *Hospital’s IPAC* Procedures and Measures. Prior to commencement and during the course of the work, as required, the *Contractor* shall promptly provide the owner with written confirmation of such training by way of a certificate issued by a recognized Infection Control training company. The Contract Price must include the cost for the required number of training sessions to adequately cover the duration of the Project.

3.6 Pre-Construction Procedures:

3.6.1 **Risk Assessment:** Prior to the start of any project, a determination of risk will be undertaken by the *Hospital* during the planning stage which will guide the need for barriers and other infection control measures and procedures that are included in the Tender documents and must be in place before any construction work begins.

3.6.2 The following steps outline the *Hospital's* IPAC risk assessment procedure:

Step 1: The *Project Manager* shall assess the *Hospital's* IPAC risks within the are of work and adjacent corridors by completing the following sections within the [IPAC Construction Permit, Appendix 'K.1'](#):

Section 1: Population Risk Group

Section 2: Construction Activity

Section 3: Preventative Measures Checklist (per CSA Z317.13-2022)

If the Preventative Measures Level (Section 3) indicates a **Class I** or **Class II** area, the *Project Manager* will include the class type within the Hospital specific requirements in the RFQ.

If a **Class III** or **Class IV** area is identified, the *Project Manager* will proceed to Step 2.

Step 2: The [IPAC Construction Permit](#) is required to be completed in it's entirety by the *Project Manager* and signed off for approval by both IPAC and *People Safety*.

The *Project Manager* shall direct the *Consultant* (where applicable) what type of construction hoarding is required and designate the appropriate *Contractor Access Route Plan*. The *Project Manager* shall forward the floor plan to the MDT (Multidisciplinary Team) consisting of IPAC and *People Safety & Support* for approval.

The *Project Manager* is responsible for including the approved permit within the bid documents for the Contractor to include in their bid price.

Step 3: Upon award of Contract, the *Project Manager* updates the *IPAC Construction Permit* in consultation with the awarded *Contractor*, and any subsequent instructions from IPAC and *People Safety*. This will include, but is not limited to, use of barrier precautions, negative air, personal protective equipment, and traffic control.

Step 4: Prior to Construction mobilization, the *Contractor* shall submit a *Construction Hoarding/Path of Travel Plan* for each phase of construction to the *Project Manager*.

Step 5: The *IPAC Permit* and *Contractor Construction Hoarding/Contractor Access Route Plan* will be submitted by the *Project Manager* to IPAC and *People Safety & Support* for final approval. The *Project Manager* will submit the approved permit to the *Contractor* to be posted at the entrance to the Construction site.

1.1.1 Regardless of whether an IPAC permit is required, all *Contractors* and service persons must be familiar with the requirements governed by the each of the risk groups in a hospital setting. The Contractor must discuss the requirements with the *Project Manager* for all projects, no matter the size and scope prior to mobilization on site to determine risk.

1.1.2 During the course of the Work, the IPAC may require an additional risk assessment to be undertaken by the *Contractor* to ensure compliance related to the specifics of the Project. If the project has multiple phases, IPAC may require subsequent controls and inspections which will be coordinated through the *Project Manager*. IPAC may attend construction meetings at specific milestones, especially on projects of mid-high complexity.

1.2 Pre-Construction IPAC Meeting

1.2.1 At the Pre-Construction meeting infection prevention and control procedures for the Project are discussed either virtually or on-site. The Pre-Construction IPAC meeting is scheduled at the discretion of the *Project Manager* for larger, multi-phase or complex projects requiring Preventative Measures **Class III** or **Class IV**. Note: This meeting is not to be confused with the *IPAC Site Inspection* that occurs after IPAC measures are already in place. Subjects to be reviewed during the Pre-Construction IPAC meeting include, all items noted on the IPAC Construction Permit and typically include the following:

1. The exact location, the type of construction activity, and the start and end dates of the construction work (where possible) is to be identified by the *Contractor*.
2. General information on infection prevention and control procedures.
3. Identification of patient populations that may be at risk.
4. Prevention measures for essential services that may be disrupted.
5. The integrity of the facility's exterior structure, spatial separations, ventilation and water supplies for any infection control problems.
6. Methods for dust containment and removal of construction debris.
7. Traffic patterns for construction workers, construction activities, and supply delivery routes will be established to minimize risk to patients, staff, and visitors per the *Hospitals* requirements and as indicated. Patient traffic should be redirected away from construction work sites.
8. Whenever possible, dedicated elevators will be made available for workers working in dust-generating activities. Otherwise, elevators used in conjunction with construction work shall be cleaned and disinfected following each usage.
9. The need for increased filter changes during construction is reviewed and determined prior to the commencement of construction.
10. The need to close down dampers temporarily to reduce circulation of contaminated air or fumes is assessed, in consultation with the *Project Manager* and will require a [Utility Shutdown Request Form, Appendix 'H.3'](#), and implemented prior to the commencement of construction.
11. The *Contractor* will undertake all work required to ensure that air handling systems can provide the correct air exchange rates and pressure relationships in critical areas within and adjacent to the area of construction.
12. The following precautions, as a minimum, shall be taken when working on existing walls, ceilings, floor spaces, ducts and piping systems as the dust and dirt collected in these areas may contain disease causing germs:
13. Prior to work being done or the removal of ceiling tiles, or opening of ceiling access hatches, erect floor to ceiling dust tight partitions and enclosures as described above to completely enclose the area where such work is being performed.
14. Remove acoustical ceiling panels keeping horizontal, and vacuum clean the panels immediately prior to removal.
15. Existing air ducts, conduits, and spaces above the ceiling shall be vacuum cleaned prior to the start of work in such areas.
16. Remove dust tight partitions and enclosures when work is finished or prior to the start of *Hospital* working day, and remove marks left by tape or studs, and enclose ceiling areas with no obstructions to mechanical and electrical devices in the ceiling space.

17. Vacuums shall be commercial grade complete with HEPA filters. HEPA filter shall be changed as recommended by the manufacturer or required by use. Maintain a filter change log at the Place of the Work, available for review by the Owner.
18. Breaches in Infection prevention measures that place staff, visitors and/or patients of the Hospital at risk may result in “stop” construction order.
19. The schedule of field reviews required by IPAC shall be outlined. Disinfecting and cleaning requirements will be established at the initial stage of the Project. During construction, *IPAC* will enhance surveillance as appropriate. Field review of the work will be conducted on a regular basis with the *Contractor* as necessary.

3.7 Dust Tight Partitions and Enclosures (Hoarding)

- 3.7.1 Provide dust tight partitions and/or enclosures to localize dust generating activities, and for the protection of workers, *Hospital* staff, patients, the public, and finished areas of the *Work*. Refer to [IPAC Infection Control Barrier Configurations, Appendix ‘K.5’](#) for construction requirements. Dust tight partitions and enclosures and construction anterooms shall be in accordance with CAN/CSA Z317.13-17 – Infection Control during Construction, Renovation and maintenance of Health Care Facilities. Paint sides of all drywall partitions (if applicable) at exposed occupied areas of the building.
- 3.7.2 *Dust Tight “Partitions” are temporary, weather tight, dust tight, and lockable partitions between occupied areas of the existing Hospital and areas where the Work is being performed, and include treatment of joints, cracks, and openings in partitions to prevent dust from entering occupied areas of the Hospital. Dust tight partitions shall be assemblies with 1-hour fire resistance rating complete with doors and frames having 3/4-hour fire resistance ratings.*
- 3.7.3 *Dust Tight “Enclosures” are temporary, dust tight polyethylene sheeting mobile or fixed containment systems used where minor isolated alteration work occurs in the existing building and a dust tight partition is not feasible.*
- 3.7.4 If a mobile tent containment system is provided, the following characteristics shall be implemented:
 1. Extends floor to ceiling where full-height containment is required.
 2. Fabricated of an adjustable aluminum frame, vinyl enclosure with pressure porthole, wheelbase platform, and disposable plastic liner, and sized as required.
 3. Extends floor to ceiling where full-height containment is required.
 4. Fabricated of an adjustable aluminum frame, vinyl enclosure with pressure porthole, wheelbase platform, and disposable plastic liner, and sized as required.
 5. *Provide* HEPA filter vacuum device and manometer and connect to pressure porthole. HEPA units will be current and certified at all times.
 6. Vacuum clean interior of dust tight partitions and enclosures prior to their removal.

3.8 Negative Pressurization:

- 3.8.1 Areas where work is being undertaken shall be isolated from occupied areas of the *Hospital* using dust tight partitions and enclosures as described above.
- 3.8.2 The Place of the Work will be always maintained under negative pressure in relation to the occupied areas of the existing building to prevent dust and airborne pathogens from entering the occupied areas of the existing building.
- 3.8.3 Negative pressure shall be achieved through the use of dedicated (window or otherwise) exhaust units or, if direct access cannot be achieved, by HEPA filtered certified recirculation units that transfer filtered air from the Place of the Work into the occupied areas. Exhaust points will be reviewed with the *Project*

Manager and IPAC to ensure that the exhaust air from the *Place of the Work* is not affecting pedestrian routes and is not re-entrained back into the existing building through fresh air intakes.

3.8.4 Air systems serving only the *Place of the Work* will be shut down and all supply, return and exhaust openings shall be sealed to prevent dust and construction debris from entering the air system. As a further precaution, the air system will be reviewed at the end of the Work to determine if cleaning is required. Refer to [IPAC Recommendations: HVAC Shutdowns, Appendix 'K.4'](#)

3.8.5 Supply and return air ducts entering the *Place of the Work* are to be fitted with a pre-filter unit and sealed within the *Place of the Work* near point of entry or exit prior to the start of disruptive activity to prevent dust and construction debris from entering the air system. As a further precaution, the air system will be reviewed at the end of the Work to determine if cleaning is required.

3.8.6 During construction, the seal only on the supply air duct may be removed after demolition and clean-up to permit ventilation within the construction area provided no other means is available.

3.9 Ventilation

3.9.1 Work shall also include temporary ventilation, ducted directly to the exterior, of interior areas of the existing building where noxious or odorous fumes exist, so that building occupants are unaffected by the work. Provide negative air ventilation in all work areas complete with a HEPA filter and exhausted to the exterior. Ensure that ducting to the exterior is sufficiently distant from air intakes. It is imperative that proper sealing and means are in place to ensure that positive pressure is maintained in the *Hospital* and negative pressure is maintained in the construction area.

3.9.2 Maintain and relocate dust tight partitions and enclosures until dust generating work is complete, or until directed otherwise in writing by the *Consultant* in consultation with the *Hospital*.

3.10 Construction Notice Signage Board

3.10.1 The following notices and documents are to be printed and posted by the *Contractor* in a clear plastic holder at the main entrance door to the Construction Site:

1. "Construction Zone" signage with minimum 75 mm (3") letters.
2. Construction Notice Bulletin, provided by the Project Manager via email.
3. The approved [IPAC Construction Permit, Appendix 'K.1'](#) provided by the Project Manager via email.
4. Municipal Building Permit Notice (where applicable), provided by the *Consultant* via email.
5. Ministry of Labour Notice of Project (where applicable).
6. A printed copy of this [Contractor Handbook](#)

3.11 Pre-Construction IPAC Site-Inspection

3.11.1 Prior to the *Pre-Construction IPAC Site-Inspection*, the *Project Manager* shall work directly with the *Contractor* to ensure the IPAC Permit is up to date and matches the Contractor's intended process. The Contractor shall subsequently submit a Hoarding Plan and Contractor Access Route Plan to the *Project Manager* for review and approval by IPAC and *People Safety & Support*

3.11.2 Upon approval, the Contractor shall begin mobilizing on site and shall refer to the refer to [Pre-Construction Preventative Measures Checklist, Appendix 'K.4'](#) for generic IPAC pre-construction inspection criteria as a supplement to the [IPAC Construction Permit Appendix, 'K.1'](#). When the Contractor has ensured that construction hoarding is completed, negative air and related requirements outlined in the permit (where a permit is required) are met and the site is ready for ready for inspection, the on-site inspection meeting shall be scheduled and arranged by the Contractor with the *Project*

Manager. The project Manager will invite attendees which must include the designated *Site Superintendent* responsible for site safety alongside *IPAC* and *People Safety*.

- 3.11.3 The *Contractor* must receive written approval to proceed from the *Project Manager* noting *IPAC* and *People Safety* approval prior to starting construction activities for any project. For minor projects, the Project Manager may indicate that a Pre-construction IPAC meeting is not required and will be limited to the on-site inspection only upon approval of the Hoarding and updated IPAC Construction Permit (where a permit is required).

3.12 Pre-Construction People Safety Inspection

- 3.12.1 *People Safety & Support* will typically request that the *Contractor* provide and/or confirm the *Contractor* access route plans for waste removal, deliveries, exiting, clinical access, elevator requirements and other general requirements such as hours of access, and hazardous materials. This information is detailed within the IPAC permit (where a permit is deemed required) and must be updated by the Contractor in consultation with the *Project Manager* and as outlined within the Division 01 General Requirements and/or architectural drawings included in within the *Issued for Construction* documents (where applicable). The *People Safety & Support* representative will confirm that the occupational health and safety components of the *IPAC Construction Permit* or Hospital Procedure have been met via an on-site inspection and will provide written approval to the *Project Manager*.
- 3.12.2 The on-site inspection shall be arranged by the Contractor through the *Site Superintendent* alongside *IPAC* and the *Project Manager* prior to starting construction for all Preventative Measures Class III or Class IV projects. The *People Safety & Support* representative will provide the Project Manager with sign-off that the site is ready for Construction. Note: for Preventative Measures class I or class II projects, the *People Safety & Support* representative will confirm via the *Project Manager* if an on-site inspection is necessary for approval to proceed with construction.

3.13 Utility Disruptions

Infection prevention procedures and measures are the responsibility of the *Contractor* and shall be undertaken when essential services (e.g., water, ventilation systems, electricity etc) are disrupted. The integrity of the *Hospital's* exterior structure, spatial separations, ventilation, and water supplies for any infection control problems are to be reviewed and assessed prior to the commencement of construction. Refer to [IPAC Recommendations: Water Shutdowns, Appendix 'K.2'](#) and [IPAC Recommendations HVAC Shutdowns, Appendix 'K.3'](#) for infection control recommendations.

3.14 Construction:

- 3.14.1 Patients, particularly immunosuppressed, will be moved to an area away from the project zone if air quality cannot be ensured during project activity.
- 3.14.2 Patients will not be transported through project zones. If patient transport through the zone is unavoidable, it must be done as quickly as possible with the patient and transport personnel wearing a high efficiency mask.
- 3.14.3 Transportation of clean / sterile supplies will occur via routes separate from the project activities.
- 3.14.4 The project zone will be maintained under negative pressure at all times in relation to occupied areas of the *Hospital* by the use of dedicated exhaust units or certified HEPA filtered recirculation units (air scrubbers). Exhaust points will be selected to ensure that air from the zone is not affecting pedestrian routes or being re-entrained back into the *Hospital* through fresh air intakes.
- 3.14.5 Air systems serving the project zone will be isolated and all supply, return and exhaust openings will be isolated to prevent dust/construction debris from entering the air system.
- 3.14.6 Construction personnel will observe the appropriate precautions when leaving the project zone.

- 3.14.7 Regular cleaning of the project zone as commissioned will occur as noted in under the designated Preventative Measures Level (PML) indicated within the [*IPAC Construction Permit, Appendix 'K.1'*](#). Adjacent areas to the zone will also be maintained. This includes cleaning prior to the removal of barriers, and minor work performed after the removal of barriers. Construction debris will be transported as specified in Risk Assessment and Prevention Checklist along pre-designated routes.
- 3.15 **Post- Construction**
- 3.15.1 Fully remove exhaust/HEPA at the completion of *the Work*.
- 3.15.2 The air system serving the project zone will be assessed at the end of the project to determine cleaning requirements prior to use.
- 3.15.3 All water systems will be thoroughly flushed prior to use. Disinfection will occur, as needed.
- 3.15.4 Vacuum clean area enclosed by dust tight partitions and enclosures after removal of the dust tight partitions and enclosures.
- 3.15.5 Terminal cleaning of the project zone by the *Hospital* environmental services team will occur prior to occupancy, as specified in the Risk Assessment and Prevention Measures Checklist (refer to Sections noted in [*IPAC Construction Permit, Appendix 'K.1'*](#) following the construction clean by the *Contractor*.
- 3.15.6 The *Project Manager, IPAC and People Safety & Support* complete a final site inspection of all project zone(s) under construction permit prior to occupancy.

4. HAZARDOUS MATERIALS MANAGEMENT

- 4.1 A hazardous material is any chemical or other material that could be harmful to your safety or your health. For example, unless they are handled safely, some chemicals can cause fires or explosions; others can cause health problems or serious illnesses.
- 4.2 **Definitions:**
- **Hazardous:** Any material which can cause harm to you either directly or indirectly. Exhibiting characteristics of a hazardous substance often includes, but is not limited to, ignitability, corrosiveness, toxicity or reactivity.
 - **Non-hazardous:** Exhibiting none of the characteristics of hazardous substances, including, but not limited to, ignitability, corrosiveness, toxicity, or reactivity.
 - **Toxic:** Poisonous to humans either immediately or after a long period of exposure.
 - **Non-toxic:** Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- 4.3 **Workplace Hazardous Materials Information System (WHMIS)**
- 4.3.1 **WHMIS**, is the Workplace Hazardous Materials Information System which outlines the requirements for the hazard classification and communication for workplace chemicals. The *Contractor*, their employees, agents and *Subcontractors* shall be trained in WHMIS and comply with WHMIS and be able to submit proof of training if so requested by the *Hospital*.

[WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM \(WHMIS\)](#)

- 4.3.2 The *Contractor* must ensure that if hazardous products with the new labels and safety data sheets are brought into the worksite, that their employees, agents and *Subcontractors* are trained on the **WHMIS 2015** requirements.
- 4.3.3 The *Contractor* shall provide **Safety Data Sheets (SDSs)** at the site office for all materials of all trades being used on the site. The *Capital Planning and Redevelopment/Facilities Operations Office* shall be supplied with the *SDS's* prior to the presence and use of the material(s) onsite.

- 4.3.4 All *WHMIS* controlled products used on *Hospital* premises shall have the appropriate labelling (supplier or workplace provided) affixed at all times. The *Contractor* is responsible to ensure that such labelling remains legible throughout the course of their work.
- 4.3.5 Any materials that are of a combustible nature and poses a risk of fire and or potential explosion must be stored in an approved safety apparatus and inspected by the *Facilities Project Manager* and *People Safety & Support*. Materials will not be permitted onsite should either of the *Hospitals* designates deem the risk unacceptable.

