

SECTION 01 00 10 - GENERAL REQUIREMENTS

PART 1 – GENERAL

1.1 Division One Requirements:

1. The provisions of all Sections of Division One shall apply to each section of the Specifications, including those of Divisions 23, 26, 31, and 32.

1.2 Subdivision of Work:

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

1.3 CODES AND STANDARDS

1. Perform the work in accordance with the Ontario Building Code containing the Building Code Act and Ontario Regulation 423/06, latest amendments.
2. Comply with all regulations of all public authorities having jurisdiction.
3. Wherever a code or standard is referred to in the drawings or specifications, it shall be understood to be the latest revision of this code or standard that is intended.
4. Supply, to the Owner, copies of material safety data sheets (MSDS) for all products covered under the Ontario Health and Safety Act and Regulations and WHMIS Regulations. These are to be used on or in conjunction with the work. Include information regarding locations and conditions for use.

1.4 PERMITS

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

1.5 DISCREPANCIES OMISSIONS

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

1.6 EXAMINATION DURING TENDERING

1. Examine the site carefully prior to the submission of a tender.
2. Extras will not be considered for any additional Work required to deal with difficulties encountered which could have been foreseen by a close site examination.

1.7 PUBLIC UTILITIES AND SERVICES

1. Verify limitations imposed on the Work by the presence of utilities and services. Ensure that they are not damaged.
2. Notify service authorities to enable them to take appropriate action with regard to the affected areas. Obtain locates as required.
3. Location of existing concealed or buried services or structure indicated in the documents has not necessarily been taken from "as-built" drawings and may be approximate only. Exercise appropriate precautions when carrying out the Work in the area of these services. Notify Consultants immediately of any discrepancies.
4. Locate poles, pipes, conduit, wires, fill pipes, vents, regulators, meters, and sanitary service Work in inconspicuous locations. If not shown on drawings, verify location of service Work with Consultant before commencing installation.

1.8 VERIFICATION OF INVERTS

1. Immediately following award of the Contract, verify all field service connections to ensure that drainage runs can meet the site service inverts.
2. Give notification immediately of any apparent difficulties or discrepancies. No extras will be considered for rerouting drainage lines without prior review with the Consultant.

1.9 COORDINATION OF OTHER CONTRACTORS' WORK

1. Cooperate with other Contractors who may have separate contracts with the Owner, permit the completion of the Work as expeditiously as possible.
2. Prior to commencement of the Work, ensure that all other Contractors understand the extent of the Work, the conditions and materials on the project, the schedule of completion, restrictions to safety, and to access. Ensure that all Sub-contractors fully understand the extent of Work involved with Other Contractors.

1.10 BUILDING DIMENSIONS AND COORDINATION

1. Ensure that all necessary job dimensions are taken and that the Work of trades is coordinated for the proper execution of the Work. Assume complete responsibility for the accuracy and completeness for dimensions, and for coordination.
2. Verify that all Work, as it proceeds is executed in accordance with dimensions and positions indicated. Maintain levels and clearances to adjacent Work, as set out in the drawings; assure that Work installed in error is rectified before constructions resumes.
3. Check and verify all dimensions and the interfacing of all services. Verify with each trade all dimensions, pertaining to the Work of other trades. Be responsible for the cooperation of various trades to achieve the proper performance of the Work.
4. Avoid scaling the drawings. Immediately inform the Consultant of ambiguity or lack of information. Assume the responsibility for non-compliance.
5. Field measure installed Work to assure the fit of dependent details.
6. Advise Consultant of discrepancies, omissions on drawings, such as reflected ceiling plans, jointing patterns for paving, or ceramic tile, which affect aesthetics, or which interfere with services, equipment or surfaces. DO NOT PROCEED without review with the Consultant.

7. Ensure that each Sub-contractor communicates requirements for site conditions and surfaces necessary for the execution of the Sub-contractor's Work, and that he provides setting drawings, templates and all other information necessary for the location and installation of material, holes, sleeves, inserts, anchors, accessories, fastenings, connections and access panels. Inform other Sub-contractors whose Work is affected by these requirements and preparatory Work.
8. Ensure that other Sub-contractors are assisted in the execution of required preparatory Work by Sub-contractors whose own Work is dependent on this preparatory Work
9. Prepare interference drawings to properly coordinate the Work where necessitated. Refer to Section 01340

1.11 LABELS AND NAMEPLATES

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

1.12 USE OF PREMISES BEFORE SUBSTANTIAL PERFORMANCE

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

1.13 LINES, LEVELS, BUILDING LOCATION AND EXISTING BUILDING SURVEY

1. Existing grades and other known conditions of site are shown on Site Plan. This survey information has been established by personnel engaged by the Owner. No responsibility is assumed by the Owner or Consultant for accuracy of this survey information.
2. Establish all necessary lines and levels, and erect substantial batter boards and maintain their accurate position.
3. Where required, engage and pay an Ontario Land Surveyor to:
 - 3.1 Lay out new building on site and establish a permanent bench mark or widely separated bench marks, as required by building configuration.
 - 3.2 Verify elevations established for each floor as construction proceeds.
 - 3.3 Verify relation of building floor elevations to permanent bench marks.
 - 3.4 Correlate geodetic elevation of bench mark with the elevations in use by all public utilities adjacent to the project.
 - 3.5 Verify accuracy of all site dimensions shown on Drawings.
 - 3.6 Provide to the Consultant a survey certificate, verifying location of building on site.
 - 3.7 Provide to the Consultant a survey certificate, verifying location of all footings relative to property lines, before construction proceeds on the footings.
4. At Substantial Performance take field elevations with respect to final grading and certify that the building constructed and lot grading is in conformity with the registered site plan agreement, and sign off on the site plan in accordance with the requirements of the Municipality.

1.14 WORKMANSHIP

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

1.15 REGULATORY REQUIREMENTS

1. Minimum Standard: unless reference is made in the Contract Documents to other standards, all work shall conform to or exceed the minimum applicable standards of the Ontario Building Code, (latest edition), and/or the governing Jurisdictional Authorities.
2. Construction Safety: include all provision for construction safety, such as fences, barricades, bracing supports, storage facilities, sanitation facilities, fire protection, standpipes, electrical supply, temporary heat, ventilation, construction equipment with its supports and guards, stairs, ramps, platforms, runways, ladders, scaffolds, guardrails, temporary flooring, rubbish chutes, walkway lighting, and morality lighting, all as required by the Occupational Health and Safety Act (latest edition), and amendments thereto and the Fire Code (latest edition), as well as all other applicable regulations of Jurisdictional Authorities

1.16 EXAMINATION BEFORE EXECUTION OF WORK

1. Make good defects in the Work on which further execution of work depends.
2. Verify dimensions of prepared work before fabrication of that work which is dependent on the prepared work.
3. Do not proceed with the execution of the work unless the work which is to receive it and site conditions are satisfactory. Commencement of all work of all sections shall imply that prepared work and site conditions are satisfactory

1.17 SPECIFICATION REFERENCE TO STANDARDS AND CODES

1. Where reference is made to published standards and codes, such references shall be considered to refer to the latest edition (revision) approved by the organization issuing that publication, which is current at the date of this specification

1.18 LOCATION OF SERVICES

1. Record exact location of all services with dimensions to the Grid Lines and Datum lines, and show on Record Drawings prior to placing concrete. DO NOT place concrete until this is done. Coordinate Mechanical, Electrical, and concrete trades.

1.19 SLEEVING

1. Assess requirements for sleeving the structural elements for passing of pipes, conduits and other mechanical or electrical components, and include all work required for approved interfacing between the structure, all mechanical and electrical work, and other components of the work.

1.20 CONCEALING MECHANICAL AND ELECTRICAL COMPONENTS

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

1.21 LIFE AND FIRE SAFETY

1. Enforce all requirements established by jurisdictional authorities and underwriters for life safety, fire prevention, and fire protection

1.22 DRAINAGE

1. Ensure that positive drainage is provided to roof, floor, and site drains and catch basins, as set in their final positions, and at all other locations to prevent water infiltration into the buildings. Provide constant slopes for drained surfaces to drains and drainage courses.
2. If water is found to be ponding on roof areas due to incorrectly located drains, install additional drains to alleviate water ponding. If extra drains are required coordinate the location of rainwater leaders with Consultant.

1.23 MATERIALS SUPPLIED BY OWNER

1. Install materials supplied by Owner where called for in the technical sections of the specifications. Coordinate shipping and delivery with Owner. Provide protected storage on site. Do all work required to complete installation, in accordance with manufacturer's directions.

1.24 WORK SHOWN OR SPECIFIED OUTSIDE PROPERTY LINES

1. Unless specifically indicated or specified, work indicated outside the property lines is to be included in the Contract. Perform all work such as, but not, restricted to landscaping, asphalt, concrete, and mechanical and electrical services in accordance with specifications and details issued by the applicable Municipality.
2. Include connections to all municipal and public service lines, and modifications to sidewalks and roadways where so required to provide access to the project site, unless shown otherwise on the drawings.
3. Where work is required to be done by the Municipality, include cost in the Contract.

1.25 DOCUMENTS ON JOBSITE

1. Maintain at job site, one copy of each of the following and make same available to the Consultant upon request:
 - 1.1 Contract drawings
 - 1.2 Specifications
 - 1.3 Addenda
 - 1.4 Reviewed Shop drawings
 - 1.5 Change Orders
 - 1.6 Other modifications to Contract
 - 1.7 Field Test Reports
 - 1.8 Building Permit Drawings
 - 1.9 Copy of approved work schedule
 - 1.10 Manufacturer's installation and application instructions
 - 1.11 Ontario Building Code and Guide to the Ontario Building Code, latest editions.

1.26 SITE PLAN AGREEMENT

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

1.27 SMOKING RESTRICTIONS

1. Smoking will not be permitted anywhere in the building. Any smoking shall take place outside the premises.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

END OF SECTION

SECTION 01 10 00 - SUMMARY

1.1 RELATED DOCUMENTS

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

1.2 WORDS AND TERMS

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

1.3 COMPLEMENTARY DOCUMENTS

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

1.4 PRECEDENCE OF DOCUMENTS

1. In the event of conflict within and between the Contract Documents, the order of priority within specifications and drawings are – from highest to lowest:
 - 1.1 Agreement – Between Owner and Contractor,
 - 1.2 Supplementary Conditions (if any),
 - 1.3 General Conditions of the Contract,
 - 1.4 Sections of Division 1 of the specifications,
2. Specifications:
 - 2.1 Sections of Division 2 through 26 of the specifications, and
 - 2.2 Specifications specifically indicated on drawings.
3. Schedules and keynotes:
 - 3.1 Schedules within the specifications, then
 - 3.2 Schedules on drawings
4. Drawings:
 - 4.1 Drawings of larger scale shall govern over those of smaller scale of the same date, then
5. Dimensions shown on drawings shall govern over dimensions scaled from drawings.
 - 5.1 Location of utility outlets indicated on architectural detail drawings takes precedence over positions or mounting heights located on mechanical or electrical drawings.
 - 5.2 Later dated documents shall govern over earlier documents of the same type.

1.5 WORK COVERED BY CONTRACT DOCUMENTS

1. The Work of this Contract consists of demolition of existing double door system and repair of finishes at St. Catharines Daycare on 179 Carlton Street to upgrade accessibility access.

1.6 CONTRACT METHOD

1. Construct all the Work under single lump-sum Standard Agreement contract.

1.7 OWNER FURNISHED PRODUCTS

1. Products indicated "N.I.C." (Not in Contract) or "E.O." (Equipment by Owner) will be furnished and installed by the Owner. Service lines for such products shall be included under these Construction Contract Documents, if indicated. Final connections from service lines to equipment will be by the Owner, unless otherwise indicated.

1.8 WORK SEQUENCE

1. Construct Work to accommodate Owner's continued use of premises during construction.
2. The renovation of the existing .
3. Coordinate with the Owner all construction activities, including disruption of utility services prior to commencing such activities and disruptions.
4. Preparation of Construction Schedule, must address sequencing as stated in this paragraph.

1.9 CONTRACTOR'S USE OF PREMISES

1. Before commencement of the Work, the Owner, Contractor, and Consultant will agree on a mutually satisfactory access to the site and acceptable locations for the construction office, trailers, material storage area, toilet accommodation and the like.
2. Confine access and construction operations to this agreed area and restore to its original condition following completion of the Work.
3. This need not be within the "developed area" indicated on the Plot Plan
4. Do not unreasonably encumber site with materials or equipment.
5. Owner's existing parking lots and roadways may be used for parking construction Workers' vehicles, but only as directed by the Owner.

1.10 OWNER REQUIREMENTS

1.11 Construction employees shall not use any facilities within existing buildings unless they are instructed to do so as part of construction of alteration Work or unless otherwise indicated within the Contract Documents.

1. At no time shall any of the Work or operations preceding any Work interfere with the Owner's day-to-day activities, unless approved by the Owner.
2. Service of electrical power, light, heat, water, gas, telephone, etc., must be maintained, except temporary shutdowns may be made after arrangements have been made with the Owner.
Note that some temporary service shutdowns may require scheduling of Work outside of normal working hours at Owner's cost, but with Owner's prior approval.

1.12 PROJECT SCHEDULE

1. Commence construction on.....
2. Declare Substantial Performance on.....

**NRPS D6 - ENTRANCE, WASHROOMS AND
CUSTOMER SERVICE ACCESSIBILITY UPGRADES
PROJECT NO.
REGIONAL MUNICIPALITY OF NIAGARA**

Summary
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1.13 TIME OF THE ESSENCE

1. Time is of the essence of this Contract.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01 21 00 - ALLOWANCES

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Canadian Construction Documents Committee (CCDC)
 - 1.1 CCDC-2-2020 Stipulated Price Contract
2. Supplementary Conditions - Section 00 73 00

1.2 CASH ALLOWANCES

1. Administer cash allowances in accordance with Contract (CCDC2), will include any overhead and profit in connection with cash allowances in the Contract Price.
2. Include in the Contract Price, cash allowances stated herein.
3. Cash allowances, unless otherwise specified cover the net cost to the Contractor, Sub-Contractor, of services, products, construction machinery and equipment, freight, handling, unloading, storage, installation, and other authorized expenses incurred in performing the Work.
4. The Contract Price, and not the cash allowance, includes the Contractor's overhead and profit in connection with such cash allowance.
5. Where one cash allowance is exceeded amounts from other cash allowances can be used. Only when the sum of all cash allowances has been expended will the contractor be compensated for overhead and profit as set out in the contract documents.
6. Progress payments on accounts of work authorized under cash allowances will be included in the Consultant's monthly certificate for payment.