4.4 **Storage of Solvents, Paints, Oils, Gases and Gasoline:**

- 4.4.1 When not in use, solvents, mixed gas cylinders, paints and oils must be stored in a separate enclosed fire-proof locked container. Place a fire extinguisher adjacent to the container. The *Contractor* shall not store gasoline or any volatile liquids or gases (e.g. propane) in the *Hospital* building.
- 4.4.2 Propane tanks and other pressurized tanks shall be capped when not in use and cleaned and/or stored outside of the building in a protected area designated by *Project Manager*. All such tanks shall be properly secured in an upright position.
- 4.4.3 Storage of any work site materials shall not be in *Hospital* corridors or rooms unless as assigned by the *Project Manager* or *Facilities Manager*.

4.5 **Hazardous Materials Spills:**

- 4.5.1 Any uncontrolled release of hazardous materials is considered a spill. *Contractors* are responsible for all hazardous materials clean-up and removal. Contain and clean up any spills immediately in an appropriate manner and using the proper materials. Dispose of materials per *OSHA Section 17 (Environmental Protection)* in compliance with all applicable environmental legislation, bylaws, standards and codes and in consultation with the *Hospital*. The *Contractor* shall notify the *Project Manager* immediately of any spills involving chemicals, solvents, oils, biologicals, or other potentially harmful substances.

The Ministry of Environment has established a 24-hour emergency telephone to handle reports of spills in the environment **Spills Action Centre 1-800-268-6060:**

- 4.6 **Hazardous Waste:** [Refer to Section C: Waste Management](#) for Hazardous Waste Disposal Requirements.

4.7 **Asbestos Management**

- 4.7.1 Inhalation of friable *Asbestos-Containing Materials (ACM)* within the lungs is dangerous to human health and has serious consequences. Breathing in asbestos fibres can cause *Asbestosis* (scarring of the lungs making it difficult to breathe), Lung cancer or *Mesothelioma* (cancer in the lining of the chest and/or abdomen).
- 4.7.2 The *Hospital* has identified the presence of various friable and non-friable *ACM* in various *Hospital* premises at Queensway Health Centre and Mississauga Hospital. Every attempt has been made to either remove or encapsulate such material. The *Hospital* actively manages and rigorously control all asbestos-containing materials in *Hospital* buildings and all activities which may disturb such materials. Every attempt will be made by the *Hospital* to notify *Contractors* of asbestos that may be encountered during any project.
- Friable *ACM* is easily crumbled or pulverized with the fingers.
 - Non-friable *ACM* is held together by a binding agent

- 4.7.3 The *Hospital* maintains an *ACM* inventory of all asbestos-containing materials within its hospital buildings and conducts annual inspections in accordance with the *Occupational Health and Safety Act, 1990 OSHA* and the *Asbestos Regulation (O. Reg. 278/05)*.
- 4.7.4 *Contractors* are advised to review inventory reports outlining the location, type and amounts of such material prior to starting alterations to existing premises. These inventories with accompanying floor plans will be made available through the *Project Manager*
- 4.7.5 All *Contractors* must ensure that their employees, agents or *Subcontractors* who, during their normal duties may be exposed to, or accidentally disturb asbestos-containing materials, are properly informed/trained regarding the potential hazard. No asbestos containing materials shall be disturbed without the prior notification of the *Project Manager*. Any suspected exposure/disturbance shall be immediately reported to the *Project Manager*. The following table outlines the risk level for each *ACM* type

ACM TYPE	RISK	ABATEMENT
Type 1	Low	Asbestos-containing materials (ACM) are non-friable. The fibres in the material are locked in by cement, vinyl, or another binding agent. <u>Warning:</u> cutting, grinding, abrading, sanding, breaking, drilling, or vibrating the material may be enough to release the fibres.
Type 2	Medium	Asbestos-containing materials (ACM) can be “friable” or “non-friable.” Medium risk that workers will be exposed to asbestos. Since exposure can occur, workers must take precautions.
Type 3	High	Asbestos-containing materials (ACM) can be “friable” or “non-friable”: High risk that workers will be exposed to asbestos. Since exposure can occur, workers must take precautions.

4.8 Mould Management

- 4.8.1 When mould it is discovered during construction, it must be reported and assessed immediately by an external *remediation contractor* with expertise in mould remediation who will advise on potential requirements. Contact the *Project Manager* who will notify the appropriate *People Safety & Support* and *Infection Prevention & Control (IPAC)* designates to assess Risk.
- 4.8.2 Infection control personnel (IPAC) must review, approve, and monitor the mould remediation procedures. As a minimum, in all Canadian Healthcare Facilities, the requirements of the following Health Canada standard must be followed: “*Construction Related Nosocomial Infections in Patients in Healthcare Facilities – Decreasing the Risk of Aspergillus, Legionella and Other Infections,*” *Canada Communicable Disease Report, Volume 2752, July 2001*.

4.9 Remediation levels:

Mould remediation poses a greater potential risk in hospital facilities due to the high proportion of occupants with heightened sensitivities to mould. Remediation depends primarily on the scale, or size, of the mould growth. When IPAC determines the appropriate remediation level, considerations are made for both the total area affected (the perimeter of affected materials) and the density of the mould

growth. As per the *CSA Mould Guidelines for the Canadian Construction Industry 2018*, Mould growth shall be classified as small isolated areas (level 1), medium areas (level 2), or large areas (level 3), with appropriate measures or procedures established for each level. For building finishes and components (e.g., drywall, ceiling tile, carpet, etc.) the levels are as follows:

- **Level 1: (small areas)** small isolated areas, less than 10 ft² (1 m²) of building materials or clean-up of less than 10 ft² (1 m²) of mould growth in HVAC systems in non-occupied areas.
- **Level 2: (medium areas)** 10 – 100 ft² (1-10 m²) or less than 10 ft² (1 m²) in HVAC systems in occupied areas.
- **Level 3: (large areas)** More than 100 ft² (10 m²), or more than 10 ft² (1 m²) in HVAC systems.

4.10 Respiratory Protection:

Based on the level designated, IPAC will dictate whether occupants are required to be removed from the areas adjacent to the work area. Workers performing mould abatement must wear a NIOSH-approved respirator with a NIOSH-approved particulate filter appropriate for the level of remediation being executed.

4.11 Ceiling Tile and Ceiling Plenum Access

If mould is discovered when accessing the ceiling, refer to [IPAC Limited Time Ceiling Entry Procedure, Appendix 'K.6'](#)

5. **SAFELY SECURING THE PLACE OF WORK**

5.1 The *Contractor* shall be solely responsible for securing the Place of the Work, implementing temporary life safety protocols and for securing areas used for the storage of products or construction machinery and equipment. The *Hospital* shall have no responsibility in this regard. The following procedures shall be followed:

- a. Provide and maintain temporary combination locks and provide code to *Project Manager* who will also provide that information to the *Program Manager* or *Director* in charge and to *Security Operations* for emergency access purposes. Premises to be locked after working hours.
- b. Maintain access to service and delivery entrances, and for maintenance and inspection services.
- c. Provide and/or maintain emergency lighting and exit signs and essential life safety systems as required in accordance with the requirements of authorities having jurisdiction and the *Ontario Fire Code*.
- d. Inspect and protect temporary wiring, drop cords or temporary extension cables frequently for defective insulation or connections and correct/repair immediately. Remove temporary wiring after completion of job. All wiring must be in accordance with the *Ontario Fire Code*, the *Ontario Electrical Safety Code (ESA)* and safety requirements.

5.2 Provide security for the Place of the Work by methods compatible with the security system for the existing building. *Contractor* shall coordinate the Work with the Consultant in coordination with the *Project Manager* to ensure no disruption to the existing building's security system. Where an existing building's security system is breached due to *Contractor's* negligence, the Constructor shall be responsible for any damage or theft of property, regardless of the area where damage or theft occurred is under *Contractor's* control or not.

- 5.3 The project Manager shall notify *Security Operations* if there are any precautions required for entering a construction site and be provide the proper equipment to respond accordingly in the event of an emergency.
- 5.4 All persons providing service on-site at the *Hospital* must, at a minimum, have some form of employer issued photo identification and/or proof of employment by the *Contractor* or his *subcontractor(s)*, (preferably a THP issued badge) immediately available to present should Security personnel, staff members or other authority request to view identification. Those individuals who cannot present such identification will be asked to leave the Hospital property immediately. Refer to [Section D: Worker Identification & Access Cards](#)
- 5.5 All mechanical/electrical/utility rooms and IT closets are locked and **must remain locked at all times**. No doors are to be propped/wedged open. The *Contractor* will pay for all associated damage to doors, frames, hinges, closers, door operators caused by such propping/wedging open.
- 5.6 **Security Incidents:**
- 5.6.1 To report a violent incident, or threat to public safety within the place of work, utilize the Emergency Code reporting system by **dialing 5-5-5-5**, or if outside the building dial 9-1-1. All security incidents relating to the project, project personnel or area of work must be reported to the *Project Manager* immediately after reporting to *Security Operations* and/or *municipal authorities*. For vandalism, property damage (not due to *Contractor* negligence) or trespassing, contact *Security Operations* directly at the corresponding Hospital location:
- **Credit Valley Hospital:** 905-813-1100 x ext. 2525 or 905-813-3974
The security office is located in block 2G in room 2G108 to the left of the emergency entrance adjacent to the information desk
 - **Mississauga Hospital:** 905-848-7580 x ext. 7678
The security office is located on the Main level at room 1734A to the right of the emergency entrance
 - **Queensway Health Centre:** 905-848-7580 x 7678
The security office is located on the main level inside the Urgent Care entrance to the right of the entrance in room 1809

Section C: Additional *Contractor* Obligations

1. **WORKPLACE VIOLENCE, HARASSMENT & DISCRIMINATION:**

- 1.1 The *Hospital* has a zero-tolerance practice for violence, harassment, and discrimination in the workplace, including all acts or threats of verbal or physical behaviour that are or could be perceived as harassing or violent.
- 1.1.1 Please note that at a minimum, the *Contractor*, its agents, and *Subcontractors* is to meet the standards as set out in the following:
- ['Respectful Workplace Policy, Appendix 'C'.](#)
 - ['Workplace Violence Prevention Policy', Appendix 'D'](#)
 - ['Equity, Anti-Racism and Inclusion Policy', Appendix 'E'](#)
- 1.2 **Code of Conduct**
- 1.2.1 The *Hospital* has a code of conduct for all *Contractors*
- a. Do not engage in activity that creates a conflict or perceived conflict of interest (i.e giving or accepting gifts/entertainment, engaging in political activities or personal business. Disclose all perceived conflict of interests).
 - b. Maintain confidentiality and privacy.
 - c. Disrespectful behaviour is:
 - The use of inappropriate language
 - Communication or actions that hinders interactions with others and has the potential to interfere with the delivery of quality health care and negatively affect patient outcomes and patient experience.

2. **MEDIA RELATIONS:**

- 2.1 All Media inquiries about the *Hospital* are coordinated through the *Hospital's* Communications & Public Affairs (CPA) Department. *Contractors* are not to provide information to the Media concerning the *Hospital* or its activities unless previously arranged for and approved by the Communications & Public Affairs (CPA) Department
- 2.2 Photographing or recording video: Photographing or recording video of staff, guests, or patients without their expressed permission on *Hospital* premises is strictly forbidden and will result in immediate and permanent removal from the site.

3. **TOOLS AND EQUIPMENT:**

- 3.1 All equipment and tools required to complete the Contract shall be provided by the *Contractor*. The *Hospital* will not provide the *Contractor* with any tools or equipment whatsoever.
- 3.2 All tools and equipment must be used and stored in a safe manner and maintained in a safe working condition.
- 3.3 All tools and equipment (and personal belongings) are not to be left in non-secure locations. Lost or stolen items will not be the responsibility of the *Hospital*.

- 3.4 *Contractor* tools shall be stored in locked job boxes belonging to the *Contractor* and placed in an area designated by the Capital Planning and Redevelopment/Facilities Operations Office.
- 3.5 *Hospital* resources such as Ladders, equipment, machinery, consumable materials will not be available to *Contractors* for use at any time.

4. PRIVACY

- 4.1 The *Hospital* recognizes that Personal Health Information and patient identification deserves to be treated with respect, dignity, and sensitivity to ensure it remains secure and confidential. Maintain confidentiality and privacy at all times.
- 4.2 The way the *Hospital* collects, uses, and discloses personal information is governed by the *Freedom of Information and Protection of Privacy Act* (FIPPA). The hospital ensures that personal health information is held securely in confidence in accordance with the *Personal Health Information Protection Act, 2004* (PHIPA)
- 4.3 If you have any questions about privacy, or believe that your personal information has been used or disclosed inappropriately, please do not hesitate to contact the Privacy Office directly:

Telephone: 905-848-7580 extension 7548

Email: Privacy@thp.ca

Mailing Address:

Information and Privacy Office

Mississauga Hospital

Clinical and Administration Building, 5th floor

Mississauga Hospital

100 Queensway West

Mississauga, ON L5B 1B8

5. ALTERATIONS TO EXISTING WORK:

- 5.1 **Material Re-Use:** Where materials are to be removed for re-use or where existing finishes are to be cut and later made good, qualified tradesmen skilled in the handling of each material shall be employed.
- 5.2 **Damage:** Damage to the existing building components or contents due to construction work shall be made good at the cost of the *Contractor*. New work within the existing building shall conform to requirements or applicable trade sections.
- Should the *Contractor* damage any *Hospital* equipment or service in the course of their work, no repairs shall take place without the approval of the *Project Manager*.
- 5.3 **Affected Services:** All services affected by work shall be cut off and properly capped or diverted. Interruption of services to or within existing buildings shall not take place without prior consultation with the *Project Manager* and the issuance of a [Utility Shutdown Request Form, Appendix 'H.4'](#).
- 5.4 **Electrical Lock-Out Procedures:** Proper lock-out procedures must be followed whenever there is a potential hazard as per the [Electrical Lock-Out Procedures, Appendix 'J'](#). The *Contractor* must notify the Capital Planning and Redevelopment/Facilities Operations department or “designate” a minimum of 10 business days in advance of any requirement for locking out or tagging out, or isolation of hazardous energy sources.
- 5.5 **Testing Involving Radiation:** Any non-destructive testing of a building, facility or service that requires the use of x-ray or gamma radiation emitting devices, must be done in conformance of federal,

provincial, and other governing legislation, policies or procedures, including those of the Canadian Nuclear Commission and shall not take place without prior consultation with the *Project Manager*.

- 5.6 **All mechanical/electrical/utility rooms and IT closets** are locked and must remain locked at all times. No doors are to be propped/wedged open. The Contractor will pay for all associated damage to doors, frames, hinges, closers, door operators caused by such propping/wedging open.

6. WASTE MANAGEMENT: ENVIRONMENTAL PROTECTION AND SUSTAINABILITY:

- 6.1 The Hospital is committed to protecting the environment maintaining an Environmental Management System (EMS) that meets the ISO 14001 standard – an international standard for an EMS.

- 6.1.1 The Hospital will minimize undue risk and adverse environmental impacts on human health and the natural environment. In doing so, the Hospital shall as a minimum, comply with, or when possible, exceed, all legal and other requirement and encourages Contractors to do the same.

6.2 *Contractor's Waste Management Responsibilities:*

- 6.2.1 While the *Contractor* is working on *Hospital* premises, the *Contractor* shall have the following responsibilities:

1. *Contractors* are to make their own arrangements and pay for all associated costs of disposal. Some contacts at *Hospital*-approved facilities can be obtained from Purchasing Services or may be specifically outlined in contract documentation.
2. Location of *Contractor Only* waste bins, bin cover requirements for dust and/or hazardous material control, etc.) must be determined with the *Project Manager* prior to work start. The existing garbage containers are not available for use, at any time.
3. Store materials in a manner such that damage and waste will be minimized.
4. Fires and burning of rubbish on site are not permitted.
5. Keep all windows closed where possible when working in enclosed spaces if building heating or cooling systems are operational.
6. Conserve energy where possible. Lights shall be turned off when rooms are left unoccupied. Turn off non-essential equipment when not in use and especially overnight (lights, equipment etc.)
7. Conserve water. Do not let taps or hoses run between tasks during work. Don't leave water running. Avoid leaking hoses. Report any water leaks that you notice and that are out of your control to your THP Project Manager.
8. Atmospheric air pollution (including noise) must be managed for pollution prevention and also to prevent infiltration of polluted air to indoor spaces.
9. On completion of the contract, the work site must be cleared and cleaned to the satisfaction of the Project Manager. Contractors are expected to arrange for and remove their own refuse, hazardous materials and arrange for and recycle materials, at their cost. Contractors, Subcontractors or service persons are refrained from using the Hospital's waste or recycling bins at any time. No dumping and no unused materials shall be left on site.

6.3 Waste Handling Collection Procedures

- 6.3.1 During work activities on site, ensure waste handling efforts are in effect that are ethical and responsible using the following methods:

1. Branches and trees from site clearing shall be chipped to create landscaping mulch and removed from the site unless otherwise directed by the Project Manager.
2. Larger pieces of leftover lumber (6' or greater) can be donated to Habitat for Humanity.
3. Drywall should be purchased in optimal dimensions to minimize cut-off waste. All unused and waste drywall shall be recycled.
4. During construction, separate metals for recycling, including copper piping, wire and flashing, aluminum siding, flashing and guttering, iron and steel banding from bundles, nails and fasteners, galvanized flashing and roofing, and rebar, lead chimney flashing, etc. Lead and other metals shall be kept out of landfills as they could leach into groundwater.
5. Clean materials that are contaminated before placing in collection containers.
6. Deliver materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process.
7. Arrange for collection by or delivery to the appropriate recycling or reuse facility.
8. Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
9. Prevent contamination of materials to be recycled and salvaged and handle materials consistent with requirements for acceptance by designated facilities.
10. Where materials must be co-mingled, take to a processing facility for separation off site.
11. Deliver materials in accordance with recycling or reuse facility requirements (e.g., free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process).