1.3 CONTINGENCY ALLOWANCE

1. See the RMON Tender Pricing table for details.
2. Do not include in the Contract Price, additional sums for products, installation, overhead or profit.
3. Expenditures under the contingency allowance will be authorized in accordance with the procedures provided in GC 6 - Changes in the Work, and evaluated under GC 6.3 Change Directive and Certification of Changes in the Work.

1.4 ALLOWANCES SCHEDULE

1. Hardware Allowance: Allow the sum of Five Thousand Five Hundred Dollars (\$5,500.00) for the purchase of all finish hardware. Price of finishing hardware shall be according to hardware tenders as received by the Consultant. Submit signed vouchers for all hardware prior to requesting payment.
2. Panic Buttons: Allow the sum of Twenty Five Hundred (\$2,500.00) for the supply and installation of panic buttons.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 25 00 - GENERAL INSTRUCTIONS

1.1 CODES AND STANDARDS

1. Perform the Work in accordance with the Ontario Building Code containing the Building Code Act and Ontario Regulation 350/06, latest revisions.
2. Comply with all regulations of all public authorities having jurisdiction.
3. Wherever a code or standard is referred to in the drawings or specifications, it shall be understood to be the latest revision to this code or standard that is intended.
4. Supply, to the Owner, copies of material safety data sheets (MSDS) for all products covered under the Ontario Health and Safety Act and Regulations and WHMIS Regulations. These are to be used on or in conjunction with the Work. Include information regarding locations and conditions for use.

1.2 PERMITS

1. The Owner has applied and paid for the Building Permit, and Site Plan Agreement fee?
2. Supply all other permits required by local authorities. Pay expenses incurred. Permits pertaining to particular trades shall be paid for by the particular sub-trade concerned. Include all permit fees in tender.
3. Be responsible for contacting the Municipal building authority for a field review of the Work at those times and in accordance with the directions on the Municipal Building permit and/or the requirements of the municipality concerned.
4. The Owner has arranged for a Site Environmental Report. Removal of any offending material will be completed prior to the award of the contract.

1.3 EXAMINATION OF SITE

1. Examine site prior to submission of a tender.
2. No extras will be allowed for additional Work due to lack of labour or equipment or difficulties encountered, which could have been foreseen by close inspection of the site.
3. Include in examination of site all reasonably accessible ceiling and crawl spaces. Check services encountered and required.

1.4 UNIT PRICES

1. The Contractor may be required to meet with the Consultant after the close of tenders and negotiate a list of unit prices to serve as the basis for additions to or deletions from the contract.

1.5 CONSTRUCTION SCHEDULE

1. Submission of a price by any trade will be construed as evidence of agreement with the completion date at the beginning of this specification. Prepare a construction schedule in a form approved by the Consultant in co-operation with the trade Contractors. Provide copies for the Contractor Owner and Trade Contractors.

1.6 JOB MEETINGS

1. At the discretion of the Consultant, the Contractor will convene regular site progress meetings to review construction progress and consider matters arising from or having a bearing on the contract. The agenda for each meeting and the minutes arising there from will be prepared and issued by the Contractor.
2. The Contractor and his superintendent, or senior site representative, shall attend each meeting, together with such members of his staff, as may be required and including responsible representation from Sub-contractors or suppliers.

1.7 PROGRESS REPORTS

1. Submit weekly progress reports to the Consultant in a form approved by the Consultant. Record the following:
 - 1.1 Activities, which have been worked on and/or completed in the previous week.
 - 1.2 Anticipated activities to be started, or continued, during the following week.
 - 1.3 Estimated working days required to complete the Work already in progress.
 - 1.4 Any proposed revision to the approved construction progress schedule.

1.8 "OWNER" AND "OTHERS" DEFINED

1. "Others" in any trade section refers to other trades within the framework of the contract. Any Work, or material executed outside the contract is designated "N.I.C.", "By Owner", or "By other Contractor."

1.9 CO-OPERATION OF TRADES

1. Co-operate fully with all others employed on the Work and in every way to ensure completion of the Work in a satisfactory manner by the dates required.
2. Make demands upon the Work of others known both to the trade concerned and the Contractor in sufficient time to permit inclusion of such demands in this Work. Should no notification or notification in insufficient time be given, the expense incurred in altering the Work of others shall be borne by those failing to provide the notification. Alterations in Work to suit the Work of other trades shall be done solely by the Contractor for the Work to be altered.

1.10 MATERIALS AND METHODS

1. Materials specified shall form the basis of the tender price except where the Architect's written approval has been obtained for an alternate before the tender closing.
2. All material shall be new (unless used material is specifically called for) and of the best obtainable quality of they're several kinds.
3. Used material shall be removed from the site upon order from the Consultant.
4. Material shall come to the site in containers and packages as shipped from the manufacturer. No loose or improperly stored material will be accepted.
5. Salvaged materials except equipment and items specifically exempted by later portions of this specification will be the property of the Contractor.
6. The submission of a price will be construed as approval of the originally specified or amended materials or methods.

7. Manufactured products specified by name bear the automatic implication that the material is to be installed in accordance with general good practice and in accordance with directions of the manufacturer. Should any bidder believe that the specified material and/or method of installation is not in accordance with good practice and wishes for this reason to limit his guarantee, he shall so indicate to the Architect not less than one week before the close of tenders. The Architect will issue an addendum changing the offending material or method if he considers the point sufficiently serious.

1.11 "OR EQUAL"

1. Where the trade name of a product is followed by the words "or equal", the Consultant will consider submissions from manufacturers wishing to have their material accepted as an alternate. Such submissions shall be made to the Architect not less than one week before the close of tenders so that pertinent data on acceptable materials may be covered in an addendum.

1.12 "REUSE EXISTING"

1. Where drawings or specifications indicate an existing material reused, this will imply that the available quantity of that salvaged material may be reused. It does not imply that there is necessarily enough to perform the entire operation. The Contractor will determine available quantity and reuse those portions in good condition, augmenting it with whatever quantity of new and matching material as may be required. Contractor is to pay all costs.

1.13 CUTTING, CHASING, AND DEMOLITION

1. All demolition, cutting, and chasing shall be the responsibility of the Contractor who shall either perform these operations with his own forces, or in some cases as later set out, engage the particular sub-trade responsible for the material to be cut.
2. The Contractor shall engage the sub-trades as outlined above for holes in structural steel over ½" (13 mm) Φ and steel deck over 4" (100 mm) Φ larger holes will be specifically reinforced.
3. Perform cutting of masonry and concrete surfaces to be done with Carborundum bladed power equipment. Pneumatic or impact tools are not allowed without prior approval from Senior School staff.
4. Obtain approval on structural stability from trades whose Work is to be cut or altered.
5. All the above will also apply where electrical or mechanical specifications call for the installation of extra openings in floors or ceilings after these surfaces are constructed.

1.14 PATCHING AND "MAKING GOOD"

1. All patching and making good generated by the Work of this contract shall be done and paid for by the trade dealing in the particular material to be patched.
2. Wherever existing openings are indicated as filled in, new openings cut into existing walls, existing items removed, or any form of alteration to an existing surface or material indicated, the term "make good" shall be deemed to apply whether specifically noted or not.
3. Where the term "make good" is used or implied on the drawings or in these specifications to refer to repairing or filling operations performed on existing floors, walls, ceilings, or any other exposed surfaces, it is intended that the finished surfaces shall match and align with the existing adjoining surfaces.

4. Unless the entire room in which the patching operations are performed is scheduled to be repainted, the painter shall paint only the specific area of the patch and existing disturbed areas.
5. Where the Contractor is called upon to "make good" old items, he is required to rectify only visible or reasonably inferable defects which would have shown up from reasonable examination of the premises.

1.15 BUILDING DIMENSIONS AND COORDINATION

1. Ensure that all necessary job dimensions are taken and that the Work of trades is coordinated for the proper execution of the Work. Assume complete responsibility for the accuracy and completeness for dimensions, and for coordination.
2. Verify that all Work, as it proceeds is executed in accordance with dimensions and positions indicated. Maintain levels and clearances to adjacent Work, as set out in the drawings; assure that Work installed in error is rectified before constructions resumes.
3. Check and verify all dimensions and the interfacing of all services. Verify with each trade all dimensions, pertaining to the Work of other trades. Be responsible for the cooperation of various trades to achieve the proper performance of the Work.
4. Avoid scaling the drawings. Immediately inform the Consultant of ambiguity or lack of information. Assume the responsibility for non-compliance.
5. Field measure installed Work to assure the fit of dependent details.
6. Advise Consultant of discrepancies, omissions on drawings, such as reflected ceiling plans, jointing patterns for paving, or ceramic tile, which affect aesthetics, or which interfere with services, equipment or surfaces. **DO NOT PROCEED without review with the Consultant.**

1.16 PROTECTING EXISTING SURFACES

1. The Contractor will take all necessary precautions to protect existing surfaces that may be affected by any Work performed under this contract.
2. Any damage caused to existing surfaces will be "made good" at the Contractor's expense.
3. This will include but may not be limited to existing glazed block, Glu-lam structure, tectum panels, and other surface finishes.

1.17 SALVAGED MATERIAL

1. Remove from site.
2. Mechanical or electrical services and/or items scheduled for demolition or removal shall be terminated, disconnected, and/or removed by the Work of Divisions 15 and 16.

1.18 MAINTENANCE MANUAL

1. Supply two copies of a three-ring binder instruction manual as follows:
2. A titled sheet labeled "Manufacturer's Data Book" and project name with a list of contents preceding the data. Copies are to accommodate 82" x 11" sheets.
3. Mark each section by a labeled tag protected with a clear plastic cover.
4. All notes shall be typed or, if applicable, printed literature may be used, and any drawings shall be neatly drafted in ink or white printed.

5. Include maintenance instructions for exterior and interior floor, wall, and ceiling surfaces or as requested.
6. Include construction data and operating and maintenance instructions for mechanical and electrical equipment.
7. Include guarantees on glass, compressors, doors, fans, roofing and the like and any other items whose guarantee is longer than the Contractor's one-year guarantee.

1.19 AS-BUILT DRAWINGS

1. See Divisions 23 and 26. The Contractor will be required to provide two copies of "as built" drawings (white prints) showing all architectural, structural, mechanical, and electrical changes made from the contract plans.

1.20 EXISTING SERVICES AND STRUCTURE

1. Location of existing concealed or buried services or structure indicated on drawings has not necessarily been taken from "as built" drawings and may be approximate only. Contractors carrying out excavation, demolition, or other operations in the area of the services or structure should exercise appropriate precautions.

1.21 SCHEDULING THE WORK

1. The successful Contractor will develop his own sequence of work in consultation with School and Board Staff and Consultants.
2. Perform the Work in a manner, which will cause a minimum amount of disruption to the normal function of the remainder of the dealership.
3. No site Work will commence until delivery dates for mechanical and electrical equipment have been confirmed in writing.

1.22 LIFE AND FIRE SAFETY

1. Enforce all requirements established by jurisdictional authorities and underwriters for life safety, fire prevention, and fire protection.

1.23 TIME IS OF THE ESSENCE

1. Time is of the essence of the Contract.

END OF SECTION

SECTION 01 30 00 - SUBMITTALS

PART 1 - GENERAL

1.1 ADMINISTRATIVE

1. Submit to Consultant submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in the Work. Failure to submit in ample time is not considered sufficient reason for an extension of contract time and no claim for extension by reason of such default will be allowed.
2. Work affected by the submittal shall not proceed until review is complete.
3. Review submittals prior to submission to the Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with the requirements of the Work and the Contract Documents. Submittals not stamped, signed, dated and identified as to the specific project will be returned without being examined and shall be considered rejected.
4. Notify Consultant, in writing at time of submission identifying deviations from requirements of Contract Documents stating reasons for deviations.
5. If specified materials or products are not available and/or if "match existing" materials or products are not available the Contractor is responsible to provide alternate options to the Consultant for approval.
6. Verify field measurements and affected adjacent Work are coordinated.
7. Contractor's responsibility for errors and omissions in submission is not relieved by Consultant's review of submittals.
8. Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by consultant review.
9. Keep one reviewed copy of each submission on site.
10. The review of drawings and any notes added does not constitute authorization to proceed with any work, which in the Contractors or Supplier's opinion will involve extra costs to the Owner.

1.2 SUBMITTALS AT START OF PROJECT

1. Certificates and transcripts: Immediately after Contract Award submit the following:
 - 1.1 Performance, Labour, and Material Payments Bonds.
 - 1.2 Proof of Construction Insurances.
 - 1.3 Workers' Safety Insurance Board Status Certificate.
 - 1.4 Confirmation of trades and suppliers list.
 - 1.5 Ministry of Labour "Notice of Project".
 - 1.6 Estimate of monthly progress claims.
 - 1.7 Breakdown of component values.
 - 1.8 Schedule of Shop Drawings and Sample Submissions.
 - 1.9 Product delivery schedule.
 - 1.10 Stage I documentation as required by OAA/OCGA take over procedures Document 100.
2. Construction Schedule:

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- 2.1 Submit initial schedules within fifteen (15) days after award of Contract and resubmit updated schedule with each application for payment.
- 2.2 Submit one opaque reproduction, plus two (2) copies to be retained by the Consultant.
- 2.3 Prepare schedule in the form of a horizontal bar chart.
- 2.4 Provide a separate bar for each trade or operation.
- 2.5 Provide horizontal time scale identifying the first Work day of each week.
- 2.6 Format for listings: The Table of Contents of this specification.
- 2.7 Identification of listings: By specification Section numbers.
- 2.8 Include the dates for the commencement and completion of each major elements of construction.
- 2.9 Updated schedule to show changes occurring since previous submission of schedule:
 - 2.9.1 Activities modified since previous submission.
 - 2.9.2 Revised projections of progress and completion.
 - 2.9.3 Other identifiable changes.

1.3 SUBMITTALS DURING CONSTRUCTION

- 1. Shop Drawings and Product Data:
 - 1.1 Refer to GC 3.11 Shop Drawings.
 - 1.2 Submission will include:
 - 1.2.1 Date and revision dates.
 - 1.2.2 Project title and number.
 - 1.2.3 Name and address of:
 - 1.2.3.1 Subcontractor
 - 1.2.3.2 Supplier.
 - 1.2.3.3 Manufacturer.
 - 1.3 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - 1.4 Details of appropriated portions of Work as applicable.
 - 1.4.1 Fabrication
 - 1.4.2 Layout, showing dimensions, including identified field dimensions, and clearance.
 - 1.4.3 Setting or erection details.
 - 1.4.4 Capacities.
 - 1.4.5 Standards.
 - 1.4.6 Wiring Diagrams.
 - 1.4.7 Single line and schematic diagrams.
 - 1.4.8 Relationship to adjacent work.
 - 1.5 All shop drawings required for review must include the professional engineer's stamp and signature as required in the contract. Unstamped drawings will not be reviewed.
 - 1.5.1 Include on all submissions the required return date.
 - 1.5.2 Submit 3 copies of shop drawings larger than 11 x 17 in size.
 - 1.5.3 These larger drawings will be marked-up, scanned and returned digitally.
 - 1.5.4 For drawings 11 x 17 or smaller, shop drawings can be emailed.
 - 1.5.5 General Contractor's review stamp confirming his examination to appear on all submissions.

- 1.5.6 Maintain copies of all reviewed submissions on site.
- 1.6 Supplement standard information to provide details applicable to project.
- 1.7 If upon review by the Consultant, no error or omissions are discovered or if only minor corrections are made, the PDF or copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and re-submission of corrected shop drawings, through the same procedure indicated above, shall be performed before fabrication and installation of Work may proceed.
- 1.8 After Consultant's review, distribute copies in PDF.
- 2. Samples:
 - 2.1 Samples to provide: Examples of materials, equipment, quality, finishes, and workmanship.
 - 2.2 Where colour, pattern or texture is criterion, submit full range of samples.
 - 2.3 Reviewed and accepted samples will become standard workmanship and material against which installed Work will be verified.
 - 2.4 Submit for review samples in duplicate as requested in respective specification Sections. Label samples as to origin and intended use in the Work.
 - 2.5 Deliver samples prepaid to Consultant's business address.
 - 2.6 Notify the Consultant in writing, at the time of submission of deviations in samples from requirements of Contract Documents.
 - 2.7 Adjustments made on samples by the Consultant are not intended to change the Contract Price. If adjustments affect the value of Work, state such in writing to the Consultant prior to proceeding with the Work.
 - 2.8 Make changes in samples, which the Consultant may require, consistent with Contract Documents.

1.4 SUBMITTALS AT SUBSTANTIAL PERFORMANCE

- 1. Inspect/Take Over:
 - 1.1 Conform to OAA/OGCA Document No.100 for takeover procedures.
 - 1.2 Prior to application for certificate of Substantial Performance, carefully inspect the Work and ensure it is complete, that major and minor construction deficiencies are complete, defects are corrected and building is clean and in condition for occupancy. Notify Consultant in writing, of satisfactory completion of the Work and request an inspection.
 - 1.3 During Consultant inspection, a list of deficiencies and defects will be tabulated. Correct same. When Consultant considers deficiencies and defects have been corrected and it appears requirements of Contract have been performed, make application for certificate of Substantial Performance.
 - 1.4 Publish a copy of the Substantial Performance once in a construction trade newspaper and provide the payment certifier with proof of the date publication. The day following the date of publication shall be the date of commencement of the 45 day period to release of the basic holdback monies.
 - 1.5 Submit a final statement of accounting giving total adjusted Contract Price, previous payments, and monies remaining due. Consultant will issue a final change order reflecting approved adjustments to Contract Price not previously made.
- 2. Warranties and Bonds:

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- 2.1 Submit all documents in proper form (including Project Warranty Data Record), contain full information.
 - 2.2 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers and manufacturers within 10 days after completion of the applicable item of work.
 - 2.3 Submit prior to final Application for Payment.
 - 2.4 Execute transition of Performance Bond to warranty period requirements.
 - 2.5 Retain warranties and bonds until time specified for submittal.
 - 2.6 Submit an updated list of company, subcontractor, supplier and manufacturer, with name, address and telephone number of responsible principals.
3. Operating Maintenance Data:
 - 3.1 Two weeks prior to Substantial Performance of the Work, submit to Consultant, two copies of operating and maintenance data. Data to contain operational information on equipment, cleaning and lubrication schedules, filters, overhaul and adjustment schedules and similar maintenance information. Bind contents in a three-ring, hard covered, plastic jacketed binder. Organize contents into applicable categories of work, parallel to specifications Sections.
4. Project Record Manual:
 - 4.1 Submit one hard copy and one soft copy (on disk or stick) of Project Record Manual consisting of operation and maintenance data, current Material Safety Data Sheets and one set of record (as-built) hardcopy drawings and softcopy files on Revit 2024 or higher. Project Record Manual is also to include copy of "Project Warranty Data Record" both in hardcopy and softcopy form. Collect reviewed submittals and assemble documents executed by Subcontractors, suppliers, and manufacturers and submit material prior to final application for payment.
5. Final Hydro Inspection: collect the following from each trade requiring hydro inspection/approval certificates, and submit same to Consultant:
 - 5.1 Original, final Hydro Inspection Certificates.
 - 5.2 Original approval certificates (CSA, ULC, etc.) for specified equipment.
6. Extra Materials: Provide the Owner with extra materials for future maintenance use, as specified in the technical Sections of the Specifications.
7. Sprinkler Installation Certificate: Submit to the Consultant certificates of test required by NFPA 13.
8. Record Drawings:
9. Manufacturers' Data Book:
 - 9.1 Supply two copies of a three ring binder, to accommodate 213mm x 275mm (8½" x 11") sheets. Binders should match in all dimensions. Include a title sheet labeled "Manufacturers' Data Book" with project name, date and list of contents. Organize required material into applicable sections of work. Mark each section by labeled tabs protected with celluloid covers fastened to hard paper dividers.
 - 9.2 Data Book to include:
 - 9.2.1 Equipment and operating instruction on all operable equipment and on all mechanical and electrical equipment, plumbing fixtures, and architectural hardware. Type notes. Drawings should be neatly drafted and inked or white

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printed.

- 9.2.2 Maintenance instructions.
- 9.2.3 Original brochures on all equipment.
- 9.2.4 Parts lists on all equipment including a list of suppliers.
- 9.2.5 All additional material used in the project beyond that indicated by brochures listed under the various sections, showing manufacturers and sources of supply.
- 9.2.6 Names, addresses and telephone numbers of the designer(s) and major contractor(s) who worked on the building.
- 9.2.7 Commissioning data such as air and water flows and regulating valve positions.

PART 2 - PRODUCTS - NOT USED.

PART 3 - EXECUTION - NOT USED.

END OF SECTION

SECTION 01 50 00 - TEMPORARY FACILITIES

PART 1 – GENERAL

1.1 SITE ACCESS AND WORK AREA

1. Before commencement of the job, the Owner's representative, the Contractor, and the Consultant will agree on a mutually satisfactory access to the site of the Work and mutually satisfactory locations for such items as construction office, trailers, material storage area, toilet accommodation, and the like.

1.2 TEMPORARY OFFICE

1. Provide temporary office within the Work area (coordinate with Owner's Representative) on site of sufficient size to permit use by the Owner, Consultant, and Contractor.
2. Supply heat and light.
3. Keep one bound set of drawings and specifications, change orders, colour schedule, construction schedule, shop drawings, meeting diaries, and hardware lists in the office at all times.
4. Provide adequate flat surfaces for viewing plans and file cabinets for shop drawings and the like are to be provided.

1.3 TEMPORARY EQUIPMENT

1. Supply telephone and laptop with printer to temporary office.
2. Maintain the telephone throughout the course of the Work.
3. Fit the telephone with a suitable outside bell OR with an answering service during construction hours.

1.4 TEMPORARY PROTECTION

1. General:
2. Take all necessary steps to protect the general public from injuries and properties from damage during course of the Work.
 - 2.1 Should the Work be closed down due to any cause whatsoever, it shall be the responsibility of the Contractor to protect all finished or unfinished Work and material from damage from any source.
 - 2.2 Methods to secure the site against unauthorized entry will be subject to the Consultant's approval.
3. Sheds and Covering - Provide temporary covers, sheds and platforms for the protection of materials susceptible to damage.
4. Equipment Installed by Owner - Be responsible for any damages or disfigurement.

1.5 DUMPSTER LOCATION

1. A space will be allocated in the south parking lot. Exact placement to be determined prior to commencement of the Work with Owner's Representative.

1.6 TEMPORARY POWER AND LIGHT

1. Provide temporary power facilities and lighting (minimum of 20 foot candles) for all Work in all portions of the building for the use of all trades from commencement of the Work until the

time of final acceptance.

2. Power supply to be adequate to operate all sub-trades equipment. Contractor shall bring temporary power to within 50'-0" (15 M) of Sub-contractor's equipment.
3. Connect to Owner's existing electrical panel for temporary power; Owner paying for power consumed.

1.7 TEMPORARY SANITARY FACILITIES

1. Provide sufficient sanitary facilities for workers in accordance with requirements of Local Health Regulations

1.8 TEMPORARY HEAT

1. Use existing system – if required.
2. The Mechanical Contractor will make every effort to have the air handling system completed as quickly as possible to the point where it can be used for providing heat and air conditioned air while interior Work is in progress.
3. Temporary use of the permanent heating system shall not affect the warranty.
4. Install temporary filters in all unit ventilators and air handling units for the duration of construction. At the date of Substantial Performance or Owner occupancy, replace with permanent filters. Thoroughly clean ductwork and/or mechanical systems as required.

1.9 TEMPORARY WATER

1. Make necessary connection to the Owner's existing water supply and run all temporary lines required. Owner to pay for all water used.

1.10 TEMPORARY VENTILATION OF BUILDING

1. For the purpose of humidity relief, maintain a ventilation system handling a minimum of cfm/ft-squared of floor area between November 20th and March 31st. Increase capacity to 1.5 cfm/ft-squared during the remaining construction period.
2. Combine temporary ventilation system with temporary heating system as required to avoid exposure of materials to damaging cold or direct air movement.

1.11 CONSTRUCTION STAFF PARKING

1. Use parking lot where directed by Owner's representative.

1.12 DUST-TIGHT SCREENS

1. Provide dust-tight partitions and screens to localize dust-generating activities and for the protection of workers, finished areas of Work and the public.
2. Fabricate partitions using .92mm x .55mm studs @ 410mm with .62mm Type "X" drywall on both sides. Include doors where necessary. Insulate partitions between heated and unheated areas or where sound control is required.
3. Maintain and relocate protection until such Work is complete

1.13 PROTECTION OF BUILDING FINISHES AND EQUIPMENT

1. Provide protection for finished and partially finished building finishes and equipment during performance of Work.
2. Be responsible for damage incurred due to lack of or improper protection.

3. Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

1.14 FIRE SAFETY

1. Provide fire prevention and protection measures to existing building as required by all authorities having jurisdiction.
2. Maintain exits, including stairways and exterior doors to the outside. Provide acceptable alternative exits where an existing exit is blocked off or deleted due to construction activities.
3. Where access to an exit through construction area is absolutely necessary, clearly define, protect and separate access from the construction area by a smoke tight fire separation equivalent to minimum $\frac{3}{4}$ hr fire resistance rating.
4. Reactivate all deactivated Life Safety systems at the end of each day.

END OF SECTION

SECTION 02 41 00 - DEMOLITION

PART 1 GENERAL

Comply with requirements of Division 1 and supplementary conditions.

1.1 REFERENCE STANDARDS

1. CEPA - Canadian Environmental Protection Act; 1999.

1.2 REGULATORY REQUIREMENTS

1. Environment and Climate Change Canada:
 - 1.1 CEPA.
2. Perform demolition Work in accordance with requirements of the Occupational Health and Safety Act Ont. Reg. 213/91.
3. Ministry of the Environmental and Energy "Waste Audits and Waste Reduction Work Plans O.R. 102/94".
4. Asbestos on construction projects - OHSa Ont. Reg. 838/90 as amended by 510/92 and pipe duct insulation Ont. Reg 837/90 as amended by 385/00.

1.3 PROTECTION

1. Protect existing surfaces.
2. Protect entire floor with either ¼" tempered masonite or ⅜" G.I.S ply prior to commencing any demolition.
3. Provide for complete and safe access at all times to areas and building adjacent to demolition Work.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.1 GENERAL PROCEDURES AND PROJECT CONDITIONS

1. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1.1 Obtain required permits.
 - 1.2 Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 1.3 Provide, erect, and maintain temporary barriers and security devices.
 - 1.4 Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 1.5 Do not close or obstruct roadways or sidewalks without permit.
 - 1.6 Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
 - 1.7 Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
2. Do not begin removal until receipt of notification to proceed from Owner.

3. Protect existing structures and other elements that are not to be removed.
 - 3.1 Provide bracing and shoring.
 - 3.2 Prevent movement or settlement of adjacent structures.
 - 3.3 Stop work immediately if adjacent structures appear to be in danger.
4. If hazardous materials are discovered during removal operations, stop work and notify Consultant and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

3.2 SELECTIVE DEMOLITION FOR ALTERATIONS

1. Owner will remove loose equipment and furniture from areas of work.
2. Remove existing work as indicated and as required to accomplish new work.
3. Remove and salvage carpet tile and acoustic ceiling tile for reuse in construction.
 - 3.1 Remove carpet tile to extent of construction area (reference architectural drawings).
 - 3.2 Remove only required acoustical ceilings (reference drawings).
 - 3.3 Remove items indicated on Drawings.
4. Remove and salvage demountable partitions and doors as noted on drawings.
5. Protect existing work to remain.
 - 5.1 Prevent movement of structure; provide shoring and bracing if necessary.
 - 5.2 Perform cutting to accomplish removals neatly and as specified for cutting new work.
 - 5.3 Repair adjacent construction and finishes damaged during removal work.
 - 5.4 Patch as specified for patching new work.

3.3 DEBRIS AND WASTE REMOVAL

1. Remove debris, junk, and trash from site.
2. Leave site in clean condition, ready for subsequent work.
3. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 GENERAL

1.1 REFERENCE STANDARDS

1. CAN/CSA O121 - Douglas Fir Plywood; 2017 (Reaffirmed 2022).
2. CAN/CSA O141 - Softwood Lumber; 2005 (Reaffirmed 2019).
3. CAN/CSA O151 - Canadian Softwood Plywood; 2017 (Reaffirmed 2022).
4. NLGA (SGRNL) - Standard Grading Rules for Canadian Lumber; 2017.