6.4 Hazardous Waste Handling Procedures

- 6.4.1 Hazardous waste poses an immediate threat to humans, the environment and the community as a whole. The following restrictions must be followed:
1. Hazardous, Chemical wastes sent for disposal should not be mixed with biohazardous or radioactive wastes.
 2. Hazardous liquids must not be flushed down drains as a method for disposal. This practice is illegal and may lead to dangerous reactions and damage to the draining system as well as create a potential hazard to trades personnel working on the system. Solid or liquid waste chemicals must not be mixed with general garbage.
 3. In order to avoid explosions, fires or spills, incompatible combinations of chemicals must not be mixed in a single container
- 6.4.2 Dispose of hazardous materials, including but not limited to chemicals, oils, solvents, excess paint, sealants, batteries, nickel cadmium batteries from portable power tools, asbestos etc., legally and appropriately utilizing a licensed hazardous waste management company.
- 6.4.3 Any *Contractors*, and their employees, agents, or *Subcontractors* will follow the *Occupational Health and Safety Act, 1990 OSHA* and the *Asbestos Regulation (O. Reg. 278/05)* and any and all asbestos containing waste shall be packaged and disposed of in accordance with Ministry of Environment requirements.

Section D: Project Start-Up; Contractor ‘On-Boarding’

1. **LIABILITY INSURANCE/WORKPLACE SAFETY INSURANCE BOARD:**

- 1.1 The *Contractor* must maintain general liability insurance coverage for any one occurrence or claim of at least \$5,000,000 (or as outlined in the Tender/RFP/RFQ documents), and automobile liability coverage in an amount not less than \$3,000,000 as will fully protect both the *Hospital* and itself from any and all claims resulting during the performance of, or as a result of the work being performed.
- 1.2 *Contractors* are advised that specific unique project requirements [e.g. insurance coverage limits] may be contained in RFPs or contract documentation and shall take precedence over **Article 1.1** above. Questions or clarifications regarding this document should be directed to the Trillium Health Partners *Project Manager* or as otherwise indicated.
- 1.3 The *Contractor* shall provide a “Clearance Certificate” from the *Workplace Safety Insurance Board of Ontario (WSIB)* or other proof satisfactory to the *Hospital*, stating that the *Contractor* has complied with the requirements of the *Workplace Safety and Insurance Act* and has an account in good standing with *WSIB* as of the date of the certificate/proof. The information must include rate, class numbers, and the company’s *WSIB* number. This information will be required on a monthly basis with submission of progress draw payments (good for 90 days).
- 1.4 The *Contractor* agrees to maintain the required liability insurance coverage and *Workplace Safety and Insurance (WSIB)* coverage in good standing for the duration of the contract and shall fully indemnify the *Hospital* for any and all costs or claims arising as a result of any claim brought against the *Hospital* in connection with the *Contractor’s* performance of the contract.
- 1.5 The *Contractor* shall ensure that all agents or *Subcontractors* hired by the *Contractor* comply with the terms of this document and all *Hospital* policies, including the requirement for liability insurance and *Workplace Safety and Insurance Board (WSIB)* coverage and all requirements under the *Workplace Safety and Insurance Act (WSIA)*.

2. **PERMITS, FEES AND REGULATORY REQUIREMENTS:**

- 2.1 Building and related permits, if required, must be clearly posted prior to commencement of any work at the *Hospital*. The *Contractor* shall post a copy of the Permit(s) at the entrance to the job site, with copies retained by the *Contractor* and the original(s) shall be retained by the *Project Manager*.
- 2.2 All work shall be executed, and all materials shall conform to and be inspected in strict accordance with all the laws, rules and regulatory requirements of the local, provincial and/or any other authorities having jurisdiction.
- 2.3 Each *Contractor* may be required to obtain all necessary permits and notices, pay all fees in order that the work may be carried out and shall furnish any certificates necessary as evidence that the work installed conforms with the laws and regulations of all authorities having jurisdiction before final payment certificates are approved. Any *Contractor* performing electrical work must obtain an inspection/registration work order number, within 24 hours of commencing work on site. When work has been completed, the *Contractor* is required to obtain a “*Certificate of Inspection*” from the appropriate inspection agency and submit this with the progress draw for payment.
- 2.4 All changes and alterations required by an authorized inspector of any authority having jurisdiction shall be carried out without charge or expense to the *Hospital*. All equipment supplied must have approval of the *National Fire Protection Association, Canadian Standards Association and Underwriters Laboratories Canada, Ontario Electrical Safety Code, Technical Standards and Safety Authority (TSSA)* and any other authorities having jurisdiction.

3. WORKER IDENTIFICATION & ACCESS CARDS

- 3.1 All *Contractors*, service persons and vendors conducting approved work at the *Hospital* are required to wear an Identification Badge adorned in a visible location while on *Hospital* property. Refer to the *Hospital's* [Identification Policy, Appendix 'G'](#) for requirements.
- 3.2 If required to work in an active patient room/area, *Contractors*, *Subcontractors* and their agents are required to check in at the nursing station prior and identify themselves prior to or upon entering the work area.

4. CONTRACTOR DELIVERIES, EQUIPMENT AND MATERIAL STAGING AREAS:

4.1 Deliveries:

- 4.1.1 The use of *Hospital* elevators for the delivery of project materials must be pre-approved by the *Project Manager*. Where permission has been granted to a *Contractor* to use an elevator, the *Contractor* shall be responsible for providing protection to the cab and shall be responsible for repairing any damage caused during the use of the elevator. The repair must receive prior approval from the *Project Manager* and meet all existing *Hospital* standards.
- 4.1.2 Shipping and receiving must be used for all deliveries, unloading and loading of equipment and/or materials.
- 4.1.3 Vehicles making deliveries or pick-ups greater than 30 minutes are subject to parking fines, unless prior arrangements are made with the *Parking & Security Operations Office* through the *Project Manager*. Fire routes and restricted, emergency, accessible and other designated parking areas must be respected at all times. Any vehicles parked illegally will be tagged and/or towed at the owner's expense.
- 4.1.4 Access points for *Contractor* deliveries will be determined prior to the start of any work in consultation with the *Project Manager*.

4.2 Staging & Storage:

- 4.2.1 Storage for construction materials will be within the area of work only unless approved otherwise by the *Project Manager*.
- 4.2.2 Outdoor staging areas, as designated by the *Hospital*, must be enclosed with protective fencing and have an appropriate access gate. Security must have clearly tagged keys to the gate to access the site in case of an emergency.
- 4.2.3 If any exterior roads, sidewalks or grass areas will be used as part of the construction work site, consult with the *Project Manager*. If work will take place on public roads, follow all traffic safety requirements outlined in the OSHA and Construction Regulations.

5. CONTRACTOR PARKING:

- 5.1 There is no *reserved* or *free parking* for *Contractors*. All *Contractors*, and any of their employees, agents and *Subcontractors*, are required to pay for parking after 30 minutes. These costs will not be billed as an extra to any project. Parking is not allowed anywhere on the *Hospital* property other than in parking lots, except for delivery or pick up of materials, tools or equipment.
- 5.2 Keep ambulance bay, police parking and surrounding areas clear at all times. Do not block spaces reserved for patients, visitors and accessible parking spaces.
- 5.3 The parking program is provided and managed by an external third-party provider who also oversees specific Policy and Procedures for various aspects of the program. Any questions or concerns pertaining to the parking program can be directed to the parking kiosk or the specific *THP Parking Office* at the respective location. Motor vehicle collisions, or loss/damage to property must be communicated to the appropriate individuals immediately.
- 5.4 All individuals who are operating a motorized vehicle on THP property must abide by the rules, regulations, laws and posted signage. Enforcement of these rules and regulations on the THP property is conducted by the Security Operations Dept in combination with a contracted external company, and the city by-law enforcement. Vehicles in violation will be subject to fines for the violation. Violations include: By-law infractions, failure to park in designated locations and improper parking.
- 5.5 Incidents and Investigations: Any incidents or negative occurrences on THP property need to be communicated to the Security and Parking Services team for investigative purposes. Security and Parking Services are available to support with regards to gathering information and piecing together the events that took place.
- 5.6 All parking rules and regulations of the *Hospital* and the City of Toronto and City of Mississauga bylaws must be adhered to. Failure to comply with these regulations may result in vehicles being tagged and/or towed at the owner's expense.
- 5.7 Any violations issued are under the auspices of the City of Toronto or City of Mississauga and as such, any appeals shall be between the violator and the City, not the *Hospital*.
- 5.8 *Contractors* shall not park on City streets adjacent to any *Hospital* premises.
- 5.9 Contractors may obtain daily or multi-use parking passes for their vehicles at Mississauga Hospital, Credit Valley Hospital and Queensway Health Centre. Passes are obtained through the Parking Office Kiosk or Pay station. Parking may be paid at a pay station (in the parking lot or lobby) or at exit with Credit Card.
- 5.10 **Visitor Parking Information:** Visit [Parking \(thp.ca\)](https://parking.thp.ca) for parking rates (daily and HPASS), pay stations, instructions to obtain passes and frequently asked parking questions.
- 5.11 **HPASS Multi-Use Parking Passes:** HPASS is a preloaded multi-day card for 5, 10, 30 or 100 days that gives patients and frequent visitors a discounted parking rate. The HPASS™ card allows for “in-and-out” privileges within a 24-hour time period.
- 5.12 **Parking Office locations: (See Maps Below)**
- **Credit Valley Hospital** – Emergency exterior (beside parking structure)
 - **Mississauga Hospital** – Parking Garage (northwest corner)
 - **Queensway Health Centre** – East Entrance



Figure 1 **Credit Valley Hospital** – Emergency exterior (beside parking structure)

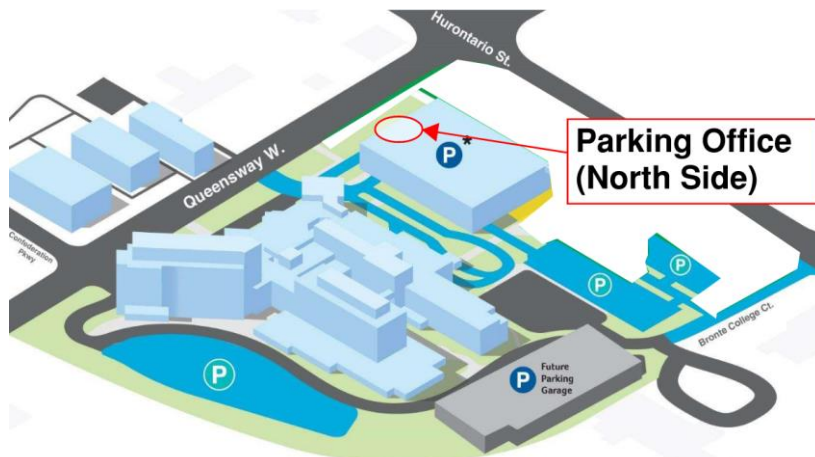


Figure 2 **Mississauga Hospital** – Parking Garage (northwest corner)

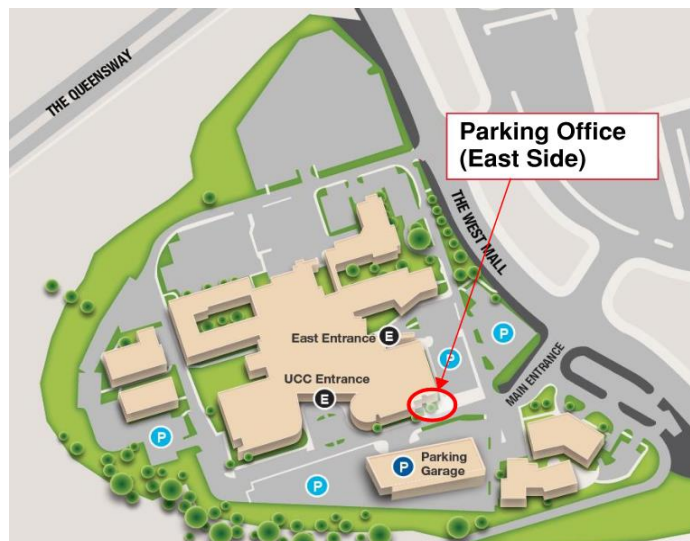


Figure 3 **Queensway Health Centre** – East Entrance

Section E: Project Close-Out

2. **AS-BUILT DRAWINGS, OPERATING AND MAINTENANCE MANUALS:**

- 2.1 The *Contractor* shall submit to the Project Manager (unless specified otherwise in contracts under close-out documentation):
- One (1) electronic copy in PDF format of Operating, Maintenance and Repair Manuals for all supplied equipment and their components via email or file sharing service authorized by the *Contractor*.
 - One (1) electronic copy in AutoCAD format (including .ctb files) and one (1) electronic copy in a legible PDF format of all as- built contract drawings via email or file sharing service authorized by the *Contractor*.

3. **WARRANTIES:**

- 3.1 The *Contractor* shall submit to the *Project Manager*, as part of the maintenance manuals, all specific warranties, extended warranties, and free manufacturer extended warranties as apply to each individual section. The warranty period(s) shall commence on the date of ***Substantial Completion*** of the project and be valid for the full duration specified. Warranties, operating and source manuals and requested drawings are to be sent to the *Project Manager* prior to Final Payment Certification. Refer to the closeout procedures within the Project Specifications (where applicable) which take precedence over this document.

4. **DEMONSTRATION OF SYSTEMS:**

- 4.1 The *Contractor* shall provide training to the *Hospital's* Maintenance and Operations personnel, during regular work hours, on the care, operation and maintenance of all equipment and systems as specified in the applicable sections of the contract documentation. (Please note that training sessions may be recorded at the *Hospital's* discretion for any future training purposes.)

5. **RETURN OF ACCESS CARDS:**

- 5.1 All keys, access cards and applicable parking permits in possession of the *Contractor*, its agents or *subcontractors* must be returned to the Security Operations Office at Mississauga Hospital, Queensway Health Centre or Credit Valley Hospital. Refer to the Hospital's [*Identification Policy, Appendix 'G'*](#) for further requirements.

6. **DAMAGE TO EXISTING FACILITIES, SERVICES, LANDSCAPING OR CONTENTS:**

- 6.1 Damage to existing building components, services, landscaping or contents due to construction work shall be made good at the cost of the *Contractor* unless otherwise specified. Restoration work is to be completed by skilled trades workers specializing in the area of work to be performed.
- 6.2 Specifically, all damage to doors, frames, door closures, door operators, etc. and any associated hardware/security devices resulting from adjacent construction activity shall be made good at the cost of the *Contractor*.
- 6.3 Specifically, interior furnishings and equipment (e.g. chairs, desks, file cabinets, computers) that have been used by tradespersons in the performance of the construction in place of proper equipment (e.g.

step ladders) or damaged due to improper protection measures being taken (e.g. drop cloths) shall be replaced at the cost of the *Contractor*.

7. CONSTRUCTION SITE CLEAN-UP:

- 7.1 On completion of the contract, the work site must be cleared and cleaned to the satisfaction of the *Project Manager*. *Contractors* are expected to arrange for and remove their own refuse, hazardous material and arrange for and recycle materials, at **their cost** as per [Section C: Waste Management, Environmental Protection Procedures](#)

A: Occupational Health and Safety Policy

Effective Date: 2018/01/01

Purpose/Rationale:

Trillium Health Partners, hereafter referred to as the “*Hospital*”, is committed to providing a safe and healthy working and healthcare environment to all members of the *Hospital* community. It is the goal of the *Hospital* and its employees to construct every structure plan every activity and perform all tasks in a manner that minimizes risks, promotes the health, safety, and wellbeing of all individuals, and prevents occupational injuries or illnesses.

Scope:

Health and safety is a joint responsibility shared by all members of the *Hospital* community. This policy applies to all employees, patients, visitors and *Contractors* of the *Hospital* and off-site locations.

Policy:

1. The *Hospital* will maintain and promote a safe and healthy working and learning environment by implementing health and safety programs and procedures that meet or exceed the requirements of the Occupational Health and Safety Act and its Regulations, and other applicable legislation and codes.
2. All employees, *Contractors*, landlords, patients, and visitors shall comply with all relevant legislation and all *Hospital* policies and procedures regarding health and safety.
3. Every employee shall use safe work practices as governed by the *Hospital's* policies and procedures. It is the responsibility of the worker to report unsafe conditions and workplace injuries to their supervisors and immediately notify the *Capital Planning and Redevelopment Office* or “*delegate*”.

References:

- Occupational Health and Safety Act of Ontario, and its Regulations
 - ✓ [Occupational Health and Safety Act](#)
 - ✓ [O. Reg. 213/91: Construction Projects](#)
 - ✓ [O. Reg. 67/93: Health Care Facilities](#)

B: Smoke-Free Policy

Effective Date: 2018/01/01

Purpose/Rationale:

Trillium Health Partners, hereafter referred to as the “*Hospital*” strives to create a healthy and healing environment for our staff and patients. This includes ensuring that our environment is smoke free as smoking and second-hand smoke are the leading causes of lung cancer, chronic pulmonary diseases such as asthma and other respiratory conditions.

The purpose of this Policy is to ensure support for a healthy environment for the *Hospital* Community and ensures compliance with the Smoke-Free Ontario Act, 2017, the Cannabis Control Act, 2017 and local by-laws. Failure to comply may result in fines as issued by a Municipal By-law Enforcement Officer. Individuals may be subject to personal fines levied due to non-compliance.

Scope:

This Policy applies to all patients, employees, learners, *Contractors*, visitors, leasehold tenants, *Contractors* or other persons on *Hospital* Property or in *Hospital* owned vehicles.

Definitions:

‘Hospital Property’: Any property, including grounds and buildings, structures and facilities, which are owned or leased, or used under the direction of the *Hospital*. This includes any vehicle used by the *Hospital*. **Refer to Hospital site maps below for sidewalk areas designated for smoking outside of the Hospital property.**

‘Smoking’: Smoking tobacco or other materials and holding lit tobacco or other materials intended for smoking (e.g.: cigarettes, cannabis); includes all types of e-cigarettes, vaping or any other implement or device used to emulate the act of smoking which involves the production of any airborne contaminants or substances including the use of pipes, water pipes, hookahs, holders, or other instruments used for similar purposes.

Policy:

1. Smoking (see definition above) is prohibited on *Hospital* Property including all, buildings, parkades, parking lot, grounds, including all other property owned or leased by the *Hospital*, subject to the exceptions outlined below. All grounds of *Hospital* facilities were designated as completely smoke-free as of January 1, 2018.
2. The sale and/or promotion of cigarettes, e-cigarettes, vapour products, tobacco, tobacco products including flavoured tobacco products, cannabis, cannabis products, and smoking products on *Hospital* Property is prohibited.