1.2 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

1.3 QUALITY ASSURANCE

1. **Lumber Identification**: By grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
2. **Plywood Identification**: By grade, mark in accordance with applicable CSA Standards.
3. Mark each piece of wood, which is rated non-combustible by fire retardant pressure treatment with ULC fire hazard classification label.

1.4 DELIVERY, STORAGE, AND HANDLING

1. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

1.5 WARRANTY

1. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.1 LUMBER MATERIALS

1. **Board Lumber**: Unless specified otherwise, Spruce or Jackpine, S4S, moisture content 19% or less in accordance with following standards:
 - 1.1 CAN/CSA-0141-05.
 - 1.2 NLGA Standard Grading Rules "Select Merchantable" grade for boards, "Select Structural" grade for framing.
 - 1.3 Identification: by grade stamp of an agency certified by the Canadian Lumber Standards accreditation.
2. **Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers**:
 - 2.1 S2S is acceptable.
 - 2.2 Board Sizes: "Standard" or better grade.
 - 2.3 Dimension Sizes: "Standard" light framing or better grade.

2.2 PANEL MATERIALS

1. **Douglas Fir Plywood (DFP)**: To CSA 0121-08 standard construction, formaldehyde free.
2. **Canadian Softwood Plywood (CSP)**: To CSA 0151-09, standard construction, formaldehyde free.

2.3 ACCESSORIES

1. **Nails, Spikes and Staples:** To CSA B111.
2. **Bolts:** 12.5mm ½" Φ diameter unless indicated otherwise, complete with nuts and washers.
3. **Proprietary Fasteners:** Toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.
4. **Galvanizing:** To CAN/CSA-G164, use galvanized fasteners for exterior Work, interior highly humid areas and pressure-preservative treated lumber.
5. **Wood Preservative:** Super Solignum by Solignum Inc., Pentox by Osmose-Pentox Inc., or other acceptable equivalents. For painted surfaces use clear type and for concealed surfaces use green tinted type. Provide compatible surface applied preservative for cut ends.
6. **Fire Retardant Treatment:** to provide flame spread, fuel contributed and smoke developed ratings of 25 or less apply Non-Com or Dricon Fire retardant chemicals by Koppers Company Inc., Flame Proof LHC by Timber Specialties Ltd., or other acceptable equivalents.

PART 3 EXECUTION

3.1 PREPARATION

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

3.2 INSTALLATION

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

3.3 ERECTION

1. Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
2. Install builder's hardware including nails, screws, bolts, washers, brackets, joist hangers and all fastening devices.
3. Countersink bolts where necessary to provide clearance for other Work.
4. Pre-Cast Concrete Stairs: Apply ¾" plywood to treads and risers as protection during construction access. Remove at conclusion of painting stairwells.

3.4 SITE APPLIED WOOD TREATMENT

1. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
2. Allow preservative to dry prior to erecting members.

3.5 SITE QUALITY CONTROL

1. See Section 01 40 00 - Quality Requirements, for additional requirements.

3.6 CLEANING

1. Waste Disposal: Comply with the requirements of Section 01 74 19 - Construction Waste Management and Disposal.
 - 1.1 Comply with applicable regulations.
 - 1.2 Do not burn scrap on project site.
 - 1.3 Do not burn scraps that have been pressure treated.
 - 1.4 Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
2. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
3. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 06 20 00 - FINISH CARPENTRY

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.

1.2 REFERENCE STANDARDS

1. AWMAC (GIS) - Guarantee and Inspection Services Program; current edition at www.awmac.com/gis.php.
2. CAN/CSA O151 - Canadian Softwood Plywood; 2017 (Reaffirmed 2022).
3. NLGA (SGRNL) - Standard Grading Rules for Canadian Lumber; 2017.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements for submittal procedures.
2. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
 - 2.1 Provide data sheets with shop drawings attesting to the formaldehyde free manufacture of all plywood, particleboard and the like
3. Samples:
 - 3.1 Provide samples of plastic laminate finish colours and textures.
 - 3.2 Provide a sample of the shop-applied finish.
4. Samples: Submit two samples of wood trim ____ mm long.

1.4 FINISHING HARDWARE

1. Install at no extra charge, all finishing hardware supplied under Section 08700. This may include butts, hinges, snaps, catches, signs, letters, latch sets, lock sets, cupboard locks, drawer/door pulls, automatic closers, panic hardware, strikes, bolts, escutcheons and any other supplied.
2. **Locksets and Latchsets**: Cylindrical. Finishing hardware.
3. **Safeguard 'Keys'**: tag with opening number and deliver to Consultant at Substantial Performance

1.5 DELIVERY, STORAGE, AND HANDLING

1. Protect work from moisture damage.
2. Do not deliver wood materials to project site until building is fully enclosed and interior temperature and humidity are in accordance with recommendations of AWMAC/WI (NAAWS).

PART 2 PRODUCTS

2.1 FINISH CARPENTRY MATERIALS

1. **General**
 - 1.1 Include all rough hardware required for its execution. Use non-corrosive hardware at exterior locations.
 - 1.2 **Wood**: Grade marker under rules of National Grades Authority for softwoods and similarly as applicable for hardwoods: Finish Work and Trim; select Factory or Yard Lumber, clear where surfaces given transparent finish, sound where painted, unless

otherwise specified. For framing Work; structural lumber, appearance grade. Species for each application is indicated under Execution or on drawings.

- 1.3 Dimensions of solid wood members to conform to dressed sizes specified in CSA Standard 0141 unless otherwise indicated or specified. Moisture content of wood at time of installation not to exceed 12%.
- 1.4 Wood Preservative: Green Pentox, Osmose Wood Preserving Company of Canada Limited: Osmose Colourless compatible with finish specified in Section 0900 for members given stained or natural finish.
2. Plastic Laminate:
 - 2.1 Typical Face Panel at Service Counter Wilsonart, High Pressure Laminate (HPL) Virtual Design Library, Woodgrain Staining, Pre-Curated Collection, Walnut Navy, YS019K-05 Timbergrain Finish, w/ AEON Scratch Resistance
 - 2.2 Typical Kickplate at Service Counter Wilsonart, Decorative Metal Alumasteel, 6277-00-419
 - 2.3 Typical Gables and Face Panel (Staff side) at Service Counter Wilsonart, High Pressure Laminate (HPL) Wood Collection, Premium Laminates Landmark Wood, 7981K-12 Softgrain Finish, w/ AEON Scratch Resistance.
 - 2.4 Acceptable Products: "Corian" by Dupont – Price Group 'D', "Staron" by Samsung, Avonite
3. Solid Surfacing: to ANSI – Z124.3 with flammability to CAN/ULC S120 – ½" (13mm) thick solid acrylic polymer. Homogenous sheet composed of natural minerals and 100% acrylic resin.
 - 3.1 Acceptable Products: Wilsonart Solid Surfacing, or approved equal.
 - 3.2 Colour: Beige Travertine 9236SS
 - 3.3 Finish: Semi-gloss range 20-50 (matte polished)
 - 3.4 Edge treatment as noted.
4. Solid Surfacing Adhesive:
 - 4.1 Bonding solid surfacing
 - 4.2 As per Manufacturer's instructions
 - 4.3 Bonding to other products single component silicone to ASTM C920
 - 4.4 Sealer: Water-resistant sealer or glue acceptable to laminate manufacturer.
5. Cupboard Hardware:
 - 5.1 Blum concealed cabinet hinges – Blumotion (soft close).
 - 5.2 Accuride full extension drawer slides.
 - 5.3 Standard wire pulls brushed chrome finish.
 - 5.4 ½" pilaster and clips for adjustable shelves

PART 3 EXECUTION

3.1 GENERAL

1. Prior to commencing fabrication, take site measurements of construction to which Work of this section must conform and through which access must be made.
2. Install materials in accordance with manufacturer's recommendations

3.2 FABRICATION AND INSTALLATION

1. Hollow Metal Doors: Install hollow metal doors supplied under Section 08 11 13.

2. Hollow Metal Frames

- 2.1 Set, secure and brace hollow metal frames supplied under Section 08 11 13
- 2.2 Remove spreaders at floor after frames are anchored.
- 2.3 Prior to final takeover of building, readjust doors and hardware to function freely and correctly.

3. Solid Surfacing:

- 3.1 Exposed edges of splash backs and nosing round off to $\frac{1}{8}$ " (3mm) radius.
- 3.2 Install sill sections in maximum lengths, plumb, level, and rigid adhesively on a $\frac{1}{2}$ " thick plywood base.
- 3.3 Scribe as required to adjacent finishes.
- 3.4 Form hairline field joints using manufacturer's adhesive.
- 3.5 Anchor securely to supporting surface to manufacturer's printed instructions.
- 3.6 Apply a fine, straight bead of clear caulking to joints at dissimilar materials.

4. Cabinet Work:

- 4.1 Assemble Work in mill in units as large as possible. Make joints only when lengths of plastic laminate facing exceeds 12'-0" (3600mm).
- 4.2 Make necessary drillings, cut-outs and the like to template information provided by Divisions 23 and 26.
- 4.3 Plywood Edges: edge with solid wood matching face veneer.
- 4.4 Plastic laminate faced particle board edges edge with matching plastic laminate.
- 4.5 Furnish recesses for receiving pilaster strips at required locations. All shelving to be adjustable unless noted otherwise.
- 4.6 Apply plastic laminate facing sheet to core on backside of panels faced with plastic laminate.

5. Counter Tops:

- 5.1 Counter tops fabricate with integral 4" (100mm) high riser at back and at ends abutting walls (where shown).
- 5.2 Permanently secure cabinet and counter bases to floor or wall by bolting.
- 5.3 Use Tite Joint fasteners and splines in countertop joints. Make flush hairline joints.

6. Millwork and Trim

- 6.1 Examine previous construction to ensure adequacy of grounds, blocking, strapping, framing and other surfaces before finish Work begins, and make deficiencies good. Verify by site measurements that access for shop fabricated Work is assured.
- 6.2 Include finish wood Work and installation of items specified in this Section and as otherwise indicated on drawings.
- 6.3 "Exposed to view" means: surfaces which can be seen from all vantage points, from both within and without the building, and including faces and edges of opened doors, bottom surfaces that are higher than 1,220 mm above floors, and top surfaces lower than 1,980 mm above floor
- 6.4 Cooperate to ensure that fastenings set by Others are provided and located, that Work supplied by Others is installed to their specification, and that those responsible for back priming are notified in sufficient time to schedule their Work.
- 6.5 Brace Work where required and remove when no longer needed.

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- 6.6 Cut and fit Work with clean, sharp profiles, and closely fitted joints. Cope trim and mouldings at interior corners and returns, and meter at external corners. Scribe and joint accurately at junctions, and finish flat, true and smooth at joints. Install trim or filler panels to close gaps.
- 6.7 Fasten Work to blind nailing wherever possible. Set nails where they occur on surfaces exposed to view or weather for filling under Work of Section 09900. Glue and block built-up Work. Use screws where strain, usage or excessive shrinkage is anticipated, and where indicated on drawings.
- 6.8 Set thresholds provided from Hardware Allowance in a bed of caulking to prevent air and water infiltration beneath sill.
- 6.9 Clean hardware as recommended by supplier, clean wood to leave free from finish defects on any exposed surface.
- 6.10 Wood Preservative Treatment: give two coats of preservative to wood installed at exterior of building. Give end grain of treated members two soaking coats after cutting to length.
- 6.11 Dampproof Membrane: Install membrane between wood member concrete slabs and masonry against earth.
- 6.12 Window Stools: Solid surfacing. Set all fastenings and finish smooth and flush.
- 6.13 Trim: Generally half-rounds, trims around doors, bases and similar Work of profiles indicated on drawings and schedules.
- 7. **Finish Hardware**
 - 7.1 Install all finish hardware in accordance with manufacturer's printed instructions.
 - 7.2 Safeguard keys; tag them with opening number and deliver them to person designated by Consultant at building completion.

END OF SECTION

SECTION 07 92 00 - JOINT SEALANTS

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 09 21 16 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.

1.2 REFERENCE STANDARDS

1. ASTM C794 - Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants; 2018 (Reapproved 2022).
2. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2016.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
2. Samples for Verification: Where custom sealant colour is specified, obtain directions from Consultant and submit at least two physical samples for verification of colour of each required sealant.
3. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.
4. Site Quality Control Plan: Submit at least two weeks prior to start of installation.
5. Site Quality Control Log: Submit filled out log for each length or instance of sealant installed, within 10 days after completion of inspections/tests; include bagged test samples and photographic records, if any.

1.4 QUALITY ASSURANCE

1. Maintain one copy of each referenced document covering installation requirements on site.
2. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.
3. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
 - 3.1 Adhesion Testing: In accordance with ASTM C794.
 - 3.2 Compatibility Testing: In accordance with ASTM C1087.
 - 3.3 Allow sufficient time for testing to avoid delaying the work.
 - 3.4 Deliver to manufacturer sufficient samples for testing.
 - 3.5 Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
 - 3.6 Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.
4. Site Quality Control Plan:
 - 4.1 Site testing agency's qualifications.
 - 4.2 Site Quality Control Log Form: Show same data fields as on Preinstallation Site Adhesion Test Log, with known information filled out and lines for multiple tests per

sealant/substrate combinations; include visual inspection and specified site testing; allow for possibility that more tests than minimum specified may be necessary.

1.5 ENVIRONMENTAL AND SAFETY REQUIREMENTS

1. Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada.
2. Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

1.6 WARRANTY

1. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
2. Correct defective work within a five year period after Date of Substantial Performance.
3. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.
4. Contractor hereby guarantees that caulking Work will not leak, crack, crumble, melt, shrink, run, lose adhesion to or stain adjacent surfaces in accordance with GC 12.3 **but for a period of three (3) years from date of Substantial Performance. Provide sealant validation by the Sealant Weatherproofing Restoration Institute (SWRI).**

PART 2 PRODUCTS

2.1 MATERIALS

1. **Primers:** Type recommended by sealant manufacturer.
2. **Joint backing material:**
 - 2.1 Vertical surfaces (excluding EIFS) – equal to Soft Rod an extruded polyolefin foam by Tremco Ltd.
 - 2.2 Horizontal surfaces and EIFS surfaces – equal to Standard Backer Rod closed cell polyethylene foam by Tremco Ltd.
3. **Bond breaker:** pressure sensitive plastic tape, which will not bond to the sealant 3M #226 or #481 or Valley Industries #40 place at the back of the joint.
4. **Void Filler:** Loose glass fibre.
5. **Sealants:** (types and applications)
 - 5.1 **Multi-component, polyepoxide urethane:** Equal to CGSB specification CAN/CGSB-19.24-M90, Type 2, Class B. DYmeric by Tremco Ltd.
Use: at all interior locations, except where another type is specified.
 - 5.2 **One part moisture curing polyurethane:** to CAN/CGSB-19.13-M, Classification MC-2-25-B-N Dymonic or Dymonic FC by Tremco Ltd. Use: interior locations
 - 5.3 **Medium modulus, moisture curing, one part silicone sealant:** to ASTM C920, CAN/CGSB-19.13-M, Classification MCG-2-25-A-L equal to Dow Corning 795, Dow Corning CWS, or Spectrem 2 by Tremco Ltd.
Use in glass-to-glass, glass to metal, and metal-to-metal curtain wall joints.
 - 5.4 **Mildew resistant, one component silicone sealant:** to ASTM C920 CAN/CGSB 19.13M equal to Dow Corning Tub, Tile, and Ceramic or Tremsil 200 White and Clear by Tremco

Ltd.