Exceptions to this Policy:

3. Special exemptions, as defined by the Smoke-Free Ontario Act, 2017, are considered in relation to an Indigenous event, ceremony, or other request, for the use of tobacco, sage, sweet grass or other material and permits the use in approved spaces of the *Hospital*, (e.g.: smudging ceremony). In the case of an Indigenous event, a designated space on *Hospital* grounds shall be approved for use by the *Hospital* following consultation with the Occupational Health & Safety only for purposes in relation to an Indigenous ceremony.
4. Members of the *Hospital* Community that have been prescribed medicinal cannabis that request medical accommodation may be accommodated on the *Hospital* grounds on a case-by-case basis following a review of the request and in accordance with applicable laws and *Hospital* Policy.

Designated Smoking Areas:



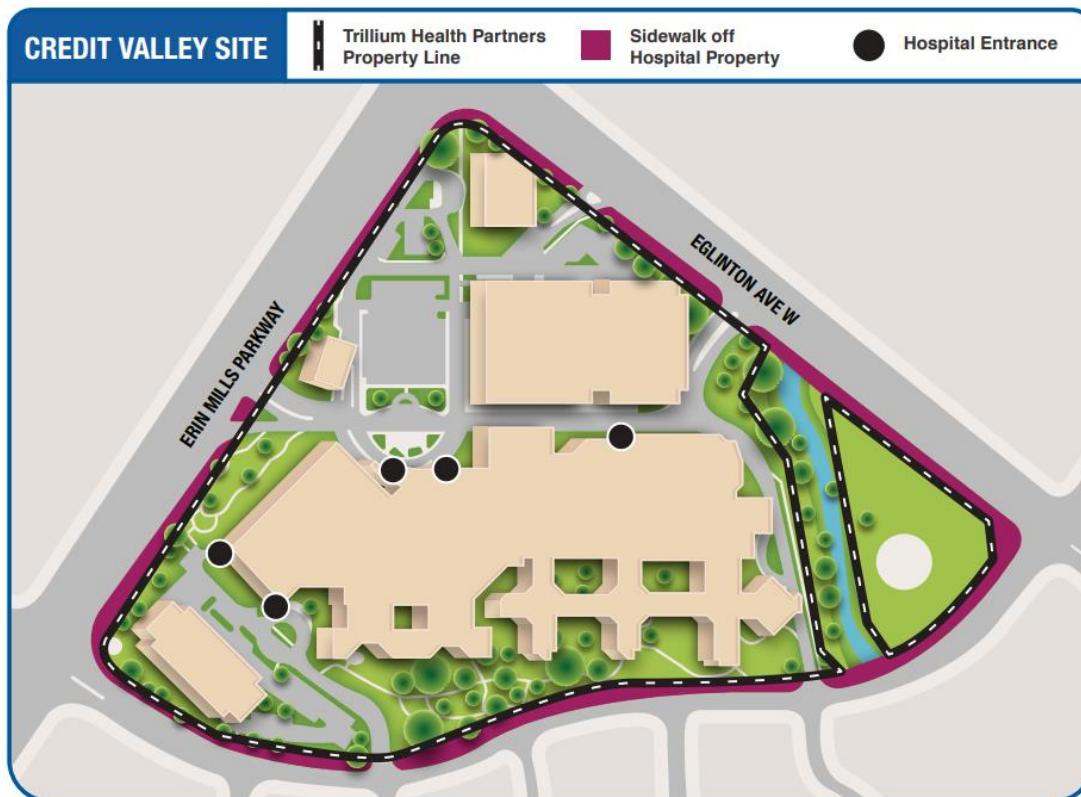
NO SMOKING, PLEASE

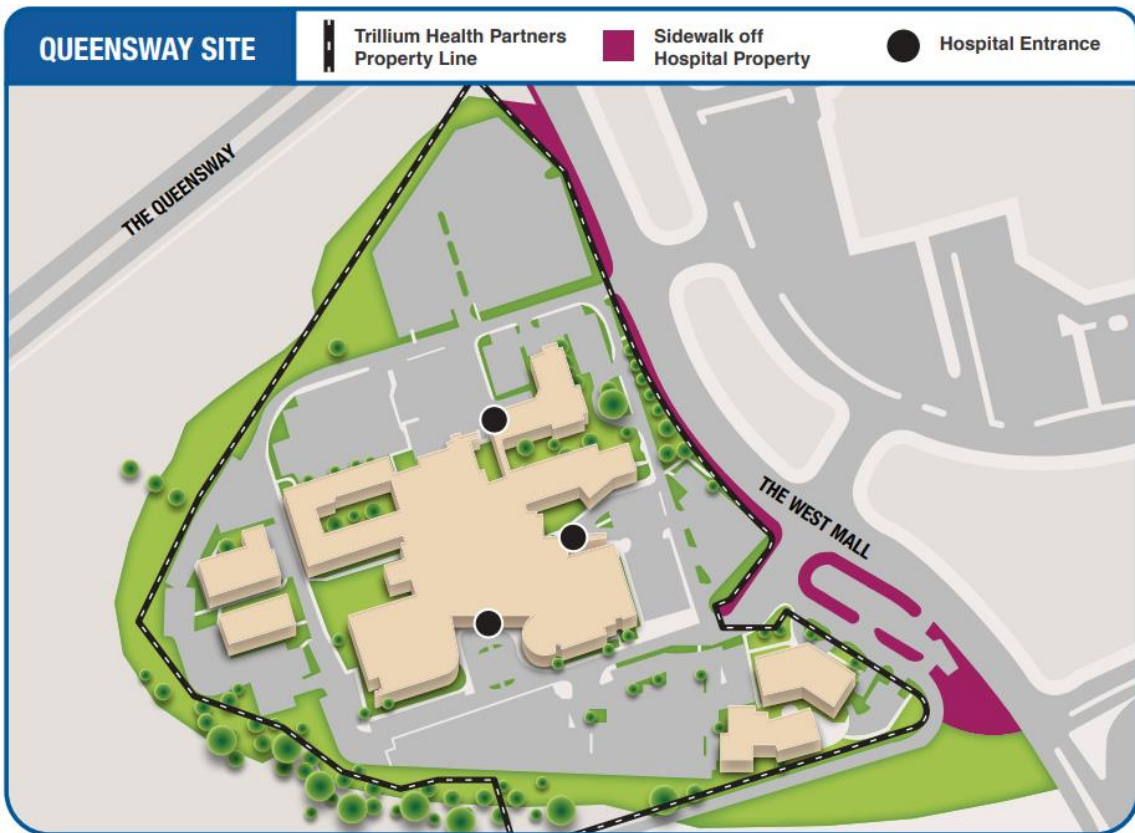
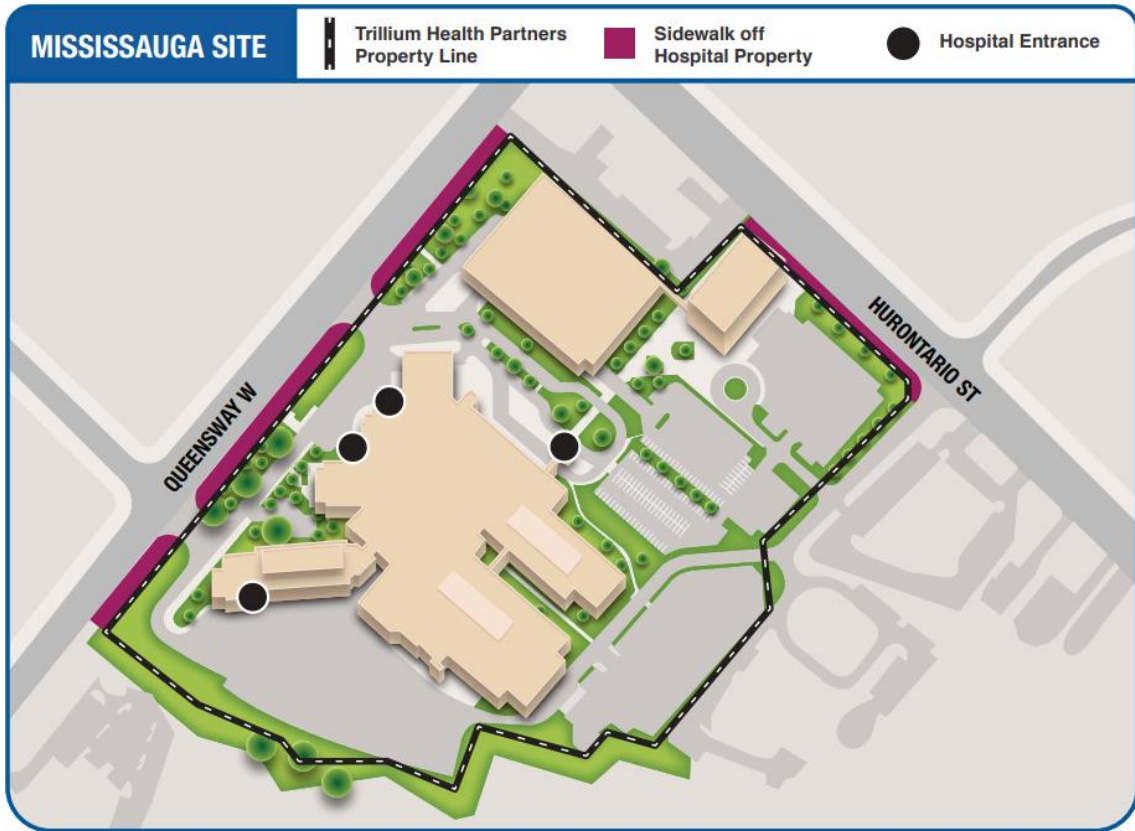
ON TRILLIUM HEALTH PARTNERS PROPERTY

Smoking, including e-cigarettes and vapourizers, is prohibited anywhere on Trillium Health Partners property in accordance with the Smoke-Free Ontario Act.

Smoking on hospital property can result in a fine for you and the hospital.

Smoking is permitted outside of hospital boundaries as indicated on the map.





C: Respectful Workplace Policy

Effective Date: 2022/03/23

Purpose/Rationale:

Trillium Health Partners, hereafter referred to as the *Hospital*, strives to create a healthy, safe and respectful environment for healing that is based on our values compassion, excellence and courage. To be Better Together, we commit to fostering a respectful workplace culture that promotes a safe and supportive environment for everyone who provides care, supports caregiving, receives care or visits the hospital.

Scope:

1. All employees, Professional Staff, volunteers, students/learners, independent and external contract workers, and all individuals who represent THP are bound by this policy. They will herein be referred to as "Individuals" & are expected to adhere to the principles of this policy & contribute to a respectful workplace.
2. This policy is in effect during working and non-working hours and at work-related or other functions, on or off THP's premises. This includes all locations where Individuals conduct THP business or social activities and/or where their behaviour may have a subsequent impact on work relationships, the work environment and/or one's performance. Disrespectful behaviour that occurs by way of electronic communications (e.g. phone calls, email, voice mail or social media, including the display of offensive materials) may also be considered to have occurred in the workplace.

Policy:

1. Individuals are entitled to, and expected to contribute to a respectful workplace, and no form of discrimination, harassment, sexual harassment, or bullying will be tolerated. At THP, Individuals regardless of their position, will engage one another in a positive and respectful manner, even when there is a difference of opinion. Incidents shall be reported directly to the *Project Manager* who will contact *Human resources*.

Definitions:

1. **Respectful Workplace:** *a positive, safe, healthy, respectful and healing workplace that fosters and maintains one's dignity. It also supports an Individual's physical, emotional and social well-being.*
2. **Disrespect:** *Disrespect must not be confused with legitimate comment, advice or direction from a manager and/or supervisor regarding workplace performance, assignment of duties and/or other legitimate workplace requirements. Disrespect involves a range of behaviours including, but not limited to:*
 - *Unprofessionalism*
 - *shaming of others*
 - *disruptive behaviour*
 - *demeaning comments or intimidation*
 - *profound rudeness*
 - *unsolicited and unwelcome conduct or comments (oral or written)*
 - *shouting or swearing*
 - *gestures or contact which is reasonably known to cause offense, physical or emotional harm to either the target of such acts or bystanders.*
 - *outbursts of anger*

3. **Discrimination:** the differential treatment and/or judgment of an individual, based on prohibited grounds. Discrimination can be either intentional or unintentional and is the result of personal prejudices and stereotypical assumptions in breach of the **Ontario Human Rights Code**.
4. **Harassment:** engaging in a course of vexatious comment or conduct that is known or ought reasonably to be known to be unwelcome. More than one incident is usually required to establish harassment. However, a single significant incident may be sufficiently offensive to be considered harassment. Harassment is not defined by intent, but rather by perception of the behaviour. Behaviours which constitute harassment include, but are not limited to:
- physical actions, such as touching, leering;
 - patronizing or condescending behaviour or language which reinforces stereotypes and undermines self-respect;
 - comments, such as inappropriate jokes, psychological abuse, name-calling;
 - displays of offensive materials, offensive emails or offensive use of social media;
 - behaviours which create an environment which is hostile or offensive or which contribute to a poisoned work environment; or
 - bullying
5. **Known or Ought Reasonable to be Known:** Even if an individual is not aware that his/her behavior is unwelcome (subjective), if a reasonable person in the same situation would have known that the behavior was unwelcome, then that person “ought reasonably to have known” that the behavior was unwelcome.
6. **Workplace:** includes all locations where Individuals conduct THP business or social activities and/or where their behaviour may have a subsequent impact on work relationships, the work environment and/or one’s performance. Disrespectful behavior including harassment, discrimination and/or abuse that occurs by way of electronic communications (e.g. phone calls, email, voice mail or social media, including the display of offensive materials) may also be considered to have occurred in the workplace.
7. **Workplace Sexual Harassment:** engaging in a course of vexatious comment or conduct against a worker in a workplace because of sex, sexual orientation, gender identity or gender expression, where the course of comment or conduct is known or ought reasonably to be known to be unwelcome.
- It also includes making a sexual solicitation or advance where the individual making the solicitation or advance is in a position of authority to confer grant or deny a benefit or advancement to the worker and the individual knows or ought reasonably to know that the solicitation or advance is unwelcome or threatening. Sexual harassment is prohibited under both the Ontario Human Rights Code and the Ontario Occupational Health and Safety Act.

D: Workplace Violence Prevention Policy

Effective Date: 2022/03/03

Purpose/Rationale:

Trillium Health Partners, hereafter referred to as the *Hospital* has enacted a Workplace Violence Prevention Policy to provide clear expectations and standards, and a process by which incidents or threats of workplace violence can be prevented, reported and are addressed at THP. This includes how we support victims of violence, including bystanders, as well as, safely securing the workplace after an incident has occurred.

Scope:

1. All employees, Professional Staff, volunteers, students/learners, independent and external contract workers, and all individuals who represent THP are bound by this policy. They will herein be referred to as "Individuals" and are expected to adhere to the principles of this policy and contribute to a workplace that is free of violence.
2. This policy is in effect during working and non-working hours and at work-related or other functions, on or off THP's premises. This includes all locations where Individuals conduct THP business or social activities and/or where their behaviour may have a subsequent impact on work relationships, the work environment and/or one's performance. Disrespectful behaviour that occurs by way of electronic communications (e.g. phone calls, email, voice mail or social media, including the display of offensive materials) may also be considered to have occurred in the workplace.

Policy:

1. Individuals are entitled to, and expected to contribute to a respectful workplace that is free of violence. No form abusive or aggressive behavior, acts of violence or threats of harm will be tolerated.
2. THP will take all reasonable and practical steps to prevent and/or respond to abusive or aggressive behavior or acts of workplace violence or threats of harm wherever it may occur or originate, including domestic violence.
3. THP will implement measures to prevent workplace violence and investigate all formal complaints of workplace violence in a timely manner. THP will also explore suspected policy violations should they occur.
4. In the event of a substantiated claim of workplace violence, THP will implement corrective measures where appropriate, up to and including termination of employment, loss of privileges, and/or cancellation of hospital placement, with the possibility of police involvement and criminal charges being laid.
5. Socially inappropriate public behaviour (offensive language, swearing, racial slurs, sexual advances, etc.) will not be tolerated.

References:

- *Workplace Violence & Harassment Prevention Amendments to the OHSA Participant Workbook, OSACH, 2010*

E: Equity, Anti-Racism and Inclusion Policy

Effective Date:

Purpose/Rationale:

In 2020, Trillium Health Partners, hereafter referred to as the *Hospital*, launched the Equity, Anti-Racism and Inclusion Office with a dedicated focus on learning, unlearning and dismantling anti-Black racism, racism and white supremacy at the *Hospital*, while making way for improvements for all equity-deserving groups and creating an inclusive environment that leaves no one behind.

The *Hospital* has committed to building an antiracist, equitable and inclusive workplace and organization that holds true to our values of Compassion, Excellence and Courage. We are committed to integrating anti-racism, diversity, equity and inclusion best practices into the *Hospital's* full operations.

Equity, anti-racism and inclusion work requires intentional behavioral change, recognizes the cost of doing nothing and understands the power of transformational change. Through listening, unlearning and learning, we can action items that will allow us to dismantle systems of oppression, remove barriers and rebuild broken processes. We understand meaningful action and change takes time and we are committed to ensuring that it remains a priority. We value your participation in our collective journey towards becoming a more equitable and inclusive organization for each other, our patients, and our community.

Vision:

Empowering diverse voices that fosters a culture where diversity, inclusion and equitable outcomes are infused into everything we do.

Mission:

Promote awareness, Inspire change and support with intention. We will champion respectful and safe workspaces for all and where everyone can thrive.

F: Accessibility Policy

Effective Date: 2023/01/23

Vision:

At Trillium Health Partners, hereafter referred to as the *Hospital*, is an organization that strives to leave no one behind. We acknowledge that one of the ways people are left behind is due to physical, auditory, visual, and cognitive barriers that prevent access and inclusion for persons with disabilities. One way we strive to address this is through compliance with the [Accessibility for Ontarians with Disabilities Act](#) (AODA) and the [Ontario Human Rights Code](#).

Mission:

The *Hospital* is committed to treating people with disabilities in a way that allows them to maintain their dignity and independence and that fosters equality of opportunity. The organization does so by removing and preventing barriers to accessibility, including through Multi-Year Accessibility Plans and operational processes, and by meeting accessibility requirements under AODA and all relevant accessibility laws and regulation.

The *Hospital* is committed to meeting its current and ongoing obligations under the Ontario Human Rights Code respecting non-discrimination. We understand that obligations under AODA and its accessibility standards do not substitute or limit its obligations under the Ontario Human Rights Code or obligations to people with disabilities under any other law.

Policy:

1. Notice of Temporary Disruption

The Hospital is aware that the operation of its services and facilities is important to the public. However, temporary disruptions at its facilities and services may occur due to reasons that may or may not be within its control or knowledge. It is recognized that these disruptions could impede the ability of individuals with disabilities to access the Hospital and its services.

The Hospital will make reasonable effort to provide advance notice of the disruption to the public, including information about the reason for the disruption, its anticipated duration and a description of alternative facilities or services, if any, that may be available.

The notice will be made available by posting the information on the premises and/or on the Hospital's website or by such other method as is reasonable under the circumstances. In the event of an unexpected disruption, advance notice will not be possible. In such cases, the Hospital will provide notice as soon as possible.

In the event of a planned or unexpected disruption to services or facilities for customers with disabilities, this organization will notify customers promptly. This clearly posted notice will include information about the reason for the disruption, its anticipated length of time, and a description of alternative facilities or services, if available.

2. Design of Public Spaces:

The Hospital will meet accessibility laws when building or making major changes to public spaces. Public spaces include outdoor public rest areas; accessible parking; service-related elements like fixed queueing lines and waiting lines; and publicly accessible garden areas. The Hospital puts procedures in place to minimize service disruptions to publicly accessible spaces. In the event that a service disruption is required, notification of the service disruption is provided and alternatives made available (if applicable).

3. Service Animals:

The Hospital welcomes people with disabilities and their service animals. Service animals are allowed on those parts of the premises that are open to the public and third parties.

4. Assistive Devices:

People with disabilities may use their personal assistive devices when accessing goods, services or facilities. In cases where the assistive device presents a significant and unavoidable health or safety concern or may not be permitted for other reasons, other measures will be used on a case-by-case basis to ensure the person with a disability can access our services or facilities.

5. Accessible Transportation:

The Hospital meets all applicable accessibility laws when making transportation services accessible. Accessible transportation services include a free accessible shuttle bus service for patients, visitors and staff, between the Mississauga Hospital and Queensway Health Centre, with an additional stop at the PCL Building 2085 Hurontario Street, and between the Mississauga Hospital and Credit Valley Hospital. The scheduled service runs Monday to Friday 7:30 a.m. to 5 p.m.

6. Procurement:

The Hospital incorporates accessibility criteria and features when procuring or acquiring goods, services or facilities, including self-service kiosks. If it is not possible and practical to do so, an explanation will be provided upon request.

G: Identification Policy

Effective Date: 2016/04/26

Background:

At Trillium Health Partners, hereafter referred to as the "*Hospital*", all *Contractors*, service persons and vendors conducting approved work at the *Hospital* are required to wear an Identification Badge adorned in a visible location while on *Hospital* property. Identification is required to ensure safety of everyone working at the *Hospital*.

Policy:

Contractors/Vendors

1. All persons providing service on-site at the Hospital must, at a minimum, have some form of employer issued photo identification and/or proof of employment by the Contractor or his Subcontractor(s) immediately available to present should Security personnel, staff members or other authority request to view identification. Those individuals who cannot present such identification will be asked to leave the Hospital property immediately.
2. All persons providing service on-site at the Hospital should, where practical, be wearing clothing/ uniforms that are easily identified with the Contractor, its employees, agents or Subcontractors, e.g. clothing with a company logo. Such clothing should be reasonably clean and free of dust and in generally good repair. All clothing on work sites shall comply with the Occupational Health and Safety Act (and associated Regulations).
3. *Contractors* who require card reader access while on the Hospital premises are recommended to obtain a Smart Card Photo ID badge. *Contractors* who do not require card reader access may use their company issued ID or request a Temporary Identification Badge. All ID badge access shall be submitted and approved by the *Hospital's Project Manager* the *Contractor* is working directly with. For *Contractors* that need access to specific areas of the Hospital not covered by a generic access badge, the *Project Manager* must fill out an access request form on the Hub for the respective *Contractor* or Service Person.
4. Photo ID Badges are ***only*** available from the following *Security Operations Offices* for a small fee. The Security Operations hours are Monday to Friday Between 9am to 5pm. The ID Badge will take affect as soon as you receive it.

Hospital	Phone	Security Office Location
Credit Valley Hospital	905-813-1100 x ext. 2525 or 905-813-3974	Main level, 2 nd floor Block 2G in room 2G108 to the left of the emergency entrance adjacent to the information desk.
Mississauga Hospital	905-848-7580 x ext. 7678	Main level at room 1734A to the right of the emergency entrance

5. All individuals receiving an Identification Badge must sign off on a *terms and conditions form* prior to being issued the Identification Badge. The ID Badge will have the first and last name of Workers and the Employer name of the individual.
6. *Contractors* will be required to provide official government issued photo ID prior to receiving an identification badge and a receipt from the cash office prior to picking up the badge.
7. Everyone with an authorized *Hospital* Identification Badge is responsible for taking care of the Badge. There will be a replacement fee for lost and missing Smart Card Identification Badges and for non-smart Card Identification Badges. Damaged Identification Badges will be assessed to determine whether the replacement fee will be waived. Lost cards are to be reported to Security Services immediately.
8. Photo ID cards are the property of Trillium Health Partners and must be returned upon request.
9. Any previously issued cards must be returned prior to receiving a new card. Multiple cards are not permitted.
10. When a Contractor is no longer working with the Hospital the identification card must be returned to the Mississauga Hospital or Credit Valley Hospital Security operations Offices and the badge will be immediately deactivated. If a Contractor does work at the Hospital on a regular basis, the badge may be kept however any special access will be removed for areas no longer required for the project.

Definitions:

- **Smart Card Identification Badge:** *This is an Identification Badge card that has technology embedded in it to allow access into secure doors and the parking areas.*
- **Non – smart Card Identification Badge:** *This is an Identification Badge with no technology embedded in the card.*
- **Identification Badge:** *A plastic card with a colour photograph of the Authorized Person and other relevant data or unique identifiers, which is visibly displayed while conducting business as a representative of a Trillium Health Partners.*
- **Temporary Identification Badge:** *A plastic card without a photograph but which clearly identifies the holder as a “Visitor” or “Contractor” providing work-related service at Trillium Health Partners.*
- **Access Card:** *A programmable card which allows access to a facility and/or specific areas within a facility.*
- **Authorized Persons:** *physicians, staff, employees, volunteers, students, Contractors or any other individual(s) identified by a customer organization.*

H.1: Building Systems Interruption Policy

Purpose/Rationale:

At Trillium Health Partners, hereafter referred to as the “Hospital”, our facilities are protected by *fire and life safety systems* for the benefit of all building occupants. It is essential, should these systems be rendered non-operational in any location for any reason, that such instances be communicated and closely monitored, and that alternate systems be put in place to ensure the ongoing safety of all occupants. This may also involve construction activities classified as ‘hot works’.

Planned utilities interruptions occur due to demolition, construction/installation, or maintenance with impacts to essential Hospital services. A temporary or permanent shutdown may pertain to fire protection services or services including but not limited to hot and/or cold water, medical gas, nurse call, HVAC, RTLS, power and data communications. For Operational systems, life safety systems and hot works, refer to [Section B: Interference and Interruption of Utilities](#) for [Building System Interruption Procedures](#).

Definitions:

‘Fire and Life Safety Systems’: *Life safety systems are comprised of any wiring, components, equipment, or communications devices comprising an integral part of building and/or occupant fire or fire alarm notification systems or firefighting/suppression equipment, including, but not limited to, public address systems, smoke and heat detectors, fire pull stations, cooking fire suppression systems, sprinkler systems, fire hose cabinets, blocking of access to same, etc.*

‘Hot Work’: *is defined as work using open flames or sources of heat that could ignite materials in the work area. This kind of work may cause the building's fire alarm system to be activated or create an unwarranted fire risk condition.*

Policy:

Under no circumstances will employees, leasehold tenants, *Contractors*, or service personnel engage in any work on Hospital premises affecting the full and complete operation of any life safety systems without:

7. The prior knowledge of a person or persons in authority from the Project Manager with Approval from the Facilities Operations
8. Obtaining authorization to interfere with any life safety system or device from those authorities a **minimum** of ten (10) business days in advance;
9. Following the detailed Building Systems Interruption Procedure associated with this policy.

Related Procedure(s):

1. [Section B: Interference and Interruption of Utilities Procedures](#)
2. [Hot Work Permit, Appendix 'H.4'](#)
3. [IPAC Recommendations: Water Shutdowns, Appendix 'K.2'](#)
4. [IPAC Recommendations: HVAC Shutdowns, Appendix 'K.3'](#)

H.2: Utility Shutdown Precaution Checklist

The Contractor's Responsibility is to ensure:

- ☐ A [Utility Shutdown Request Form, Appendix 'H.4'](#) and/or [Hot Work Permit, Appendix 'H.3'](#) (where applicable) is completed and submitted to the *Project Manager* with a minimum of 10 days notice provided to the *Facilities Project Manager*.
- ☐ A [Fire Watch Patrol Log, Appendix 'H.5'](#) is completed and submitted to the *Project Manager*.
- ☐ Appropriate fire extinguishing equipment is on scene if water service is interrupted.
- ☐ All fire exits (if modified) have been clearly marked.
- ☐ Excavation/work areas have been properly isolated and marked (if applicable).
- ☐ Electrical equipment has been properly tagged as appropriate (if applicable).
- ☐ Cutting and welding equipment is in good repair (if applicable).
- ☐ Hot Work Precautions are provided within 15 meters of work area:
- ☐ Floors are swept clean of combustibles.
- ☐ Combustible floors have been wet down and covered with damp fireproof sheets.
- ☐ No combustible materials or flammable liquids are located within the work area.
- ☐ Combustibles and flammable liquids have been protected with fireproof tarpaulins or a metal shield.
- ☐ All wall and floor openings have been covered.
- ☐ Fireproof covers have been applied within the work area to collect sparks.
- ☐ Fireproof covers have been applied within the work area to collect sparks.
- ☐ Fire separation doors are kept closed.
- ☐ The designated area is by-passed.
- ☐ Systems are not turned off without assistance from the *Project Manager*
- ☐ ALL requests are endorsed by the *Project Manager* through the *Facilities Project Manager*

H.3: Utility Shutdown Request Form:

Part A – To be filled out by the Requester:

Contact Information:

Company:		Contact Number:	
Requested By:		Date:	
		Time:	
Project Name:		Project Number:	

Shutdown Information:

Type of Shutdown:	<input type="checkbox"/> Power	<input type="checkbox"/> Domestic Water	<input type="checkbox"/> Steam
	<input type="checkbox"/> Fire Alarm	<input type="checkbox"/> Sprinkler/Standpipe	<input type="checkbox"/> Hot Work
	<input type="checkbox"/> Other (please specify):		
Shutdown Date(s):		Shutdown Start Time:	
		Shutdown End Time:	
Area(s) Affected:			
Reason:			
Required?*	<input type="checkbox"/> RISK	<input type="checkbox"/> IPAC	<input type="checkbox"/> Fac. Work Request
* Please submit appropriate documentation as required. *			

Requester Signature:		Date:
----------------------	--	-------

Part B – To be filled out by the THC Authority (Security/Facilities):

Authorizations:

Time:		Date:	
Authorized By (Redevelopment Office):			
Time:		Date:	
Authorized By (Facilities Services Office):			

Final Inspections:

<input type="checkbox"/> Inspection required upon completion	<input type="checkbox"/> Not required by Security & Life Safety	<input type="checkbox"/> Next working day	<input type="checkbox"/> Not required by Facility Services
--	---	---	--

For Administration Use Only:

Shutdown Has Been Entered into Calendar?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Has the Work Request Been Received?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

H.4: Hot Work Policy & Permit

Hot Work Management

If work requires the use of an open flame or there is the potential of hot sparks such as when involving welding, grinding and/or cutting, the *Contractor* or service person must obtain a Hot Work Permit. Fires and/or explosions caused by hot work or conditions that may lead to hazardous events are not tolerated at the *Hospital*. The following Hot Work Policy is to be implemented for all hot work activities at existing facilities or new construction sites. The policy mandates thorough and effective hot work procedures which describes a mandatory, supervised, step-by-step, hot work permit system and applies to all employees and *Contractors*.

'Hot Work' is defined as work using open flames or sources of heat that could ignite materials in the work area. This kind of work may cause the building's fire alarm system to be activated or create an unwarranted fire risk condition.

Policy

It should be mandated that *Contractors* should be in possession of an approved Hot Work Permit obtained from the *Project Manager* before hot work begins. The first step is to ensure alternatives to hot work are always considered and encouraged (i.e. cold work options). Contractors hired to do work potentially involving hot work must comply with all requirements of the hot work permitting process and should be overseen by the *Facilities Project Manager* through the *Project Manager*.

The following FM Global Hot Work Permit outlines the key items for the Contractor or Serviceperson to consider in mitigating the hazards associated with hot work. See the following 4 pages for a ***sample copy*** of the ***FM Global Hot Work Permit*** with the original form obtained from the ***Facilities Project Manager*** through the ***Project Manager***. Some of the key steps of the FM Global Hot Work Permit System include:

1. Prohibit hot work where conditions are severe beyond correction (i.e. lint or dust accumulations or presence of flammable liquids/vapours).
2. Available fire protection is verified to be in service and operable.
3. The 35-foot rule (10 m): Keep combustible materials at least 35 ft (10m) away from the hot work. Use FM Approved blankets, weld pads, or curtains to cover any combustible construction and/or nonremovable combustibles within a 35 ft radius.
4. Enforce all job-specific precautions as listed on the Hot Work Permit. Notify FM Global and/or HIROC if you have any questions about hot work activity.
5. Issue Part 2 of the Hot Work Permit to the person doing the job. Ensure fire watch is provided during and for 60 minutes after work. Hot work should be monitored for 3 additional hours after hot work has been completed (unless your FM Global engineer has provided an exception to the monitoring period based on the risk matrix). Keep Part 2 on file for future reference, including signed confirmation that the post-work fire watch and monitoring have been completed.
6. Sign off the final check on Part 2 of the Hot Work Permit through the *Project Manager*. Keep records for review by the *Facilities Project Manager* and FM Global.


All personnel involved in the hot work policy procedure, including facilities staff, *Contractors* or *Subcontractors* should complete the FM Global Hot Work training on the FM Global Training website and present a certification of completion prior to the start of the work: <https://training.fmglobal.com/>

HOT WORK PERMIT

STOP!

Avoid hot work or seek an alternative/safer method, if possible.

This *Hot Work Permit* is required for any temporary operation involving open flames or producing heat and/or sparks. This includes, but is not limited to: brazing, cutting, grinding, soldering, torch-applied roofing and welding.


Instructions		Part 1	Required Precautions Checklist
1. Firesafety supervisor: A. Verify precautions listed at right (or do not proceed with the work). B. Complete and retain Part 1. (Part 1A is for quality assurance documentation, if necessary.) C. Issue Part 2 to person performing hot work.			<input type="checkbox"/> Available sprinklers, hose streams and extinguishers are in service/operable. <input type="checkbox"/> Hot work equipment in good working condition.
			Requirements within 35 ft. (11 m) of hot work <input type="checkbox"/> Flammable liquid, dust, lint and oily deposits removed. <input type="checkbox"/> Explosive atmosphere in area eliminated. <input type="checkbox"/> Floors swept clean. <input type="checkbox"/> Combustible floors wet down, covered with damp sand or fire-resistive sheets. <input type="checkbox"/> Remove other combustible material where possible. Otherwise, protect with FM Approved welding pads, blankets and curtains, fire-resistive tarpaulins or metal shields. <input type="checkbox"/> All wall and floor openings covered. <input type="checkbox"/> FM Approved welding pads, blankets and curtains installed under and around work. <input type="checkbox"/> Protect or shut down ducts and conveyors that might carry sparks to distant combustible material.
Hot work by <input type="checkbox"/> Employee <input type="checkbox"/> Contractor _____			
Date _____ Job number _____			
Location/building and floor _____			
Nature of job _____			
Name (print) and signature of person performing hot work _____			
I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for this work.			
Name (print) and signature of firesafety supervisor/operations supervisor _____			
Permit Expires	Date _____	Time _____ <small>a.m. p.m.</small>	
Note: Emergency notification on back of form. Use as appropriate for your facility.			
To order additional hot work permits or other FM Global resources, order online 24 hours a day, seven days a week, at www.fmglobalcatalog.com .			
		F2630 (REV. 6/07) Printed in USA (6/07) © 2003–2007 FM Global All rights reserved.	
		Fire watch/hot work area monitoring <input type="checkbox"/> Fire watch will be provided during and for 60 min. after work, including any break activity. <input type="checkbox"/> Fire watch is supplied with suitable extinguishers, and where practical, a charged small hose. <input type="checkbox"/> Fire watch is trained in use of equipment and in sounding alarm. <input type="checkbox"/> Fire watch may be required in adjoining areas, above and below. <input type="checkbox"/> Monitor hot work area for an additional three (3) hours after the 60-min. fire watch.	
		Other precautions taken: <input type="checkbox"/> _____ <input type="checkbox"/> _____	

HOT WORK PERMIT

STOP!

Avoid hot work or seek an alternative/safer method, if possible.

This *Hot Work Permit* is required for any temporary operation involving open flames or producing heat and/or sparks. This includes, but is not limited to: brazing, cutting, grinding, soldering, torch-applied roofing and welding.