Use on fixtures, bathtubs and vanity tops.

- 5.5 One component, non-skinning, non-hardening acoustical sealant: to CAN/CGSB-19.21-M equal to Acoustical Sealant by Tremco Ltd.

Use at all vapour barrier joints and openings in drywall systems as shown on the drawings or specified.

- 5.6 One component, paintable acrylic latex sealant: to CGSB-19-GP-17M equal to Tremflex 834 by Tremco Ltd.

Use in interior non-moving joints that may be painted.

- 5.7 Equilvalent products by GE Sonneborn and SIKA are acceptable. Indicate the manufacturer and proposed product.
6. Colour selection from Manufacturer's standard range.
7. Cleaning material for surfaces to receive sealant as recommended by the manufacturer of sealant.

PART 3 EXECUTION

3.1 EXAMINATION

1. For unusual or complicated caulking conditions meet at the site with sealant manufacturer's representative to discuss procedures before commencing the Work.
2. Before commencing Work, verify at the site that joint configuration and surfaces have been provided as specified under Work of other sections to meet intent of sealant specification
3. Verify that joints are ready to receive work.
4. Verify that backing materials are compatible with sealants.

3.2 PROTECTION

1. Protect installed Work of other trades from staining or contamination.

3.3 PREPARATION OF JOINT SURFACES

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

3.4 PRIMING

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

3.5 BACKUP MATERIAL

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

3.6 MIXING

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

3.7 APPLICATION

1. **Sealant:**
 - 1.1 Apply sealant in accordance with manufacturer's written instructions.
 - 1.2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
 - 1.3 Apply sealant in continuous beads.
 - 1.4 Apply sealant using gun with proper size nozzle.
 - 1.5 Use sufficient pressure to fill voids and joints solid.
 - 1.6 Form surface of sealant with bull bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
 - 1.7 Tool exposed surfaces before skinning begins to give slightly concave shape.
 - 1.8 Remove excess compound promptly as Work progresses and upon completion.
2. **Caulk But do not Restrict it to The Following:**
 - 2.1 Exterior and interior hollow metal steel door frames: interior screens (both sides of frames).
 - 2.2 Exposed control joints in masonry walls; masonry wall corners; masonry-to-column junctures; joints in front of steel lintels bearing on exterior masonry jambs.
 - 2.3 Raked joints in junction of walls running at different angles, and at junction of walls to columns.
 - 2.4 Joints between washroom vanities, and other counters, urinals, and adjacent surfaces.
 - 2.5 Wall to floor junctions and joints in floor, where typically indicated on drawings.
 - 2.6 Joints between masonry and concrete surfaces.
 - 2.7 Joints between new work and existing.
 - 2.8 Joints between gypsum board and masonry, or other materials.
 - 2.9 Penetrations through roofs, floors and walls other than firestopping.
 - 2.10 At locations shown on drawings
3. **Curing:**
 - 3.1 Cure sealants in accordance with sealant manufacturer's instructions.
 - 3.2 Do not cover up sealants until proper curing has taken place.
4. **Cleanup:**
 - 4.1 Clean adjacent surfaces immediately and leave Work neat and clean.
 - 4.2 Remove excess and droppings, using recommended cleaners as Work progresses.
 - 4.3 Remove masking tape after initial set of sealant.

END OF SECTION

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 08 70 00 - Door Hardware.
2. Section 08 80 00 - Glazing: Glass for doors and borrowed lites.
3. Section 09 91 23 - Interior Painting: Site painting.

1.2 REFERENCE STANDARDS

1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2020.
2. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2021a.
3. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2018a.
4. CSDMA Storage and Installation Guide - Guide Specification for Installation and Storage of Hollow Metal Doors and Frames; 2012.
5. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
2. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.
3. Samples: Submit two samples of metal, 50 mm by 50 mm in size showing factory finishes, colours, and surface texture.

1.4 DELIVERY, STORAGE, AND HANDLING

1. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.1 MANUFACTURERS

1. Hollow Metal Doors and Frames:

2.2 DESIGN CRITERIA

1. Requirements for Hollow Metal Doors and Frames:
 - 1.1 Steel used for fabrication of doors and frames shall comply with one or more of the following requirements; Galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, Commercial Steel (CS) Type B for each.
2. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for

instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.3 HOLLOW METAL DOORS

1. **Steel:** Commercial grade tension-levellled to ASTM A924-97 (M97), galvanized to ASTM A653-97 (M97), coating designation A 40 (ZF 120) paintable galvaneal.
2. **Door Cores:**
 - 2.1 Standard Interior: Honeycomb 1" (25mm) Kraft paper - weight 36.3 kg. (80lbs) per ream, minimum density: 16.5 kg/m; (1.03 pcf) minimum sanded to required thickness.
 - 2.2 Insulated Exterior: Rigid foam polyisocyanurate to ASTM C1289 closed cell board total R= 11.
 - 2.3 Temperature Rise Rated (T.R.R.): core composition to limit temperature rise on exposed side to 250°C @ 30 minutes.
3. **Adhesives:**
 - 3.1 Honeycomb cores and steel components: Heat resistant, single component polyurethane reactive (water) hot melt ULC approved.
 - 3.2 Lock Seam Doors: Resin reinforced polychloroprene fire resistant high viscosity UL approved.
 - 3.3 Insulated core: Epoxy based ULC contact cement.
4. **Primers:** Rust inhibitive touch-up only.
5. **Miscellaneous:**
 - 5.1 Door Silencers: Single stud neoprene/rubber type.
 - 5.2 Exterior Topcaps: Rigid polyvinylchloride extension.
 - 5.3 Frame Thermal Breaks: As topcaps.
 - 5.4 Fire Labels: Metal rivetted

2.4 HOLLOW METAL FRAMES

1. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.
2. **General:**
 - 2.1 Exterior Frames: 16 gauge welded construction thermally broken.
Interior Frames: 16 gauge welded construction.
 - 2.2 Blank, reinforce, drill and tap for mortised, templated hardware.
 - 2.3 Protect mortised cutouts with steel guard boxes. Delete at drywall applications.
 - 2.4 Reinforce frames where required, for surface mounted hardware. Drilling and tapping is by others, on site, at time of installation.
 - 2.5 Provide for appropriate anchorage to floor and wall construction. Locate each wall anchor immediately above or below each hinge reinforcement on the hinge jamb and directly opposite on the strike jamb. For rebate opening heights up to and including 1520mm (60") provide two (2) anchors, and an additional anchor for each additional 760mm (30") of height except as indicated below. Provide frames in previously placed concrete, masonry or structural steel with anchors located not more than 150mm (6") from the top and bottom of each jamb, and intermediate anchors at 660mm (26") on

centre maximum. Fasteners for such anchors: Provided by others.

- 2.6 Prepare each door opening for single stud rubber door silencers, three (3) for single door openings, two (2) for double door openings.
- 2.7 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

3. **Welded Type:**

- 3.1 Accurately mitred or mechanically jointed, securely welded on the inside of the profile.
- 3.2 Cope butt joints of mullions, transom bars, centre rails and sill accurately and weld securely.
- 3.3 Welding: To CSA W59-M89.
- 3.4 Grind welded joints to a smooth, uniform finish.
- 3.5 Attach floor anchors securely to the inside of each jamb profile.
- 3.6 Weld in two (2) temporary jamb spreaders per frame to maintain proper alignment during shipment.
- 3.7 Glazing stops: Formed channel, minimum 16mm (5/8") height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.
- 3.8 When required due to site access, as specified on Architect drawings or due to shipping limitations, frame product for large openings shall be fabricated in sections, with splice joints for field assembly by others.

4. **Knocked-Down Type:**

- 4.1 Ship knocked down type frames unassembled.
 - 4.2 Include mechanical joints which interlock securely.
 - 4.3 Securely attach floor anchors to the inside of each jamb profile.
5. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
6. Frames in Masonry Walls: Size to suit masonry coursing with head member 100 mm high to fill opening without cutting masonry units.

2.5 FABRICATION

1. **General:**

- 1.1 Swing type, flush, with provision for glass and/or louvre openings as indicated on schedules.
- 1.2 Blank, reinforce, drill and tap for mortised, templated hardware.
- 1.3 Holes 12.7mm (.5") diameter and larger factory prepared in shop.
- 1.4 Reinforce where required, for surface mounted hardware. Drilling and tapping is by others, on site, at time of installation.
- 1.5 Fit top and bottom of doors with inverted, recessed, spot welded channels.
- 1.6 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.
- 1.7 Include fire labeled doors where scheduled.
- 1.8 Transoms or Other Panels: Construct in same manner as doors.

2. **Interior:**

- 2.1 Form each face from 16 GA steel.

- 2.2 Laminate each face to Honeycomb core under pressure.
- 2.3 Mechanically interlock longitudinal edges.
- 2.4 Fill all voids with honeycomb for temperature rise rated core.

2.6 FINISHES

- 1. Fill and sand smooth tool marks, abrasions, and surface blemishes to present smooth uniform surfaces.
- 2. Primer: Shop apply zinc rich primer to repair damaged zinc coatings arising from fabrication; cure primer fully before shipping to site; include compatible primer for site finishing and correction of surface abrasions to zinc coatings and factory applied primer.
- 3. Factory Finish: Manufacturer's standard coating.
 - 3.1 Colour: As selected by Consultant from manufacturer's standard range.
 - 3.2 Colour: As indicated on Drawings.

2.7 ACCESSORIES

- 1. Glazing: As specified in Section 08 80 00, factory installed.
- 2. Grout for Frames: Portland cement grout with maximum 100 mm slump for hand troweling; thinner pumpable grout is prohibited.
- 3. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
- 4. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.1 EXAMINATION

- 1. Verify existing conditions before starting work.
- 2. Verify that opening sizes and tolerances are acceptable.
- 3. Verify that finished walls are in plane to ensure proper door alignment.

3.2 PREPARATION

- 1. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.3 INSTALLATION

- 1. Install doors and frames in accordance with reviewed Shop Drawings, CSDMA Storage and Installation Guide, manufacturer's instructions, related requirements of specified door and frame standards, and custom guidelines indicated.
- 2. Install prefinished frames after painting and wall finishes are complete.
- 3. Install fire rated units in accordance with NFPA 80.
- 4. Coordinate frame anchor placement with wall construction.
- 5. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.
- 6. Install door hardware as specified in Section 08 71 00.
- 7. Comply with glazing installation requirements of Section 08 80 00.

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8. Coordinate installation of electrical connections to electrical hardware items.
9. Touch up damaged factory finishes.

3.4 ADJUSTING

1. Adjust for smooth and balanced door movement.
2. Adjust sound control doors so that seals are fully engaged when door is closed.
3. Test sound control doors for force to close, latch, and unlatch; adjust as necessary in compliance with requirements.

END OF SECTION

SECTION 08 11 16 - ALUMINUM DOORS AND FRAMES

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 07 92 00 - Joint Sealants: Sealing joints between door frames and adjacent construction.
2. Section 08 71 00 - Door Hardware: Hardware for aluminum doors.
3. Section 08 80 00 - Glazing: Glazing materials for aluminum doors and frames.

1.2 REFERENCE STANDARDS

1. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document); 2015.
2. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2016).

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements for submittal procedures.
2. Shop Drawings: Include elevations of each opening type.
3. Selection Samples: Complete set of colour and finish options, using actual materials, for Consultant's selection.
4. Verification Samples: Actual pieces of products in each finish specified, not less than 150 mm square or 150 mm long for linear components. For finishes subject to colour variation, include not less than two samples illustrating extreme range to be anticipated.
5. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.4 DELIVERY, STORAGE, AND HANDLING

1. Deliver aluminum components in manufacturer's standard protective packaging, palletted, crated, or banded together.
2. Store components in clean, dry, indoor area, under cover in manufacturer's packaging until installation.
3. Delivery and Acceptance Requirements: Deliver doors and frames to project site; provide protection during transit and site storage to prevent distortion or indentation, and any additional protection required to prevent damage to finish of doors and frames and as follows:
 - 3.1 Inspect doors and frames on delivery for damage, and notify shipper and supplier if damage is found.
 - 3.2 Minor damages may be repaired provided refinished items match new work and are acceptable to the Consultant.
 - 3.3 Remove and replace damaged items that cannot be repaired as directed by the Consultant, at no additional cost to the Owner.
4. Protect materials and finish from damage during handling and installation.

1.5 SITE CONDITIONS

1. Do not begin installation of interior aluminum components until space has been enclosed and ambient thermal conditions are being maintained at levels consistent with final project requirements.

1.6 WARRANTY

1. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.
2. Correct defective Work within a five year period after Date of Substantial Performance.