Instructions		Part 1A
1. Firesafety supervisor: A. Verify precautions listed at right (or do not proceed with the work). B. Complete and retain Part 1, (Part 1A is for quality assurance documentation, if necessary.) C. Issue Part 2 to person performing hot work.		Required Precautions Checklist <input type="checkbox"/> Available sprinklers, hose streams and extinguishers are in service/operable. <input type="checkbox"/> Hot work equipment in good working condition. Requirements within 35 ft. (11 m) of hot work <input type="checkbox"/> Flammable liquid, dust, lint and oily deposits removed. <input type="checkbox"/> Explosive atmosphere in area eliminated. <input type="checkbox"/> Floors swept clean. <input type="checkbox"/> Combustible floors wet down, covered with damp sand or fire-resistive sheets. <input type="checkbox"/> Remove other combustible material where possible. Otherwise, protect with FM Approved welding pads, blankets and curtains, fire-resistive tarpaulins or metal shields. <input type="checkbox"/> All wall and floor openings covered. <input type="checkbox"/> FM Approved welding pads, blankets and curtains installed under and around work. <input type="checkbox"/> Protect or shut down ducts and conveyors that might carry sparks to distant combustible material. Hot work on walls, ceilings or roofs <input type="checkbox"/> Construction is noncombustible and without combustible covering or insulation. <input type="checkbox"/> Combustible material on other side of walls, ceilings or roofs is moved away. Hot work on enclosed equipment <input type="checkbox"/> Enclosed equipment cleaned of all combustible material. <input type="checkbox"/> Containers purged of flammable liquid/vapor. <input type="checkbox"/> Pressurized vessels, piping and equipment removed from service, isolated and vented. Fire watch/hot work area monitoring <input type="checkbox"/> Fire watch will be provided during and for 60 min. after work, including any break activity. <input type="checkbox"/> Fire watch is supplied with suitable extinguishers, and where practical, a charged small hose. <input type="checkbox"/> Fire watch is trained in use of equipment and in sounding alarm. <input type="checkbox"/> Fire watch may be required in adjoining areas, above and below. <input type="checkbox"/> Monitor hot work area for an additional three (3) hours after the 60-min. fire watch. Other precautions taken: <input type="checkbox"/> <input type="checkbox"/>
Hot work by <input type="checkbox"/> Employee <input type="checkbox"/> Contractor		
Date	Job number	
Location/building and floor		
Nature of job		
Name (print) and signature of person performing hot work		
I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for this work.		
Name (print) and signature of firesafety supervisor/operations supervisor		
Permit Expires	Date	Time a.m. p.m.
Note: Emergency notification on back of form. Use as appropriate for your facility.		
To order additional hot work permits or other FM Global resources, order online 24 hours a day, seven days a week, at www.fmglobalcatalog.com .		
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WARNING!

HOT WORK IN PROGRESS. Watch for fire!

Instructions

1. Person performing hot work: Indicate time started and post permit at hot work location. After hot work is completed, indicate time and leave permit posted for fire watch.
2. Fire Watch: Watch area during hot work and for 60 min. after completion. Prior to leaving area, perform final inspection, sign, leave permit posted and notify firesafety supervisor.
3. Monitor: Monitor area for additional three (3) hours. Perform final inspection, sign and return to firesafety supervisor.

Hot work by

☐ Employee

☐ Contractor _____

Date

Job number

Location/building and floor

Nature of job

Name (print) and signature of person performing hot work

I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for this work.

Name (print) and signature of firesafety supervisor/operations supervisor

Time started

Time finished

☐ a.m. ☐ p.m.

☐ a.m. ☐ p.m.

Permit Expires

Date

Time

a.m.
p.m.

Fire watch signoff: Work area and all adjacent areas to which sparks and heat might have spread were inspected during the watch period and were found firesafe.

Signed: _____

Final checkup: Work area was monitored for three (3) hours following completion of the 60-min. fire watch and found firesafe.

Signed: _____

PART 2

Required Precautions Checklist

☐ Available sprinklers, hose streams and extinguishers are in service/operable.

☐ Hot work equipment in good working condition.

Requirements within 35 ft. (11 m) of hot work

☐ Flammable liquid, dust, lint and oily deposits removed.

☐ Explosive atmosphere in area eliminated.

☐ Floors swept clean.

☐ Combustible floors wet down, covered with damp sand or fire-resistive sheets.

☐ Remove other combustible material where possible. Otherwise, protect with FM Approved welding pads, blankets and curtains, fire-resistive tarpaulins or metal shields.

☐ All wall and floor openings covered.

☐ FM Approved welding pads, blankets and curtains installed under and around work.

☐ Protect or shut down ducts and conveyors that might carry sparks to distant combustible material.

Hot work on walls, ceilings or roofs

☐ Construction is noncombustible and without combustible covering or insulation.

☐ Combustible material on other side of walls, ceilings or roofs is moved away.

Hot work on enclosed equipment

☐ Enclosed equipment cleaned of all combustible material.

☐ Containers purged of flammable liquid/vapor.

☐ Pressurized vessels, piping and equipment removed from service, isolated and vented.

Fire watch/hot work area monitoring

☐ Fire watch will be provided during and for 60 min. after work, including any break activity.

☐ Fire watch is supplied with suitable extinguishers, and where practical, a charged small hose.

☐ Fire watch is trained in use of equipment and in sounding alarm.

☐ Fire watch may be required in adjoining areas, above and below.

☐ Monitor hot work area for an additional three (3) hours after the 60-min. fire watch.

Other precautions taken:

☐ _____



WARNING!

HOT WORK IN PROGRESS

Watch for fire!

In case of emergency:

Call: _____

At: _____

WARNING!



H.5: Fire Watch Patrol Log

Date: [YY/MM/DD]	Project Ref. No (If Available)
Start Time:	Brief Description of Work:
Estimated Duration:	
Contractor:	
Fire Watch is being conducted by:	Location:
<input type="checkbox"/> Contractor	Site:
<input type="checkbox"/> Security	Building:
<input type="checkbox"/> Occupational Health and safety	Room No.

Time:	Name:	Initial:

Fire Watch Patrol Log 2024.02.15

At Work Completion Return a Copy of This Log to the Capital Planning & Redevelopment *Project Manager* or Designate.

J: Electrical Lock-Out Procedure

Effective Date: 2017/10/13

Purpose/Rational:

To provide a procedure that establishes the minimum requirements for the lockout and tagout of energy sources that has the potential to cause injury to personnel as outlined by the Occupational Health and Safety Act (O. Reg. 67/93, s.66).

To ensure all equipment and/or circuits that have the potential to harm the safety of staff be locked out using an isolating device such as a lock to protect against accidental or inadvertent equipment operation and tag the equipment in appropriate manner as to identify the type of work being performed, and the time and date in which the energy source was disconnected (O. Reg. 67/93, s. 67).

Policy:

The primary responsibility of proper lockout of equipment and/or circuits on a project belongs to the project Manager and/or Team Leader. However, this does not alleviate the field employees from ensuring that proper lockout procedures are followed at all times. The Manager and/or Team Leader will ensure that each employee is properly instructed in the safety significance of lockout procedures.

Any employee found to be working, or causing others to work on, equipment and or/circuits that, in the opinion of management should have been locked out, will be subject to severe disciplinary actions up to and including termination.

Users:

- Facilities Project Manager / Team Leads
- Facilities Frontline Personnel
- Contractors

Responsibilities:

The Supervisor shall:

- Develop specific procedures for controlling hazardous energy for each piece of equipment that falls under this procedure;
- Identify *Hospital* employees requiring training, including re-training;
- Communicate procedures to affected workers or *Contractors* and ensure compliance;
- Monitor the testing of equipment to ensure the effectiveness of the energy controlling measures;
- Provide and maintain any required material e.g. locks, tags, wedges, etc. in order to isolate equipment from energy sources;
- Ensure lock-out documentation is completed and filed for future reference by officials; and
- Take all reasonable precautions necessary to protect the safety of workers as required under the terms of the *Occupational Health and Safety Act, Ontario Electrical Code* and related regulations.

The Worker shall:

- Evaluate hazards of the work to be performed and confirm a zero state of energy has been achieved. Eliminate the possibility of any release of stored energy;
- Ensure the safety of themselves and others by adhering to the lockout procedures;
- Advise their Supervisor of any alterations or changes that would require the addition/change of a lock-out device;
- Advise Supervisor if lock-out device(s) is not available or will not function;
- Participate in mandatory lock-out training. *Hospital* contract employees are not required to attend training, but are required to adhere to *Hospital* policies and procedures at all times;
- Workers shall not remove, interfere or disturb any locks or tags that are not their own;
- Report to the Supervisor any hazards that he/she becomes aware of; and
- Work in compliance with the *Occupational Health and Safety Act*, *Ontario Electrical Code* and related regulations.

Procedure:

Solitary Lockout / Tagout

1. The employer shall notify all affected staff with instruction and reason that a lockout is required on a specific piece of equipment and/or circuit.
2. If the equipment is in operation, after obtaining approval, shut it down by the normal stopping procedures. Only workers knowledgeable in the operation of the specific equipment should perform shutdown or re-start procedures.
3. Operate the switch, valve, or any other energy isolating device so that all energy sources (electrical, mechanical, hydraulic, gravitational, or pneumatic) are disconnected or isolated from the equipment and/or circuits. Stored energy, such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure must also be dissipated or restrained by methods such as grounding, repositioning, blocking, or bleeding down.
4. Where the lockout procedure is complex, a written sequence in checklist form should be prepared for equipment access, lockout/ tagout, clearance, release and start-up. If a written sequence is not required, proceed to step 5.
5. After ensuring that no personnel are exposed to the equipment / circuit and an additional check verifies that the energy source is disconnected, operate the push button or other normal operating controls to make certain the equipment will not operate. Pulling out a fuse is not a substitute for locking out a device.
6. All affected employees are then required to lockout the energy devices with their own individual lock. In the event that electrical circuits have already been locked out, ensure that the circuits are de-energized by applying an appropriate voltage tester that has been tested on live circuits. If this is not required, proceed to step 7
7. Apply a tag on the equipment/ circuit being locked out clearly indicating the name of the person who applied the lockout device, the current date and time, and the reason for the lockout. This helps identify who is servicing the machinery or equipment.

Group Lockout / Tagout

1. Follow steps 1 – 5 from the previous procedure.
2. If more than one worker is working on the same piece of equipment and/ or circuit at the same time (e.g. facilities staff and contractor), each person should lock out the equipment by placing a personal lock and tag on the group lockout device before beginning work. If this is not feasible, a designated individual of the work crew such as a project Manager or Team Lead with complete knowledge of who is on the crew may act as the individual responsible for carrying out all steps of the lockout procedure. That individual will inform the work crew when it is safe to work on the equipment and/ or circuit.
3. In the event that electrical circuits have already been locked out, ensure that the circuits are de-energized by applying an appropriate voltage tester that has been tested on live circuits. If this is not required, proceed to step 4.
4. The equipment and/or circuits are now locked out
5. Each person working on the equipment / circuit must apply a tag on the equipment/ circuit being locked out clearly indicating the name of the person who applied the lockout device, the current date and time, and the reason for the lockout. This helps identify all who are servicing the machinery or equipment.

Restoring Equipment and/ or Circuits to Service

1. Before locks and tags are removed and energy is restored to the machine or equipment, inspect the work area to ensure that all non-essential items have been removed and that the machine or equipment components are operationally intact. In cases of a group lockout, this can be done by the designated lead.
2. Ensure all workers are a safe distance from any potential hazard
3. Locks and tags should be removed from the energy isolating device by the worker who applied the lock and tag. In the case of group lockout, each person must verify they have completed their portion of work and only remove their own lock and tag. This must be verified by the designate lead individual before re-energizing the equipment / circuit.
4. In the event that the worker who applied the lock and tag is absent, or otherwise unavailable to remove his or her personal lock(s), the supervisor may remove their employee's lock by taking the following steps:
 - Employer must verify that the authorized employee who placed the lock and tag is not in the facility.
 - Employer must make all reasonable efforts to contact the authorized employee to inform them that their lock device will be removed.
 - Employer must inform the authorized employee that their lock has been removed before they resume work at the facility.
 - Supervisor must provide a form to document the steps taken during the entire process of removing their employees lock device.
5. Notify all affected workers that locks and tags have been removed, and only when determined safe, re-energize the equipment/ circuit
6. For further information regarding this procedure, contact the Project Manager to request information from the Director, Facilities Operations.

References:

- [Occupational Health and Safety Act - Electrical Equipment O.Reg.67-93](#)

K.1: IPAC Construction Permit

Preface: Complete **Sections 1 to 3** to establish a Risk Group. If the Preventative Measures Level (PML) indicates a Class III or Class IV area of work, an IPAC Construction Permit will be required to be completed by the Project Manager and signed off by the Hospital's Infection Prevention and Control "Designate" (IPAC) and by People Safety & Support "Designate".

Note: An IPAC Permit is also required when construction activities need to be carried out in corridors adjacent to Class III and Class IV areas. Typically, the completed IPAC Construction Permit is included within the project specifications as part of the RFQ/RFP documents.

IPAC & People Safety & Support - Construction Permit (June, 2023)

Hospital Site ☐ M ☐ C ☐ Q

Background

Construction can be a cause of *Hospital* outbreaks that lead to significant infections and even deaths. Workers need to be aware of the risks and the necessary precautions when they are working in a health care facility that has a large proportion of seriously ill and immunocompromised patients. Even non-patient care areas within the *Hospital* can impact on patients, e.g., contaminated air ducts, bandages, pharmacy supplies. Therefore, it is most important that the guidelines below are followed during construction. Please note that occasionally during construction, modifications are made to the original specifications. If these will change the level of construction activity, this assessment could need to be updated.

PLEASE COMPLETE ALL BLANKS UP TO IPAC & People Safety SECTION

Permit submitted by:

Extension:

Department:

Date:

Project location:

Department
manager:

Project name:

Estimated duration:

Start date:

End date:

Contractor/Company:

Team Leader/ Project
Manager:

Phone number:

Phone number:

Project reason and scope:

SECTION 1: Population and Geographic Risk Groups (please check (✓) appropriate group)

Group 1 Lowest Risk	<input type="checkbox"/> Office areas <input type="checkbox"/> Unoccupied wards <input type="checkbox"/> Public areas
Group 2 Medium Risk	<input type="checkbox"/> All other patient care areas unless stated in Group 3 or 4 <input type="checkbox"/> Outpatient clinics (except for oncology & surgery) <input type="checkbox"/> Admission/discharge units
Group 3 Medium to High Risk	<input type="checkbox"/> Emergency room <input type="checkbox"/> Radiology/MRI <input type="checkbox"/> Post anesthesia care units <input type="checkbox"/> Birthing Suites/Mother and baby (non-operating room) <input type="checkbox"/> Normal newborn nurseries <input type="checkbox"/> Day surgery <input type="checkbox"/> Nuclear medicine <input type="checkbox"/> Physiotherapy tank areas <input type="checkbox"/> Echocardiography <input type="checkbox"/> Laboratories (specimens) <input type="checkbox"/> General med/surg wards other than those listed in Group 4 <input type="checkbox"/> Pediatrics <input type="checkbox"/> Geriatrics
Group 4 Highest Risk	<input type="checkbox"/> All ICUs <input type="checkbox"/> All ORs <input type="checkbox"/> Labour & delivery ORs <input type="checkbox"/> Anesthesia and pump areas <input type="checkbox"/> Oncology units and outpatient clinics for patients with cancer <input type="checkbox"/> Transplant units and outpatient clinics for patients who have received bone marrow or solid organ transplants <input type="checkbox"/> Wards and outpatient clinics for patients with AIDS/immunodeficiency <input type="checkbox"/> Dialysis units <input type="checkbox"/> Tertiary care nurseries <input type="checkbox"/> All cardiac catheterization & angiography areas <input type="checkbox"/> Cardiovascular/cardiology patients <input type="checkbox"/> All endoscopy areas <input type="checkbox"/> Pharmacy admixture rooms <input type="checkbox"/> Sterile processing rooms

SECTION 2: Construction Activity Type

CONSTRUCTION ACTIVITY TYPE (please check (✓) all that apply)	
Type A	Inspection and non-invasive activities. <u>Includes, but is not limited to:</u> <ul style="list-style-type: none"> <input type="checkbox"/> activities that involve a single controlled opening in a wall or ceiling for minor work or visual inspection, that is accessed by <ul style="list-style-type: none"> • removing no more than one ceiling tile; or • opening of an access panel on a wall or ceiling <input type="checkbox"/> painting (but not sanding) and wall covering. <input type="checkbox"/> electrical trim work <input type="checkbox"/> minor plumbing work that disrupts the water supply to the localized patient care area (i.e., one room) for less than 15 min <input type="checkbox"/> other maintenance activities that do not generate dust or require cutting of walls or access to ceilings other than for minor work or visual inspection as described in the first bullet above
Type B	Small-scale, short-duration (e.g., less than 2h) activities creating minimal dust. <u>Includes, but is not limited to:</u> <ul style="list-style-type: none"> <input type="checkbox"/> activities that require access to and use of chase spaces <input type="checkbox"/> cutting a small opening in a contained space where dust migration can be controlled, e. g., cutting of walls or ceilings to provide an access point for installing or repairing minor electrical work, ventilation components, telephone wires, or computer cables <input type="checkbox"/> sanding or repair of a small area of a wall <input type="checkbox"/> plumbing work that disrupts the water supply of one or more patient care areas for less than 30 min
Type C	Activities that generate a moderate to high level of dust, cause a moderate service disruption, require demolition, require removal of a fixed facility component (e.g., a sink) or assembly (e.g., a countertop or cupboard) or cannot be completed in a single work shift. <u>Includes, but is not limited to:</u> <ul style="list-style-type: none"> <input type="checkbox"/> activities that require sanding of a wall in preparation for painting or wall covering <input type="checkbox"/> removal of floor coverings, ceiling tiles and casework <input type="checkbox"/> new wall construction <input type="checkbox"/> minor ductwork <input type="checkbox"/> electrical work above ceilings <input type="checkbox"/> major cabling activities
Type D	Activities that generate high levels of dust, activities that necessitate significant service disruptions, and major demolition and construction activities requiring consecutive work shifts to complete. <u>Includes, but is not limited to:</u> <ul style="list-style-type: none"> <input type="checkbox"/> soil excavation <input type="checkbox"/> new construction that requires consecutive work shifts to complete <input type="checkbox"/> activities that involve heavy demolition or removal of a complete cabling system <input type="checkbox"/> Plumbing work that disrupts the water supply of one or more patient care areas for 1 h or more

SECTION 3: Preventative Measure Level

Enter Preventative Measure Level (I, II, III, IV): _____

Preventative Measures Analysis: A permit is required for all shaded areas (III, IV)

	Construction Activity			
Risk Group	Type A	Type B	Type C	Type D
Group 1	I	II	II	III or IV
Group 2	I	II	III	IV
Group 3	I	III	III or IV	IV
Group 4	III	III or IV	III or IV	IV

SECTION 4: Surrounding Areas

From CSA Z317.13:22 Annex C: Project Analysis and Infection Control Risk Assessment (ICRA) during the planning stages

1. Multidisciplinary Team, hereafter referred to as **MDT** to identify the areas surrounding the project area, assessing potential impact:

Unit Below	Unit Above	Lateral Left	Lateral Right	Behind	Front
Risk Group	Risk Group	Risk Group	Risk Group	Risk Group	Risk Group

2. MDT to consider location of high-risk patients in relation to construction activity. Do any populations need to be relocated?
3. MDT to identify the specific site of activity (e.g., patient room, medication room) assessing potential impact:
4. MDT considers current HVAC systems, air quality, and filtration. Do the *Contractors* need to supply their own HVAC to the construction site? Will they be permitted to utilize base building HVAC for heating and cooling needs?
5. MDT to consider what air monitoring (if any) will be required for the project. Discuss the requirement for the collection of baseline samples prior to project start.
6. MDT to identify and discuss potential issues related to ventilation, plumbing, and electrical in terms of occurrence of probable outages shutdowns and tie-ins, and coordinate arrangements with clinical department manager, operation and maintenance managers, and infection prevention and control. Determine work hours in consultation with clinical area manager, plant maintenance, and infection prevention and control.

7. MDT to identify containment measures, using prior assessment. Identify types of barriers and consider how they may impact spaces and operations (e.g., solid walls, 6 mil poly):
8. MDT to consider potential risk of water damage. Is there a risk due to compromising structural integrity (e.g., wall, ceiling, roof)?
9. MDT to discuss designated substance concerns and reports, including asbestos, mould, and lead:
10. MDT to plan to discuss the following containment issues with the project team:
 - a) Traffic flow: considerations for patients, health care workers, and *Contractor*, including separation of clean and dirty activities:
 - b) Housekeeping: specific cleaning requirements in the specified area (e.g., operating rooms (ORs), medical device reprocessing department (MDRD), pharmacy):
 - c) Material deliveries and debris removal (how and when?), including path of travel and loading dock access.
11. MDT to discuss the use of HCF amenities (e.g., washrooms, cafeteria). Will the *Contractor* be given permission to use services inside the facility?
12. MDT to be aware of material delivery and storage. Will there be a designated storage area provided to the *Contractor*?

Identify and communicate the responsibility for project monitoring that includes infection prevention and control concerns and risks. The ICRA may be modified throughout the project but shall be accepted by infection prevention and control and the Capital Planning and Redevelopment *Project Manager*.

Section 5: Additional Precautions (IPAC): ☐ See additional recommendations

People Safety Requirements (OHSA O.Reg. 67/93):

What are the potential work hazards?	How will you control them to minimize risk?
<input type="checkbox"/> Exposure to biological hazards (mould, viruses, bacteria, etc.)	
<input type="checkbox"/> Noise	
<input type="checkbox"/> Chemicals/Noxious odours (Provide MSDS/SDS to PS for review prior to project start)	
<input type="checkbox"/> Possible exposure to hazardous building materials (asbestos, lead, etc.)	
<input type="checkbox"/> High energy sources (electrical, pressure, steam, etc.)	
<input type="checkbox"/> Fire hazard (sparks from open flame, welding, cutting, etc.)	
<input type="checkbox"/> Working at height	
<input type="checkbox"/> Risk of falling objects	
<input type="checkbox"/> Heavy equipment / materials	
<input type="checkbox"/> Working in an area with high risk of violence	
<input type="checkbox"/> Confined space entry	
<input type="checkbox"/> Other:	

Projected utility outages impacting IPAC: *(Check (✓) all that apply and provide details including length of time and all areas affected)*

- ☐ Electrical
- ☐ Water (Refer to [Appendix 'K.2'](#))
- ☐ HVAC (Refer to [Appendix 'K.3'](#))
- ☐ Other _____

Please indicate if additional documents are attached: (Phase schedules, floor plans, etc.)

☐ Additional document(s) attached:

Traffic

- 1) Proposed traffic pattern for *Contractors* and equipment/supplies:
- 2) Proposed traffic pattern and time for garbage disposal:
- 3) Disposal site:
- 4) Proposed traffic pattern for healthcare workers, patients and public:

Communication

Those requesting the permit are responsible for organizing the following communications:

- Communications are required to re-route traffic: ☐ Yes ☐ No
- 1) Construction zone signs are required: ☐ Yes ☐ No
- 2) Manager of affected area(s) aware of project details and dates: ☐ Yes ☐ No

IPAC and People Safety approval sign off
(This permit is to be signed and posted at the construction site)

Permit approved by:	Initials:
Department:	Extension:
Date:	
Permit approved by:	Initials:
Department:	Extension:
Date:	

SECTION 6: Preventative Measure Level (PML) - Description

PML I: PML I measures shall be followed

1. Review infection control construction agreement before work begins.
2. Execute work by methods to minimize raising dust from construction operations.
3. Protect patient care equipment and supplies from dust exposure.
4. Immediately replace any ceiling tile displaced for visual inspection.
5. Report discoloured water and water leaks to maintenance.

PML II: PML I and II measures shall be followed

1. Determine a safe route for the transportation of clean or sterile supplies and equipment away from the construction area.
2. Establish traffic patterns for construction workers that avoid, or at the minimum reduce, adverse impacts on patient care areas.
3. Provide active means to prevent airborne dust from dispensing into atmosphere.
4. Water mist work surfaces to control dust while cutting.
5. Seal unused doors with tuck tape.
6. Block off and seal air vents.
7. Wipe work surfaces with disinfectant.
8. Contain construction waste before transport in tightly covered containers.
9. Vacuum the area (with HEPA-filtered vacuum) and wet mop area daily with a hospital-grade low-level disinfectant.
10. Place dust mat at entrance and exit of work area.
11. Remove or isolate HVAC system in areas where work is being performed.
12. Flush potable water lines in the construction area and adjacent areas before reuse.

PML III: PML I, II and III measures shall be followed

1. Obtain infection control permit before construction begins.
2. Isolate HVAC system in area where work is being done to prevent contamination of duct system.
3. Complete all critical barriers or implement control cube method from floor to true ceiling (includes the areas above false ceilings) before construction begins.
4. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units.
5. Do not remove barriers from work area until complete project is thoroughly cleaned by housekeeping.
6. Vacuum the area (with a HEPA-filtered vacuum) and wet mop area daily with a hospital grade low-level disinfectant.
7. Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction.
8. Contain construction waste before transport in tightly covered containers.
9. Cover transport receptacles or carts. Tape cover in place.
10. Remove or isolate HVAC system in areas where work is being performed.
11. Consider hyper-chlorinating or superheating stagnant potable water
12. Some areas (e.g. public corridors) may be exempt in consultation with IPAC.

PML IV: PML I, II, III and IV measures shall be followed.

13. Construct anteroom at access points to the construction area if access is from within the health care facility.
14. Place walk off mat outside the anteroom in patient care areas and inside the anteroom.
15. Ensure construction workers:
 - a) leave the construction area through the anterooms so they can be vacuumed using a HEPA vacuum cleaner before leaving work site; or
 - b) wear protective clothing that is to be removed each time they leave the construction area and before going into patient care areas.
16. Repair holes in walls within 8 h or seal them temporarily.
17. Ensure that ventilation systems are working properly in adjacent areas.

K.2: IPAC Recommendations: Water Shutdowns

Hot and Cold Water Shutdowns - Infection Prevention and Control (IPAC) Recommendations

Preface: All planned and unplanned hot and/or cold water shutdowns should be scheduled in advance (for planned). Location, scope of work and duration will be obtained before starting any planned shutdowns. Recommendations will be obtained prior to commencement of scheduled work. The following recommendations outlined in this document should be adhered to. Work should be performed during periods of low user activity.

Effective Date: March 9 2017

Submitted to: Responsible *Project Manager*, Risk, Safety Specialist, Manager of affected unit, Corporate Services, Facilities, infection control

Prepared by: Infection Prevention and Control

Planned Hot and Cold Water shutdown	
Scope of Work:	
Projected Date, time and duration:	
Affected Areas:	
Areas with NO hot and cold water:	
Areas where NO hot water, cold water is not affected:	

IPAC makes the recommendations contained in this document based on the following assumptions:

- Contractor to provide a synopsis of the work being done to the *Project Manager* in order to Inform IPAC and Facilities.
- Unit Managers of affected areas are alerted of the project and scope through the *Project Manager*. Communication to staff are completed prior to commencing and after completion of the work.
- Water will be available for performing hand hygiene with soap and water for visitors, staff and patients of areas affected.
- Patients' showers/ bath, if required during the shutdown, should be postponed until hot and cold water supply is back

IPAC RECOMMENDATIONS:

Material/Water Stagnation

- Don't use material i.e. gaskets that would support Legionella growth
- Don't use faucet aerators
- Maintain dry work environment
- Ensure no water discoloration
- Avoid stagnate water i.e. do not use collection tanks or long pipes
- Hyperchlorinate or superheat domestic water systems or sections of systems that have been stagnant > 30 minutes
- In the event that the water supply is stagnate for > 30 minutes or water repressurization occurs, the water lines in the construction area and adjacent patient care areas shall be flushed before reuse.

Hand Hygiene

- Units will be provided with large jugs of water, to be designated for hand hygiene **only** and kept in a clean area at the nursing station.
- Hand hygiene must be performed as follows:
 1. Before patient environment contact
 2. After patient or patient environment contact
- Perform hand hygiene using soap and bottled water if hands are visibly soiled

References:

- *CSA Z317.13-12 Infection control during construction, renovation, and maintenance of health care facilities- Section 6.8 and 7*
- *CSA Z317.1-09 Special requirements for plumbing installations in health care facilities Section 4*

K.3: IPAC Recommendations: HVAC Shutdowns

Infection Prevention and Control during Air Handling Unit Shutdown Recommendations

Preface: *Planned and Unplanned Air Handling Unit (AHU) Shutdowns in the following Critical Areas shall adhere to the recommendations as outlined in this document.*

General Recommendations:

- Except for maintenance, repair, testing of emergency backup capacity or new construction, Heat, Ventilation and Air Conditioning (HVAC) systems should not be shut down in any patient care areas.
- Planned AHU shutdowns are recommended to occur after-hours or weekends to mitigate risk to staff/patients.

Specific Recommendations:

- During repair to the ventilation system the following areas are recommended to be closed: Operating Rooms/PACU/MDR/Reprocessing/Cardiac Procedures/L&D/CSR/NICU
- In circumstances where unavoidable emergency procedures are required:
 - Grill Mask will be placed over all ventilation grills in affected procedure rooms. Ensure humidifiers are shut down during maintenance/repair to avoid excess moisture and humidity. Ensure Grill masks are clean and arrive on site in sealed packaging and stored appropriately.
 - Avoid all unnecessary traffic in affected areas and keep doors closed.
- Ensure a Policy and Procedure is in place for regular maintenance of Portable HEPA Filtration Units
- Ensure humidifiers are shut down during maintenance/repair to avoid excess moisture and humidity
- Ensure humidity and temperature are monitored in OR's, Sterile Core and Clean Utility rooms in OR & MDR

Affected Area	Planned AHU Shutdown	Unplanned AHU Shutdown
<ul style="list-style-type: none"> • Negative Pressure Rooms • Intensive care units (ICU, NICU, CVICU) • Operating rooms (including prep, induction, post-anesthetic care unit (PACU) + scrub areas) • Anesthesia storage areas and workrooms • Oncology units and outpatient clinics • Transplant units and outpatient clinics • Dialysis units • Birthing suite operating rooms • Cardiac catheterization and angiography areas • Interventional radiology, Diagnostic imaging • Cardiovascular and cardiology patient areas • Endoscopy • Pharmacy admixture rooms • Medical device reprocessing areas • Central sterile supply, Clean and sterile storage • Tissue culture laboratories • Bronchoscopy • Cystoscopy • Pacemaker insertion rooms • Dental procedure room 	Procedure <ul style="list-style-type: none"> • Remove all unnecessary equipment and supplies • Apply "Grill Mask" to all open ventilation grills (shut down AHU and humidifiers to affected areas) • Keep all doors closed to this area • Ensure no unnecessary traffic • Once work has been completed in the affected critical area, a minimum of 20 minutes settle time is required after the AHU has been turned back on followed by a horizontal clean or terminal if walls or ceiling are visibly soiled with dust 	OR rooms: <ul style="list-style-type: none"> • Send all opened or exposed (stored on open shelving) sterile sets and reusable instruments to MDR for reprocessing. • Sterile sets stored in a closed cabinets will be visually inspected by trained SPD or OR staff for breaches in sterility (i.e. moisture, dust and holes). If sterile integrity of sets has been breached, they must be sent for reprocessing/discarded. • Complete safety event report

K.4: IPAC Pre-Construction Preventative Measure Checklist

Preface: The following checklist shall be completed by the Infection Prevention and Control Office and People Safety & Support representatives as part of inspections for Preventative Measures III and IV prior to Construction start. The document has been included for reference purposes only.

Date: _____ Time: _____ Project name/location: _____

Project Manager/Team Leader: _____ Contractor: _____

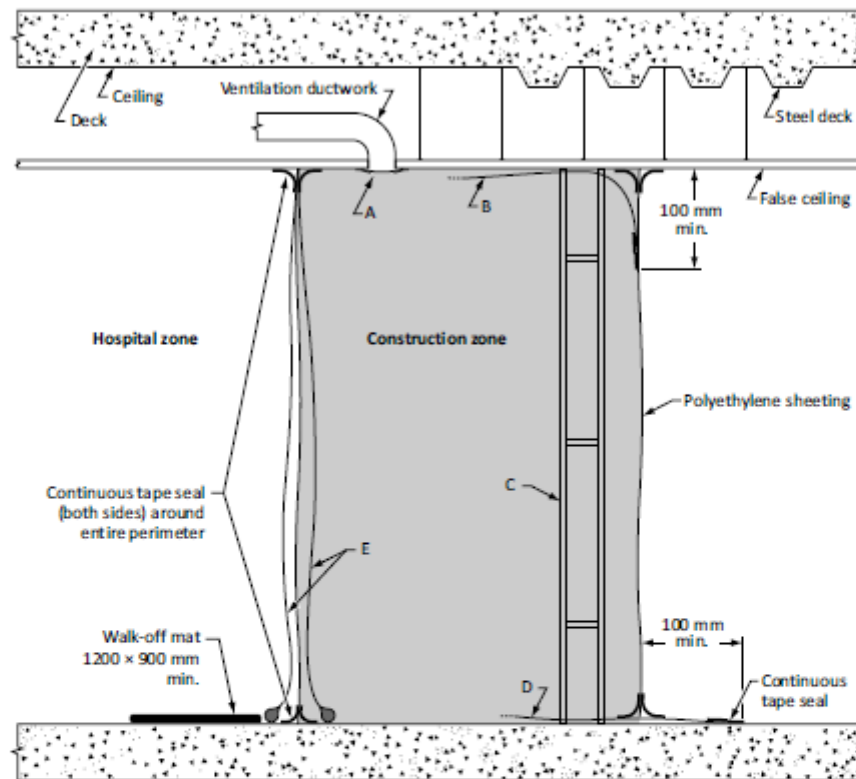
Pre Inspection by: _____

Infection Prevention and Control and People Safety (Occupational Health and Safety) Intervention	Compliant	Non-Compliant	N/A	Comments
<ul style="list-style-type: none"> HEPA Vacuum, coveralls, booties, cleaning supplies available at the work zone entrance. 				
<ul style="list-style-type: none"> Any pre-existing risk of exposure to biological hazards (mould, viruses, bacteria, etc.) 				
<ul style="list-style-type: none"> Impermeable dust barrier erected from floor to the true ceiling, consisting of two layers of 6 mil fire retardant poly and gypsum wallboard protective layer. The composition of the barrier requirements may change dependent on risk level. The polyethylene membrane shall be present under all circumstances to maintain the required pressurization. 				
<ul style="list-style-type: none"> Permit posted at work area 				
<ul style="list-style-type: none"> Hollow metal lockable doors. Frame and bottom sealed with weatherstripping. Weatherstripping flap at base of exterior anteroom door in contact with floor at all times. The strip is placed on the opposite side of the walk-off mat to avoid interference with the walk-off mat. Door closer for both interior and exterior, lockable hardware. Door specifications met: weather stripping, door closer (both interior & exterior), lockable hardware, door sweep. 				
<ul style="list-style-type: none"> IPaC Permit posted. 				
<ul style="list-style-type: none"> Traffic restricted to construction personnel and traffic control signs posted and intact. 				