PART 2 PRODUCTS

2.1 DOORS AND FRAMES

1. This Specification is based on Alumicor entrance systems.
 - 1.1 Approved manufacturers: Kawneer, Oldcastle and Commdor.
2. **Aluminium Extrusions:** Aluminium Association Alloy AA 6063-T5.
3. **Sheet and Plate Aluminum:** Aluminum Association Alloy AA 1100, anodizing quality.
4. **Steel Reinforcement:** To CAN3 G40.21-M, Grade 300W.
5. **Fasteners:** 300 Series stainless steel or 400 Series stainless steel cadmium plated.
6. **Weatherstripping:** Elastomeric weathering of tubular shape and Work pile at meeting rails.
7. **Aluminum Doors:**
 - 7.1 Acceptable Material: 400-A medium stile swing door, 600A wide stile Alumicor (for insulated doors add Insul).
Acceptable Alternates: Kawneer, Commdor, Old Castle.
 - 7.2 Centre rail nominal – Change door type to a eg. 100-B.
 - 7.3 Dual moment welded corner construction.
 - 7.4 Glazing Stops: Square interlocking snap-in type for dry glazing. Exterior stops: tamperproof type (Interior stops).
 - 7.5 Hinges: Butt stainless steel 5 knuckle 2 ball bearing – 2 pairs per door.
 - 7.6 Deadlock Cylinder at exterior doors (provided from hardware allowance).
 - 7.7 Push: 246.
 - 7.8 Pull: 1180 c/w mounting bolts.
 - 7.9 Bolt: Top and bottom on one leaf of pair doors.
 - 7.10 Mullion: Purpose-made removable extruded aluminum at pairs of doors - Von Duprin 5754.
 - 7.11 Door Holder: Glynn Johnson 90 series overhead door stops.
 - 7.12 Exit Devices: Von Duprin 98/99 Rim type.
 - 7.13 Threshold: Aluminum.
 - 7.14 Glazing Tape at Doors: equal to Tremco 100% premoulded polyisobutylene cross-link butyl.
 - 7.15 Caulking: To CGSB-19-13M one part silicone equal to Dow Corning 795 Sealant.
8. **Aluminum Frames:**
 - 8.1 Acceptable Material:

- 8.1.1 Alumicor 1800 series store front system 1¾" x 4½" (44.5 x 114.3) nominal dimension, non-thermal, weatherseal, centered weather seal glazed, shear block
AND/OR
- 8.1.2 Alumicor 3400 series store front system 2" x 4½" (50.8 x 114.3) nominal dimension, thermal, weatherseal, centered weather seal glazed, shear block.
- 9. **Aluminum Finishes:**
 - 9.1 Finish exposed surfaces of aluminum components in accordance with Aluminum Association. Designation System for Aluminum Finishes.
 - 9.2 Bronze anodized finish to match existing exterior frames.
 - 9.3 Appearance and properties of anodized finishes designated by the Aluminum Association as Architectural Class 1, Architectural Class 2, and Protective and Decorative.
- 10. **Steel Finishes:** Finish steel clips and reinforcing steel with [steel primer to CGSB 1-GP-40M] [zinc coating to CSA G164].
- 11. **Fabrication:**
 - 11.1 Doors and framing to be by same manufacturer.
 - 11.2 Fabricate doors and frames to profiles and maximum face sizes as shown. Provide minimum 22mm bite for insulating glazed units.
 - 11.3 Provide structural steel reinforcement as required.
 - 11.4 Fit joints tightly and secure mechanically.
 - 11.5 Conceal fastenings.
 - 11.6 Mortise, reinforce, drill and tap doors, frames and reinforcements to receive hardware using templates provided from Door Hardware.
 - 11.7 Isolate aluminum from direct contact with dissimilar metals, concrete and masonry.
- 12. Dimensions and Shapes: As indicated on Drawings; dimensions indicated are nominal.
 - 12.1 Provide the following clearances:
 - 12.1.1 Hinge and Lock Stiles: 3 mm.
 - 12.1.2 Between Meeting Stiles: 6 mm.
 - 12.1.3 At Top Rail and Bottom Rail: 3 mm.

PART 3 EXECUTION

3.1 EXAMINATION

- 1. Verify that wall surfaces and openings are ready to receive frames and are within tolerances specified in manufacturer's instructions.
- 2. Verify that frames installed by other trades for installation of doors of this section are in strict accordance with recommendations and approved Shop Drawings and within tolerances specified in manufacturer's instructions.
- 3. If substrate preparation is the responsibility of another installer, notify Consultant of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- 1. Perform cutting, fitting, forming, drilling, and grinding of frames as required for project conditions.
- 2. Replace components with damage to exposed finishes.

3. Separate dissimilar metals to prevent electrolytic action between metals.

3.3 INSTALLATION

1. Install doors and frames in accordance with manufacturer's instructions and approved Shop Drawings.
2. Set frames plumb, square, level, and aligned to receive doors. Anchor frames to adjacent construction in strict accordance with manufacturer's recommendations and within specified tolerances.
3. Where aluminum surfaces contact metals other than stainless steel, zinc, or small areas of white bronze, protect from direct contact by painting dissimilar metal with heavy coating of bituminous paint.
4. Hang doors and adjust hardware to achieve specified clearances and proper door operation.
5. Install door hardware as specified in Section 08 71 00.
6. Comply with glazing installation requirements of Section 08 80 00.
7. Where heads of frames, or screens, abut false ceiling or soffits, brace back to firm structure above. Do not fasten solely to the ceiling, or soffit.
8. Be responsible that anchors and inserts, whether installed by the Work of this section or others, are adequate to meet the specified requirements.
9. Coordinate frame installation with installation of electric swing door operator.

3.4 CAULKING

1. Seal joints to provide weathertight seal at outside [and air, vapour seal at inside].
2. Apply sealant in accordance with Section 07 92 00 - Sealant. Conceal sealant within the aluminum Work except where exposed use is permitted by Consultant.

3.5 CLEANING

1. Upon completion of installation, thoroughly clean door and frame surfaces in accordance with AAMA 609 & 610.
2. Do not use abrasive, caustic, or acid cleaning agents.

3.6 PROTECTION

1. Protect products of this section from damage caused by subsequent construction until Date of Substantial Performance.
2. Replace damaged or defective components that cannot be repaired to a condition indistinguishable from undamaged components.

END OF SECTION

SECTION 08 42 29.23 - SLIDING AUTOMATIC ENTRANCES

PART 1 – GENERAL

1.1 RELATED WORK

1. Openings: Division 08, applicable sections.
2. Electrical: Division 26, applicable sections

1.2 REFERENCE STANDARDS

1. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015.
2. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
3. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
4. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
5. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

1.3 SUBMITTALS

1. PRODUCT DATA: Submit manufacturer's complete product and installation data.
2. SHOP DRAWINGS: Submit drawings showing layout, profiles, product components including anchorage, accessories, finish and glazing details (where required).
3. CLOSEOUT SUBMITTALS: Submit the following:
 - 3.1 Owner's Manual.
 - 3.2 Warranty document as specified herein.
 - 3.3 AAADM inspection compliance form completed and signed by certified AAADM inspector prior to doors being placed in operation as proof of compliance with ANSI A156.10.

1.4 QUALITY ASSURANCE AND PERFORMANCE REQUIREMENTS

1. INSTALLERS QUALIFICATIONS: Installer shall be factory trained, certified by AAADM, and experienced to perform work of this section.
2. MANUFACTURER'S QUALIFICATIONS: Manufacturer to have minimum (5) five years successful experience in the fabrication of automatic doors of the type required for this project. Manufacturer capable of providing field service representation during installation, approving acceptable installer and approving application method.
3. CERTIFICATIONS: Automatic sliding door systems and options shall be factory certified to meet performance design criteria in accordance with the following standards:
 - 3.1 ANSI A156.10: For Power Operated Pedestrian Doors; Sliding Doors section.
 - 3.2 NFPA 101: Code for Safety to Life from Fire in Buildings & Structures.
 - 3.3 UL 325: Electrical Door, Drapery, Gate, Louver, and Window Operators and Systems.
 - 3.4 BOCA: Means of Egress, Power Operated Doors
 - 3.5 ICBO/UBC: Egress Through Lobbies
 - 3.6 ICC/IBC: Egress Section

4. **FORCED ENTRY RESISTANCE:** Sliding doors shall meet requirement of AAMA 1303.5.
5. **OPERATING RANGE:** -30° F to 130° F (-34° C to 54° C)
6. **OPENING FORCE REQUIREMENTS FOR EMERGENCY EGRESS:**
 - 6.1 Slide-swing panels shall require no more than 50 lbf. (222 N) of force to swing open. Slide-swing panels shall be capable of swinging out 90° from any position of slide movement.
 - 6.2 Slide-swing panels and swing-out sidelites shall have torsion spring designed to re-close panel if pushed open in the direction of egress.
 - 6.3 If power fails, slide panels can be manually slid open with no more than 15 lbf (222 N) of force.
 - 6.4 Units are UL listed as an exit way and are compliant with NFPA 101.
7. **CLOSING FORCE REQUIREMENTS:** Maximum force required to prevent sliding panel from closing = 28 lbf. (124.5 N) Adjustable Reversing Circuit will reopen door unit if closing path is obstructed.
8. **HEADER CAPACITY:** Header shall be capable of supporting up to 90 lbs. (40.8 kg) per slide panel over spans up to 14'-0" (4267mm) without intermediate supports.

1.5 WARRANTIES

1. **MANUFACTURER'S WARRANTY:** Units to be warranted against defect in material and workmanship for a period of one year from the Date of Substantial Completion.
 - 1.1 Manufacturer's warranty is in addition to, and not a limitation of, other rights owner may have under Contract Documents.
2. **DISTRIBUTOR'S WARRANTY:** One year warranty: Labor & transportation charges for defective parts replacement.

1.6 PROJECT CONDITIONS

1. **FIELD MEASUREMENTS:** Verify actual dimensions/openings by field measurements before fabrication and record on shop drawings. Coordinate with fabrication and construction schedule to avoid construction delays.

1.7 DELIVERY, STORAGE AND HANDLING

1. **ORDERING AND DELIVERY:** Comply with factory's ordering instructions and lead time requirements. Delivery shall be in factory's original, unopened, undamaged containers with identification labels intact.
2. **STORAGE AND PROTECTION:** Provide protection from exposure to harmful weather conditions and vandalism.

PART 2 – PRODUCTS

2.1 MANUFACTURER

1. **HORTON AUTOMATICS,** a division of Overhead Door Corporation, shall manufacture automatic sliding door(s) of type(s) and size(s) specified on plans and door schedule.

2.2 EQUIPMENT

1. **MANUFACTURED DOOR UNITS:** Shall include operator, header with roller track, carrier assemblies, framing jambs, sliding door panel(s), sidelite(s), activation, safety devices and

- accessories required for complete installation. Leading slide panel will open twice as fast as adjacent sliding panel. When unit slides in full open position, maximum slide opening will be approximately 70% of overall package width.
- 1.1 Configuration: Single Telescoping (3 panels) or Biparting (6 panels).
 - 1.2 Mounting Type:
 - 1.2.1 Perimeter mounted within rough opening with sliding panel(s) sliding along sidelite.
 - 1.2.2 Surface mounted with sliding panel(s) sliding along wall eliminating need for sidelite.
 - 1.3 Door Type:
 - 1.3.1 Type 010T: Sliding panel(s) 'X' shall slide along interior side.
 - 1.3.2 Type 110T: Slide-swing panel(s) 'SX' shall slide along exterior side.
 - 1.3.3 Type 310T: Slide-swing panel(s) 'SX' shall slide along interior side. Unit has Swing-out sidelite 'SO'. Note: Not available as surface mount.
2. OPERATOR: The Electric Operating Mechanism shall be ProSlide® Telescoping Series 2003T Belt Drive. The operator shall be mounted and concealed within the header.
- 2.1 Operating force shall be accomplished through a 1/8 HP DC permanent magnet motor with worm gear transmission and 1800 RPM working with drive belt, attached door hangers, and idler pulley. Maximum
 - 2.1.1 current draw shall not exceed 3.15 amps. Drive belt to be steel reinforced nylon, 1/2" (13mm) wide. Idler pulley to be reinforced, metallic material.
 - 2.2 Microprocessor-based control shall include a 40 character alphanumeric display to provide ease of adjustment and comprehensive diagnostics, including error and alarm logging. All speeds, forces and time delays shall be independently adjustable. Actuating and safety sensors that provide self-monitoring are supported. Supported operating modes include 2-Way Automatic / 1-Way Exit, Full / Reduced Door Opening, and Day / Night Operation.
 - 2.3 3. Finger Safety: When unit slides open, strike rail of sliding panel will stop short of adjacent sidelite; resulting opening is net slide.
 - 2.3 4. On/Off Switch shall be supplied. When switched OFF, unit reverts to free manual operation (likewise during electrical power failure).
3. SECURITY AND SAFETY POWER FAIL OPTIONS:
- 3.1 Automatic lock: Automatically locks slide function of door when in closed position. Additional power supply for autolock not acceptable.
 - 3.1.1 Autolock Fail Secure: If power fails the lock engages.
 - 3.1.2 Autolock Fail Safe: If power fails the lock disengages.
 - 3.2 Monitored Power Fail Options (battery back-up):
 - 3.2.1 Software Selectable Power Fail Open: If power fails the door slides open.
 - 3.2.2 Software Selectable Power Fail Close: If power fails the door slides closed.
4. PROSLIDE® TELESCOPING HEADER: Shall be 8" (152mm) deep by 6" (152mm) high. Header shall be aluminum construction with removable face plate.
5. CARRIER ASSEMBLIES AND HEADER ROLLER TRACK: Shall be double track system that will provide for two-speed travel of sliding panels. Carrier assemblies shall support door panels with four rollers per panel. Rollers will be non-metallic, high quality ball bearing wheels 2" (51mm) diameter. Anti-Derailing shall be accomplished by means of two additional adjustable

- rollers per panel. Overhead header roller track shall be continuous aluminum and replaceable.
6. SLIDING PANEL(S) AND SIDELITE(S): Shall be aluminum, 1-3/4" (44mm) deep with narrow stile rails. An intermediate, horizontal rail (muntin bar) or push bar shall be furnished for safety on breakaway panels. Standard bottom rail shall be 4" (102mm) tall. Slide panels to have synchronizing cable and speed regulating mechanism. Sliding panels shall have concealed bottom guides to stabilize slide travel.
- 6.1 Weather-stripping to be along perimeter of sliding panel(s) and swing-out sidelite(s) and to be captured in extruded aluminum door panel. Surface applied self-adhesive weatherstripping not acceptable. Adjustable spring-loaded double astragal weather-stripping at lead edge, double mohair at interlock rails
- 6.2 Standard glazing prep to be for 1/4" (6mm) glass.
- 6.3 Sliding Panel and Sidelite Options shall be:
- 6.3.1 Medium stile construction: 3 3/4" (95mm) wide vertical rails with 6 1/2" (165mm) tall bottom rail. Note: Medium stile construction will reduce slide opening.
- 6.3.2 Wide stile construction: 5" (127mm) wide vertical rails with 6 1/2" (165mm) tall bottom rail. Note: Wide stile construction will reduce slide opening.
- 6.3.3 Surface applied push bar 1 1/2" (32mm) wide in lieu of standard muntin bar.
- 6.3.4 Horizontal muntins 2 1/4" (57mm) wide or custom muntins from 1/2" (13mm) to 10" (254mm) wide.
- 6.3.5 Custom bottom rails up to 10" (254mm) tall.
- 6.3.6 Additional and/or extra wide sidelites of size and type indicated.
- 6.3.7 Recessed sidelite and track and non-threshold application.
- 6.3.8 Prep for glazing 5/16" (16mm) to 1" (25mm).
7. BREAKOUT PANELS: Slide-swing panels can swing out 90° from any position of slide movement and require no more than 50 lbf. (222 N) of force applied at the lock stile to open. Slide-swing panels and swing-out sidelites shall utilize spring loaded ball detent.
- 7.1 Slide-swing panels and swing-out sidelites shall have torsion spring designed to re-close panel if pushed open in the direction of egress.
- 7.2 Breakout mechanism shall provide support across full width of the door, in normal operating mode. In breakout mode, torsion assembly shall support weight of the door to minimize drop during emergency egress.
- 7.3 Slide-swing panels shall include intermediate horizontal rail.
- 7.4 Units with breakout feature are UL listed as an exit away and are compliant with NFPA 101.
8. JAMBS/FRAME: Shall be aluminum with dimensions of 1 3/4" (44mm) deep by 6" (152mm) wide.
- 8.1 Optional 1 3/4" (44mm) deep by 8" (152mm) wide.
- 8.2 Optional transom of size and type indicated, mounted on header
9. THRESHOLD: Shall be aluminum and:
- 9.1 Type 310T: Continuous (jamb-to-jamb) 1/2" (25mm) tall by 9" (229mm) wide. Optional recessed.
- 9.2 Type 110T & 010T: 1/2" (25 mm) tall by 7" (178mm) wide or 4" (102mm) wide. Optional non-threshold application.