• New designated entrance/exits are identified (if required)				
• Fire routes free of obstructions				
• Fire extinguisher available in construction zone				
• Construction personnel using designated entrance/exits and are following designated travel routes.				
• Walk-off/tack mats are at entrance/exit to site.				
<ul style="list-style-type: none"> • Negative air pressure (7.5 Pa or 0.03 in wc) maintained, logged, and posted outside of ante room. • Note: The monitoring device shall be no closer than 5 m of the entrance to the construction site and be located on the adjacent or exterior side of the dust barrier. This distance may be reduced if the configuration of the site does not permit a 5 m separation. 				
• All windows closed behind barrier.				
• HVAC system supply and return/exhaust air ducts/diffusers are sealed or isolated.				
• Patient care equipment and supplies have been removed for protected.				
• No tripping hazards to staff, patients or visitors				
• Doors and openings have been sealed with construction grade tape or poly.				
• All seams/penetrations to work area are sealed (doors, plumbing, electrical outlets, screw heads, etc.) including those above false ceilings.				
• CAHUs that will be used in a PM III or PMIV construction project shall be DOP tested and verified at the beginning of the project and certification sticker displayed on each unit.				
• Air is exhausted to the outside unless previously permitted by the multi-disciplinary team (in permit).				
• All noise controls in place				
• Posting of MOL Notice of Project (project cost exceeding \$50k) including OSHA and emergency contact				

K.5: IPAC Infection Control Barrier Configurations

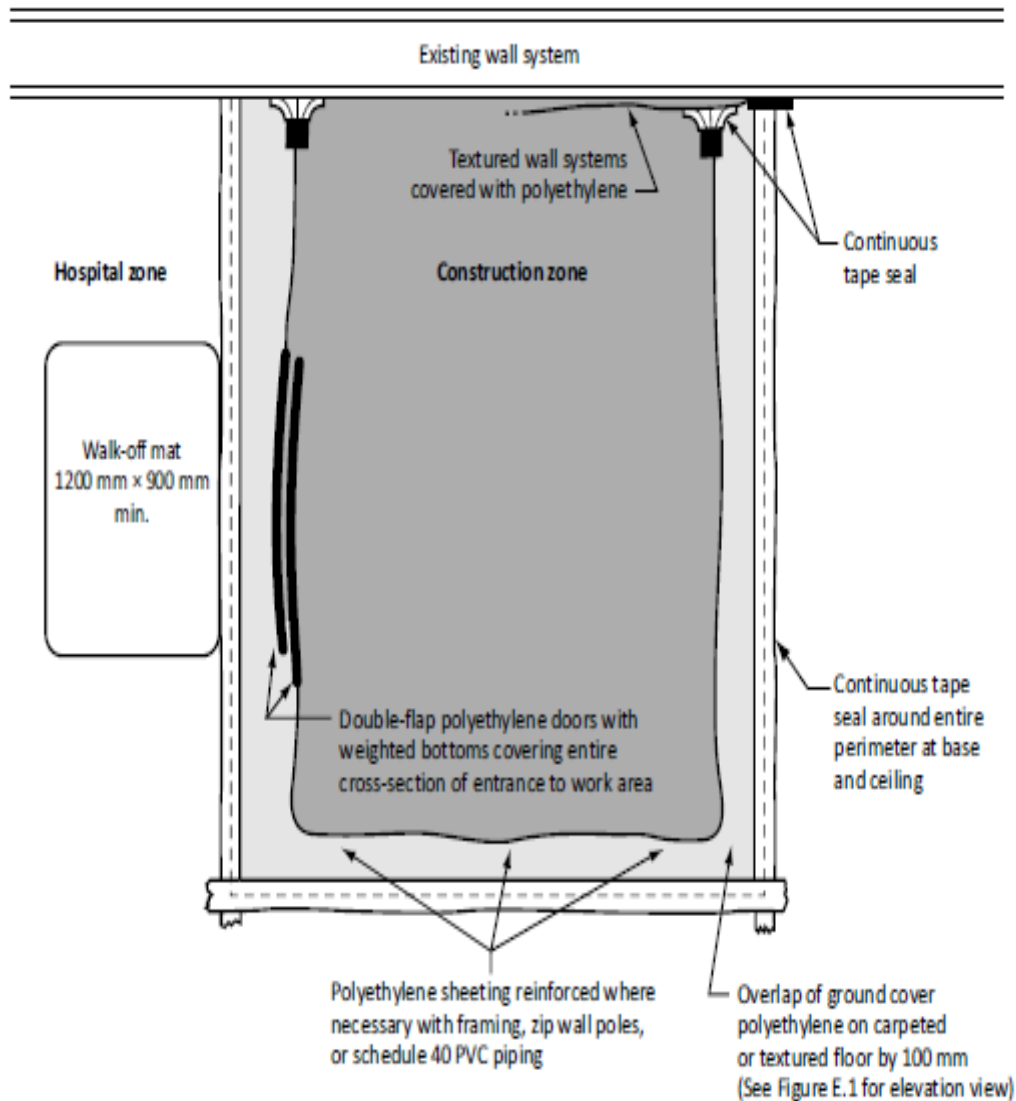
Figure E.1
 Preventive measure II infection control dust barrier, elevation view
 (See Clause 7.3.2.2.)



Legend:

- A = Windows, doors, shafts, access panels, electrical outlets, intakes, grilles, exhausts, vents, plumbing drains, and all other penetrations in the floor, walls, and ceilings are sealed.
- B = Textured, perforated, or drop ceilings are covered with polyethylene to be placed on the inside of vertical sheeting and taped with a continuous seal. Work above the false ceiling requires a barrier extending to the true ceiling.
- C = Polyethylene sheeting is reinforced where necessary with framing (metal or wood), zip wall poles, or schedule 40 PVC piping.
- D = Carpeted or textured floors have polyethylene sheeting of a minimum 12 mil thickness or two 6 mil sheets one on top of the other. Vertical sheeting overlaps the horizontal base sheet of polyethylene.
- E = Double-flap polyethylene sheeting of a minimum true 6 mil thickness weighted at the bottom. Each door covers the entire cross-section of entrance to work area and opens in both directions.

Figure E.2
Preventive measure II infection control dust barrier, plan view
 (See Clause 7.3.2.2.)



(See Clauses [7.3.3](#) and [7.3.4](#).)



Figure F.3 (Concluded)

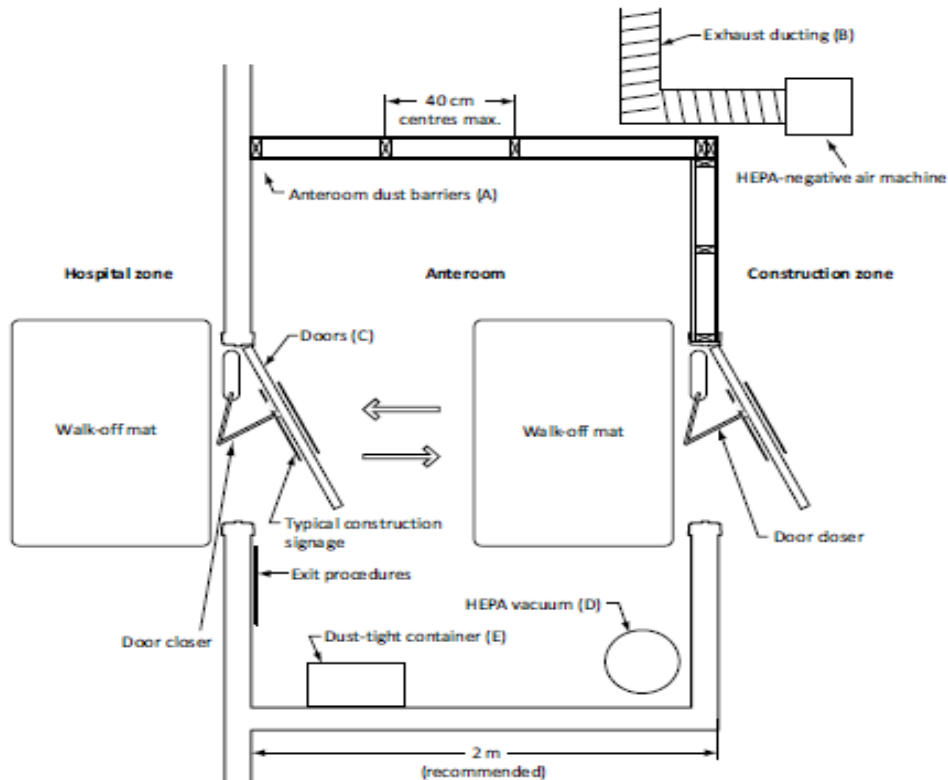
Legend:

- A = Seal windows, unused doors, shafts, access panels, electrical outlets, intakes, grilles, exhausts, vents, air supply and return vents, unused plumbing drains, and all other penetrations and sources of potential air leaks in the floor, walls, and ceilings.
- B = Seal the entire perimeter with continuous tape seal.
- C = Continuous tape seal on both sides of penetration through polyethylene.
- D = Adhere continuously both sides of top and bottom track with tape to floor and ceiling [i.e. false/ finished ceiling, true ceiling (underside of structure)].
- E = Two layers of continuous polyethylene sheeting, minimum 6 mil thickness with lapped joints, extending from true ceiling (underside of structure) to the floor.

Notes:

- 1) *Wall construction comprises 92 mm deep metal studs on 13 mm gypsum wallboard (both sides).*
- 2) *Install gypsum wallboard with a gap of no less than 7 mm from the floor to prevent wicking of water.*
- 3) *Ensure that the surface closest to the hospital zone is a wipeable surface.*
- 4) *Create and maintain a negative pressure of 7.5 Pa within the construction zone.*
- 5) *Where deemed appropriate by the MDT, the composition of the barrier may be modified to suit time, space, or impact constraints. Alternative forms of construction or containment products may be used if they can be shown to provide an equivalent barrier.*
- 6) *For modular containment products used in lieu of on-site construction consult [Clauses 6.6.2.1, 6.6.2.2, and 7.3.3.2.1](#).*
- 7) *Based on site conditions and construction methods, the locations and configurations of the continuous tape seal may vary provided an adequate continuous and durable seal is provided and maintained on both sides of penetrations and barriers.*

Figure E.4
Preventive measure IV infection control dust barrier anteroom, plan view
 (See Clauses 6.6.1.9 and 7.3.4.)



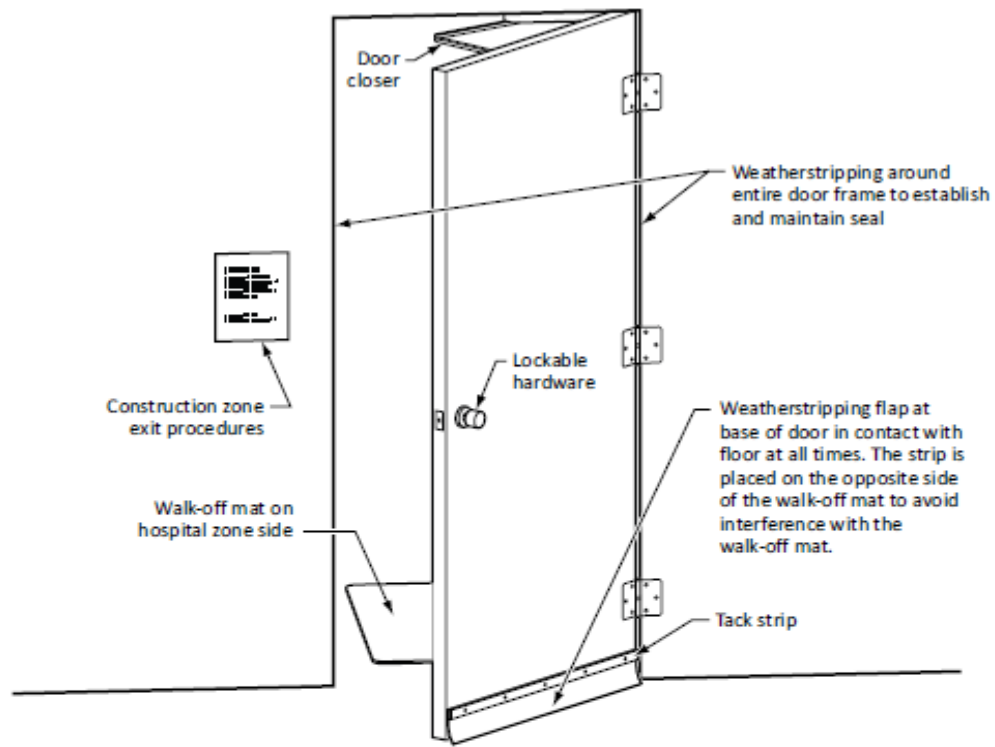
Legend:

- A = Anteroom dust barriers extend to the true ceiling or have their roofs constructed in the same manner as PM III barriers (see Clause 7.3.3.2). The roof needs to be constructed in a manner that protects against overhead hazards.
- B = Exhaust ducting is exhausted to the exterior of the building and directed away from air intakes, occupied areas, or other building openings.
- C = Hollow metal lockable doors. Frame and bottom sealed with weatherstripping.
- D = Assigned and dedicated HEPA vacuum for personal decontamination and daily or more frequent (if needed) cleaning of anteroom.
- E = Dust covers, body suits, and dust masks (for visitors only) hung at wall in a covered dust-tight container.

Notes:

- 1) Ceiling height should allow space for the manipulation of construction materials coming through the anteroom. A 2.5 m height is recommended.
- 2) The anteroom is the only means of entering and exiting the construction zone. It should be large enough to accommodate the materials that will be moved through it. If both doors must be open to accommodate large items passing through, this should be done under controlled conditions.

Figure E.5
Preventive measures III and IV infection control dust barrier door details, elevation
view
 (See Clauses 7.3.3 and 7.3.4.)



Legend:

- A = Seal windows, unused doors, shafts, access panels, electrical outlets, intakes, grilles, exhausts, vents, air supply and return vents, unused plumbing drains, and all other penetrations and sources of potential air leaks in the floor, walls, and ceilings.
- B = Seal the entire perimeter with continuous tape seal.
- C = Continuous tape seal on both sides of penetration through polyethylene.
- D = Adhere continuously both sides of top and bottom track with tape to floor and ceiling [i.e., false/finished ceiling, true ceiling (underside of structure)].

Figure F.5 (Concluded)

- E = Two layers of continuous polyethylene sheeting, minimum 6 mil thickness with lapped joints, extending from true ceiling (underside of structure) to the floor.

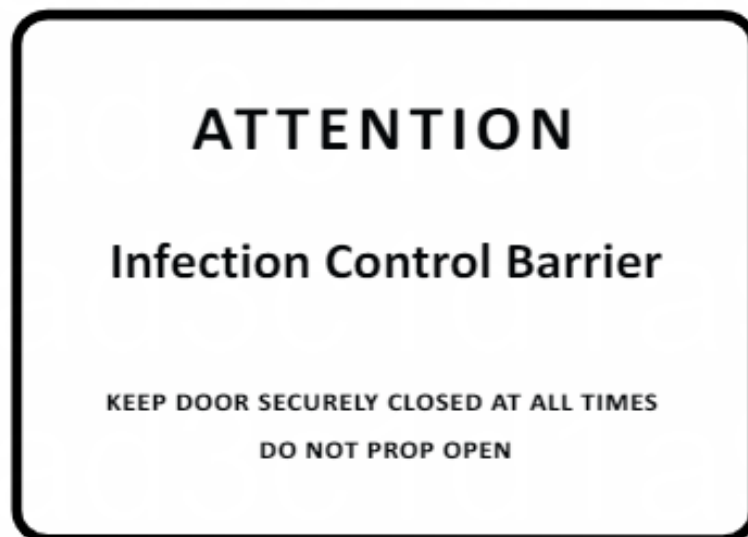
Notes:

- 1) *Hollow metal non-combustible door and frame construction with securing device. Seal door frame and bottom with weatherstripping.*
- 2) *Where deemed appropriate by the MDT, the composition of the barrier may be modified to suit time, space, or impact constraints. Alternative forms of construction or containment products may be used if they can be shown to provide an equivalent barrier.*
- 3) *For modular containment and/or anteroom products used in lieu of on-site construction, consult Clauses [6.6.2.1](#), [6.6.2.2](#), and [7.3.3.2.1](#).*

Figure F.6

Preventive measures II to IV infection control dust barrier signage

(See Clauses [7.3.2.2](#) and [7.3.3.](#))



K.6: IPAC Limited Time Ceiling Entry Procedure

Purpose/Rationale:

- Movement of ceiling tiles can cause release of dust particles from the chase space. These dust particles can carry airborne *Aspergillus* spores, which pose potential risk to immunocompromised, the elderly, and the very young in a hospital setting. In order to reduce the disruption of dust particles, the following steps will be followed before displacing any ceiling tiles.

Procedure:

- Consult with *Project Manager* and IPAC practitioner and complete a Risk Assessment form for Preventative Measures III and IV. Discuss and establish patient and staff traffic pattern during the project.
- The *Project Manager* shall instruct users to remove all items from the construction area to prevent contamination (e.g. equipment, personal protective equipment from the wall mounted brackets, etc.)
- Remove only tiles that are necessary to accomplish the job. Never have more than one tile open at a time.
- Slowly lift the ceiling tile and HEPA vacuum the space above the tile.
- Do not leave ceiling exposed. Replace each ceiling tile when work area is unattended or as soon as the work is completed.
- HEPA vacuum work area after work is completed.
- Cube required for work in ceiling greater than 30 minutes.

Ceiling tiles with visible moisture/discoloration or damaged

Using personal protective equipment such as gloves, eye and respiratory protection (e.g. N-95 disposable respirator) should be considered if assessment work might disturb mould. Efforts should also be made to minimize the generation and migration of any dust and mould. The work area should be unoccupied. If mould is identified, replace with clean, dry tile immediately and report to the *Project Manager* as a risk assessment needs to be re-evaluated. To prevent uncontrolled ventilation, any ceiling tiles that are either missing or damaged should be promptly replaced with clean, dry tiles.

- Discuss and establish patient and staff traffic pattern during the project with the *Project Manager*.
- The *Project Manager* shall instruct users to remove all items from the construction area to prevent contamination (e.g. equipment, personal protective equipment from the wall mounted brackets, etc.) if unable to remove supplies the Contractor shall use a use cube.
- Slowly lift the ceiling tile and HEPA vacuum the space above the tile.
- Do not leave ceiling exposed. Replace each ceiling tile when work area is unattended or as soon as the work is completed.
- HEPA vacuum work area after work is completed.
- Cube required for work in ceiling greater than 30 minutes

Q: Contractor Statement of Understanding

SIGNATURE REQUIRED BY THE FOLLOWING CONTRACTOR PERSONNEL PRIOR TO START OF ANY WORK

☐ Project Manager

☐ Site Superintendent

I, _____ representing _____
[Please Print Name of Company Representative] [Please Print Company Name]

have reviewed and understand the **Trillium Health Partners Capital Planning and Redevelopment / Facilities Contractor Handbook: Guidelines, Policies and Procedures** document and have completed the online [iLearn Contractor E-Learning Modules](#). I acknowledge that my company and/or its employees/agents and subcontractors, will abide by the requirements contained therein. I agree that we have a good working knowledge of the *Occupational Health and Safety Act* (and the *Regulations* thereto) and the associated safe work practices required on any construction site.

I understand that non-compliance with any of these guidelines, policies and procedures as described will result in immediate work stoppage. Work will not commence again until a resolution to any such non-compliance has been determined in consultation with the *Project Manager*.

I further understand and acknowledge that any additional costs incurred due to such non-compliance with said policies and procedures will be borne solely by my company or its agents/*Subcontractors*.

[Signature of Contractor PM or site super]

[Please Print Title of Signing Officer]

[Date (YY/MM/DD)]

*This form is to be signed and returned to the **Project Manager** prior to the Contractor and/or any of its employees/agents/Subcontractors beginning work on the premises.*

Revised 2024 02 22

THP Receipt Acknowledgement

[Signature of Hospital Project Manager]

[Date (YY/MM/DD)]

R: Revisions to Contractor Handbook

Revisions to <i>Contractor Handbook</i>			
Revision #	Description	Date	Authors
R0	Development of <i>Contractor Handbook</i>	2024 05 15	TJ, RO, CS
R1	Revisions	Date	Name