10. **HARDWARE:** ANSI A156.5, Grade 1, 2-Point Locking provided and installed in strike rail shall include:
 - 10.1 Hookbolt Latch, 5/8" laminated stainless steel, latching into jamb or adjacent strike rail.
 - 10.2 3/8" hex-bolt into breakout carrier frame.
 - 10.3 Keyed 1 5/32" (29mm) Cylinder mounted on exterior side with 31/32" (25mm) backset
 - 10.4 Thumb-turn mounted on interior side.
 - 10.5 Hardware Options:
 - 10.5.1 3-Point locking for biparting doors
 - 10.5.2 Flush Panic Exit Device recessed in 6 1/2" muntin bar for door types 110T and 310T.
 - 10.5.3 Surface mounted Panic Exit Device for door type 310.
 - 10.5.4 Lock Position Indicator.
 - 10.5.5 Cylinder Guard.
 - 10.5.6 Cylinder Escutcheon.

2.3 RELATED EQUIPMENT

1. **BASIC SENSOR SYSTEM:** Shall be 24 VDC, class II circuit and shall be adjusted and installed in compliance with ANSI A156.10. System shall include the following:
 - 1.1 **ACTIVATION SENSORS:** Microwave or active infrared sensor shall be header-mounted each side of door unit for detection of traffic from each direction.
 - 1.2 **THRESHOLD PRESENCE SENSORS:**
 - 1.2.1 Header mounted sensors shall provide active infrared presence detection on each side of the door unit and shall remain active throughout the entire door opening and closing cycle.
 - 1.2.2 Hold-open beams: Two pulsed infrared photoelectric beams to be mounted in vertical rails of sidelite or in jambs. Sender/receiver arrangement parallels door opening.

2.4 RELATED WORK REQUIREMENTS

1. **ELECTRICAL:** 120 VAC, 50/60 cycle, single phase, dedicated 20 amp circuit per operator. Non-North American voltages can be 240 VAC 50/60 cycle (operator must have 240 volt power supply).
2. **GLASS AND GLAZING:** Glass stops, glazing vinyl and setting blocks for field glazing as per Safety Glazing standard ANSI Z97.1.2. Contractor to coordinate acquisition of glass in thickness and type in accordance with manufacturer's recommendations for prescribed design.

2.5 MATERIALS, FINISHES AND FABRICATION

1. **EXTRUDED ALUMINUM:** ASTM B221, 6063-T5 alloy and temper, anodized:
 - 1.1 Structural Header Sections: Minimum 3/16" (5 mm) thickness.
 - 1.2 Structural Frame Sections: Minimum 1/8" (3 mm) thickness.
 - 1.3 Structural Panel Sections: Commercial grade.
2. **FINISHES** (for all exposed aluminum surfaces): Shall be one of the following:
 - 2.1 Bronze anodized finish to match existing aluminum frame, Architectural Class 1 Anodized Coating, AA-MI2C22A44.
3. **PANEL CONSTRUCTION:**

- 3.1 Corner block type with 3/16" steel backup plate construction, mechanically secured with minimum of four hardened steel screws. Sash consists of snap-in glass stops, snap-in glazing beads and vinyl gaskets.
- 3.2 Slide-swing doors to be supplied with adjustable glass setting block to allow for adjusting of door to meet site conditions eliminating the need for additional shims.
4. FRAME CONSTRUCTION: Butt joints, mechanically secured with screws and formed alum. corner brackets.
5. OPERATOR CONSTRUCTION: Electromechanical, modular type construction.

PART 3 - EXECUTION

3.1 EXAMINATION

1. SITE VERIFICATION OF CONDITIONS: Installer must verify that base conditions previously installed under other sections are acceptable for product installation according to with manufacturer's instructions. Notify the Contractor in writing of conditions detrimental to the proper and timely completion of work. Do not start work until all negative conditions are corrected in a manner acceptable to the installer and manufacturer.

3.2 INSTALLATION

1. GENERAL: Installer shall be factory trained, certified by AAADM, and experienced to perform work of this section. Install door units plumb, level and true to line, without warp or rack of frames or sash with manufacturer's prescribed tolerances. Provide support and anchor in place.
2. DISSIMILAR MATERIALS: Comply with AAMA 101, Appendix Dissimilar Materials by separating aluminum materials and other corrodible surfaces from sources of corrosion or electrolytic action contact points.
3. WEATHER-TIGHT CONSTRUCTION: Install header and framing members in a bed of sealant or with joint filler or gaskets. Coordinate installation with wall flashings and other components of construction.
4. ELECTRICAL: General or electrical contractor to install all wiring to operator on a separate circuit breaker routed into header. General or electrical contractor also to install all necessary power and low voltage wiring for proper operation of associated security systems.

3.3 CLEANING, ADJUSTMENT AND PROTECTION

1. CLEANING: After installation, installer to take following steps:
 - 1.1 Remove temporary coverings and protection of adjacent work areas.
 - 1.2 Remove construction debris from construction site and legally dispose of debris.
 - 1.3 Repair or replace damaged installed products.
 - 1.4 Clean product surfaces and lubricate operating equipment for optimum condition and safety.
2. ADJUSTMENT: AAADM certified technician to inspect and adjust installation. Comply with ANSI A156.10.
3. ADVISE CONTRACTOR: Of precautions required through the remainder of the construction period, to ensure that doors will be without damage or deterioration (other than normal weathering) at the time of acceptance.

END OF SECTION

SECTION 08 70 00 - INSTALLATION OF DOORS, FINISH HARDWARE AND ELECTRONIC DEVICES

PART 1 - GENERAL

1.1 RELATED WORK

1. Comply with requirements of Division 1 and Supplementary Conditions.
2. Section 08 10 00
3. Section 08 45 00
4. Section 26 00 00

1.2 PRODUCT DELIVERY, STORAGE AND HANDLING

1. Accept delivery of doors and finish hardware.

1.3 Inspect doors for damage, upon delivery to the site. Hollow metal doors, which cannot be readily corrected by sanding, should be promptly returned to the manufacturer for replacement.

1. Store doors in a dry and clean location. Store in a temperature and humidity-controlled area. Stack 150mm off the floor.
2. Be responsible for any damage to doors and hardware from time of delivery until accepted by Owner after installation.

1.4 JOBSITE CONTROL AND DISTRIBUTION OF HARDWARE

1. Provide locked room for storage of hardware at the job and a person responsible for the control and distribution of hardware.
2. It is the intent of this section to establish a single, competent source to be responsible for the installation of finish hardware, which is listed in Section 08 71 00. Faulty installation of electronic hardware shall therefore be traced back to this section, not to division 26

1.5 FINISHING HARDWARE

1. This section will include to install at no extra charge, all finishing hardware purchased under the hardware allowance, this may include butts, hinges, snaps, catches, signs, letters, latch sets, lock sets, automatic closers, strikes, bolts, escutcheons, and any other supplied items.
2. Locksets and Latchsets: mortise type.

PART 2 - PRODUCTS

2.1 Hardware

1. Refer to the Door Schedule on the Architectural Drawings for hardware to be included in the base bid.

PART 3 – EXECUTION

3.1 EXAMINATION

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

3.2 INSTALLATION

1. Finish Hardware:
 - 1.1 Handling, Storage, and Installation: to ANSI/DH1 A115.1G.94 – for finishing hardware, doors and frames.
 - 1.2 Other trades installing hardware must follow all manufacturer's instructions including door closer adjustment, handing of locksets as required, and degree of door swing. Advise the Consultants if door frames are not square and plumb and prevent proper door installation
 - 1.3 Mount hardware to suit door elevations. Unless otherwise directed by the Consultant, install hardware heights indicated in finish hardware list.
 - 1.4 When requested, the hardware supplier will instruct the installer regarding the installation of unfamiliar items.
 - 1.5 Set, fit and adjust hardware according to manufacturer's directions. For trouble-free operation. After installation, adjust door closers for closing and latching speed and panic devices for proper latching. Protect installation from damage and paint spotting.
 - 1.6 Predrill kickplates and doors before attachment of plates. Apply with water resistant adhesive and countersunk steel screws.
 - 1.7 Locate hardware in accordance with requirements specified in Section 08 71 00.
 - 1.8 Thresholds: site measure openings before cutting. Set thresholds on two continuous beads of caulking conforming to Section 07 92 00.
 - 1.9 Door Closers and Holders: Install do or closers so that door opening is unaffected, and to allow maximum swing.
 - 1.10 Weatherstripping of Doors:
 - 1.10.1 Install weatherstripping so that the entire perimeter of doors is tightly sealed. Secure in place with non-ferrous screws, in accurate alignment.
 - 1.10.2 Maintain integrity of weatherseal at head of doors fitted with closers. Adapt weatherstripping as required to achieve specified performance and provide any necessary accessories.
2. Electronic Devices:
 - 2.1 Install all electric swing operator components, security components including door status switches, card readers, processors, transformers, and other electronic devices.
 - 2.2 All Wiring: supplied and installed by Electrical Division 26 including conduit, boxes and other electrical appurtenances, including connections and terminations. Be responsible for ensuring that all wiring work is done in accordance with the suppliers wiring diagrams and directions.
 - 2.3 Arrange for testing and commissioning of system by the distributor of the system. Submit a copy of reports to the Consultant.
 - 2.4 Note: When installing electric strikes, it is imperative that doors are perfectly aligned to enable the bolt to close properly. Also ensure that rubber silencers do not impair the proper strike action required. Adjust or remove silencers, as necessary.
3. Hollow Metal Swing Doors:
 - 3.1 Hang doors to swing easily and freely on their hinges, to remain stationary in any position, and to close tightly and evenly on frames without binding.

**NRPS D6 - ENTRANCE, WASHROOMS AND
CUSTOMER SERVICE ACCESSIBILITY UPGRADES**

Installation of Doors, Finish Hardware
and Electronic Devices

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

4. Locksets and Latches: Mortise type (cylindrical) hardware
5. Safeguard Keys: tag with opening number and deliver to Consultant at Substantial Performance.

3.3 ADJUSTING, AND CLEANING OF FINISH HARDWARE

1. Check and adjust each operating hardware item to ensure proper operation and function of unit.
2. Lubricate moving parts as recommended by hardware manufacturer. Use graphite type lubricant if no other is recommended.
3. Repair or replace defective materials and units which cannot be adjusted and lubricated to operate freely and smoothly. Re-install items found improperly installed.
4. Prior to date of Substantial Performance, re-adjust and re-lubricate as necessary.
5. Instruct Owner's designated personnel in the proper adjustment and maintenance of hardware and finishes at time of final hardware adjustment.

END OF SECTION

SECTION 08 71 13 - POWER DOOR OPERATORS

PART 1 – GENERAL

1.1 REFERENCE STANDARDS

1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
2. BHMA A156.19 - American National Standard for Power Assist and Low Energy Power Operated Doors; 2013.
3. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
4. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
5. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

1.2 SUMMARY

1. WORK INCLUDED: Furnish exterior and interior power door operators with visible mounting, as specified, that has been manufactured, fabricated and installed to maintain performance criteria stated by manufacturer without defects, damage or failure. Automatic door operators shall be configured as follows:
 - 1.1 Single doors: Outswing or Inswing.
 - 1.2 Simultaneous pairs: Outswing or Inswing.
 - 1.3 Double Egress: Outswing and Inswing.

1.3 RELATED WORK:

1. Division 8 Section "Aluminum-Framed Entrances and Storefronts" for entrances furnished separately.
2. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
3. Division 16 Sections for electrical connections including conduit and wiring for power door operators.

1.4 SUBMITTALS

1. PRODUCT DATA: Submit manufacturer's complete product and installation data.
2. SHOP DRAWINGS: Submit drawings showing layout, profiles, product components including anchorage, accessories, finish and glazing details (where required).
3. CLOSEOUT SUBMITTALS: Submit the following:
 - 3.1 Owner's Manual.
 - 3.2 Warranty document as specified herein.
 - 3.3 AAADM inspection compliance form completed and signed by certified AAADM inspector prior to doors being placed in operation as proof of compliance with ANSI A156.19.

1.5 QUALITY ASSURANCE AND PERFORMANCE REQUIREMENTS

1. INSTALLERS QUALIFICATIONS: Installer shall be factory trained, certified by AAADM, and experienced to perform work of this section.

2. **MANUFACTURER'S QUALIFICATIONS:** Manufacturer to have minimum (5) five years successful experience in the fabrication of automatic doors of the type required for this project. Manufacturer capable of providing field service representation during installation, approving acceptable installer and approving application method.
3. **CERTIFICATIONS:** Automatic sliding door systems and options shall be factory certified to meet performance design criteria in accordance with the following standards:
 - 3.1 ADA 1990: Americans With Disabilities Act
 - 3.2 ANSI A156.19: For Power Assist and Low Energy Power Operated Doors
 - 3.3 ANSI.117.1: Accessible and Usable Buildings and Facilities
 - 3.4 NFPA 101: Code for Safety to Life from Fire in Buildings & Structures.
 - 3.5 UL 325: Electrical Door, Drapery, Gate, Louver, and Window Operators and Systems.
 - 3.6 BOCA: Means of Egress, Power Operated Doors
 - 3.7 ICBO/UBC: Egress Through Lobbies
 - 3.8 ICC/IBC: Egress Section
4. **SOURCE LIMITATIONS:** Obtain automatic door operators through one source from a single manufacturer.
5. **PRODUCT OPTIONS:** Drawings indicate sizes, profiles, and dimensional requirements of automatic entrance door assemblies and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
6. **POWER OPERATED DOOR STANDARD:** ANSI/BHMA A156.19.
7. **OPERATION:** Automatic and/or Manual:
 - 7.1 Automatic: Pushbutton/Push Plate switch actuates door open; door closes after time delay expires. Opening and closing force, measured 1" (25.4 mm) out from the lock stile of the door, not to exceed 15 pounds (67 N) of force to stop the door when operating in either direction. Operator to include the following variable adjustments so as to comply with ANSI Standard A156.19: Opening speed – 4 1/2 to 6 seconds; Closing speed – 4 1/2 to 6 seconds.
 - 7.2 Manual: Push-N-Go™: Manually pushing door activates automatic opening cycle; door closes after time delay expires (approximately 30% less than after pushbutton actuation).
8. **ELECTRICAL COMPONENTS, DEVICES AND ACCESSORIES:** Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
9. **OPERATING RANGE:** -30° F to 130° F (-34° C to 54° C)
10. **OPENING FORCE REQUIREMENTS FOR EGRESS DOORS:** In the event power failure to the operator, swinging automatic entrance doors shall open with a manual force, not to exceed 30 lbf (133 N) applied at 1" (25 mm) from the latch edge of the door.
11. **DOOR ENERGY:** The kinetic energy of a door in motion shall not exceed 1.25 lbd-ft (1.69 Nm).
12. **CLOSING TIME:**
 - 12.1 Doors shall be field adjusted to close from 90 degrees to 10 degrees in 3 seconds or longer.
 - 12.2 Doors shall be field adjusted to close from 10 degrees to fully closed in not less than 1.5 seconds.

1.6 WARRANTIES

1. **MANUFACTURER'S WARRANTY:** Units to be warranted against defect in material and workmanship for a period of one year from the Date of Substantial Completion.
2. Manufacturer's warranty is in addition to, and not a limitation of, other rights owner may have under Contract Documents.
3. **DISTRIBUTOR'S WARRANTY:** One year warranty: Labor & transportation charges for defective parts replacement.

1.7 PROJECT CONDITIONS

1. **FIELD MEASUREMENTS:** Verify actual dimensions/openings by field measurements before fabrication and record on shop drawings. Coordinate with fabrication and construction schedule to avoid construction delays.

1.8 DELIVERY, STORAGE AND HANDLING

1. **ORDERING AND DELIVERY:** Comply with factory's ordering instructions and lead time requirements. Delivery shall be in factory's original, unopened, undamaged containers with identification labels intact.
2. **STORAGE AND PROTECTION:** Provide protection from exposure to harmful weather conditions and vandalism.

PART 2 - PRODUCTS

2.1 MANUFACTURER

1. **HORTON AUTOMATICS**, a division of Overhead Door Corporation, shall manufacture automatic swing door(s) of type(s) and size(s) specified on plans and door schedule.
 - 1.1 **Note:** Horton Automatics reserves the right to make product improvements and change specifications without notice.

2.2 EQUIPMENT

1. **MANUFACTURED DOOR UNITS:** EASYACCESS ® Series 7100: Surface Applied Operator with connecting arms and linkage shall provide positive control of door through entire swing; units shall permit use of butt hung and center pivot doors.
 - 1.1 **Mounting:** The operator header shall be mounted to the surface of the existing door frame or wall.
 - 1.2 **Door Arms:** Connecting hardware shall be a double arm arrangement that can either push the door or pull the door open to suit the job condition. When the operator mounting is on the pull side and adjacent wall is within 4" (102 mm) of the door frame, specify a parallel arm.
 - 1.3 **Fasteners and Accessories:** Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.
2. **EASYACCESS ® HEADER CASE:** Shall be a side access extruded aluminum case. Standard header size shall be 4" x 6" (102 mm x 152 mm).
3. **OPERATOR:** The Electric Operating Mechanism shall be Series 7000: Operator shall be mounted and concealed in an extruded aluminum case for smooth and quiet operation. Maximum current draw shall not exceed 3.15 amps.

- 3.1 Opening Action: Shall be accomplished by a 1/15 HP D.C. permanent magnet motor working through reduction gears to the output shaft.
- 3.2 Field Adjustable Spring Closing Action: shall be accomplished by a field replaceable spring. When the door is in the closing mode or fully closed, motor voltage shall not be required and will be off. The door can be manually operated with power on or off without damage to the operator.
- 3.3 Independent Adjustable Closing and Latching Speed Control: The operator shall employ a rheostat module to allow for independent field adjustment of closing and latching speeds using the motor as a dynamic brake.
- 3.4 Field Adjustable Open Stop: The operator shall provide a field adjustable open stop to accommodate opening angles from 80 to 135 degrees without the need for additional components.
- 3.5 Consistent Cycle: The operator shall deliver an even, consistent open force across the entire transition from door fully closed to door open check. Additionally, the range of the force shall be field adjustable to accommodate a wide range of on-site conditions.
- 3.6 Manual Use: The operator shall function as a manual door closer in the direction of swing with or without electrical power. The operator shall deliver an even, consistent open force across the entire transition from door fully closed to door fully open.
- 3.7 Controller Protection: The controller shall incorporate the following features to ensure trouble free operation:
 - 3.7.1 Automatic Reset upon power up.
 - 3.7.2 Main fuse protection.
 - 3.7.3 Electronic surge protection.
 - 3.7.4 Internal power supply protection.
 - 3.7.5 Resettable sensor supply fuse protection.
- 3.8 Push Button Interface: The controller shall have push button switches with to allow for selection or change of the following parameters: carpet or timer logic, single or dual door, activation options, normal back check or large back check, push-to-open assist on/off.
- 3.9 Soft Start/Stop: A "soft-start" "soft-stop" motor driving circuit shall be provided for smooth normal opening and recycling.
- 3.10 Control Switch: Automatic door operators shall be equipped with a three position function switch to control the operation of the door. Control switch shall provide three modes of operation, Automatic, Off, and Hold-Open.
- 3.11 Master Control: Shall incorporate the following features:
 - 3.11.1 Adjustable time delay of 2 to 30 seconds (ANSI A156.19 requirement is 5 second minimum time delay).
- 3.12 Infinite adjustment to opening and open check speeds including adjusting the opening force without affecting the opening speed.
 - 3.12.1 Immediate reversal of door motion without undue strain on the drive train. This will be accomplished by supplying stepped voltage to the motor. The door shall reverse when closing if an object stops the door.
 - 3.12.2 Motor Protection Circuit: A locked door motor protection circuit will be supplied that will shut off current to the motor when the door is inadvertently locked or otherwise prevented from opening.

2.3 RELATED EQUIPMENT

1. **ACTIVATING DEVICE:** Shall be located on each side of the opening as per ANSI Safety Standard A117 and shall be hardwired to door operator controls. Activating device shall be momentary contact microswitch assembly in the following configuration:
2. **PUSH PLATE:** 4.5" (114.3mm) square, stainless steel switch. Wall mounted. Engravings shall be:
 - 2.1 International symbol for accessibility and "Press To Open".

2.4 RELATED WORK REQUIREMENTS

1. **ELECTRICAL:** To be provided under Division 16: 120 or 220 VAC, 60 cycle, 1 phase, 10 amps for doors with operators in pairs, 5 amps for single doors. Non-North American voltages can be 240 VAC (operator must have 240 volt power supply)

2.5 MATERIALS, FINISHES AND FABRICATION

1. **EXTRUDED ALUMINUM:** ASTM B221, 6063-T5 alloy and temper, anodized: Structural Header Sections: Minimum 1/8" (3 mm) thickness.
2. **FINISHES** (for all exposed aluminum surfaces): Shall be the following:
 - 2.1 204-R1 Clear: Arch. Class 2 Clear Anodized Coating, AA-MI2C22A31.
3. **OPERATOR CONSTRUCTION:** Electromechanical.

PART 3 - EXECUTION

3.1 EXAMINATION

1. **SITE VERIFICATION OF CONDITIONS:** Installer must verify that base conditions previously installed under other sections are acceptable for product installation according to with manufacturer's instructions. Notify the Contractor in writing of conditions detrimental to the proper and timely completion of work. Do not start work until all negative conditions are corrected in a manner acceptable to the installer and manufacturer.

3.2 INSTALLATION

1. **GENERAL:** Installer shall be factory trained, certified by AAADM, and experienced to perform work of this section. Install door units plumb, level and true to line, without warp or rack of frames or sash with manufacturer's prescribed tolerances. Provide support and anchor in place.
2. **DISSIMILAR MATERIALS:** Comply with AAMA 101, Appendix Dissimilar Materials by separating aluminum materials and other corrodible surfaces from sources of corrosion or electrolytic action contact points.
3. **WEATHER-TIGHT CONSTRUCTION:** Install header and framing members in a bed of sealant or with joint filler or gaskets. Coordinate installation with wall flashings and other components of construction.
4. **ELECTRICAL:** General or electrical contractor to install all wiring to operator on a separate circuit breaker routed into header.

3.3 CLEANING, ADJUSTMENT AND PROTECTION

1. **CLEANING:** After installation, installer to take following steps:
 - 1.1 Remove temporary coverings and protection of adjacent work areas.
 - 1.2 Remove construction debris from construction site and legally dispose of debris.
 - 1.3 Repair or replace damaged installed products.

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- 1.4 Clean product surfaces and lubricate operating equipment for optimum condition and safety.
2. ADJUSTMENT: AAADM certified technician shall inspect and adjust installation to assure compliance with ANSI A156.19.
3. ADVISE CONTRACTOR: Of precautions required through the remainder of the construction period, to ensure that doors will be without damage or deterioration (other than normal weathering) at the time of acceptance.
4. FIELD QUALITY CONTROL: Testing Services: Factory Trained Installer shall test and inspect each swinging automatic entrance door to determine compliance of installed systems with applicable ANSI standards.

END OF SECTION

SECTION 08 80 00 - GLAZING

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 08 11 13 - Hollow Metal Doors and Frames: Glazed lites in doors and borrowed lites.
2. Section 08 42 29 - Automatic Entrances: Glazing provided as part of door assembly.
3. Section 08 54 13 - Fibreglass Windows: Glazing provided by window manufacturer.

1.2 REFERENCE STANDARDS

1. CAN/CGSB 12.1 - Safety Glazing; 2017.
2. CAN/CGSB 12.3 - Flat, Clear Float Glass; 1991 (R2017).

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements for submittal procedures.
2. Samples: Submit two samples 12" by 26" mm in size of glass units for both vision and spandrel glass.
3. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.4 WARRANTY

1. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.
2. Insulating Glass Units: Provide a five (5) year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including providing products to replace failed units.
3. Laminated Glass: Provide a five (5) year manufacturer warranty to include coverage for delamination, including providing products to replace failed units.

PART 2 PRODUCTS

2.1 GLASS MATERIALS

1. **Clear Vision Speak-thru** : Equal to C.R. Laurence model CAD101 complete with 6" Φ speaker hole, stainless steel studs. Install to manufacturer's printed directions.
2. **Tempered or Laminated Safety Glass**: To CAN/CGSB-12.1-M90.
 - 2.1 Insulating Glass Units: at exterior doors and frames, except as later noted.
 - 2.2 To CAN/CGSB-12.8-M90. 6mm per sheet, ½" air space and overall thickness 1". Dual seal design with a white 1.35" warm edge spacer as manufactured by Trulite Industries, Triple Seal or Surelite
 - 2.2.1 **Unit Description**: Equal to Guardian "Sun-Guard Low E" series SN-68, argon filled air space.
 - 2.2.2 **Outdoor Appearance**: Neutral
 - 2.2.3 **Outboard Lite Substrate**: Clear, 6 mm float, tempered.
 - 2.2.4 **Inboard Lite Substrate**: 6 mm float.
 - 2.2.5 **Coatings, Location**: Surface # 2 coating SN-68.
 - 2.2.6 **Performance Values**: As published.
3. **Sealants**: One part high modulus silicone equal to 999 by Dow.

4. **Doors and Sidelights:** as laminated safety glazing (at exterior doors and frames, at inner pane).

PART 3 EXECUTION

3.1 VERIFICATION OF CONDITIONS

1. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.
2. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

3.2 PREPARATION

1. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.
2. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
3. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.3 INSTALLATION, GENERAL

1. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.
2. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.
3. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.
4. Set glass lites in proper orientation so that coatings face exterior or interior as indicated.
5. Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, etc.
6. **Exterior Glazing:** Entrances
 - 6.1 Glazing Gaskets
7. **Interior Glazing:** Steel Doors and screens
 - 7.1 Bed glass continuously on both faces to ensure a solid, rattle free installation.
 - 7.2 Remove and replace screw-on stops where applicable.
8. **Exterior Glazing:**
 - 8.1 Size glass units to accurately fit openings with a 1/8" (3mm) edge clearance.
 - 8.2 Solvent clean contact surfaces, apply primer sealer.
 - 8.3 Apply glazing tape to face of stop.
 - 8.4 Install glass on setting blocks to centre in opening and maintain clearance; ensure full contact and adhesion with tape at perimeter.
 - 8.5 Use butyl tape, reinforced butyl tape or spacer blocks to maintain glass in centre of rebate in accordance with glazing systems manufacturer's specifications.
 - 8.6 Apply continuous heel bead (air seal); one part polyurethane.
 - 8.7 Apply cap bead at exterior perimeter of glass; one part silicone.
 - 8.8 Cap beads to be sloped to shed water away from face of glass.

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8.9 Install materials to ensure vent holes in frame remain clear.

9. **Unit Glazing**: all sash-factory glazed.

10. **Finishing**:

10.1 Remove labels after Work is completed.

10.2 Immediately remove stains, deposits, marks or blemishes caused by the Work of this
Section

10.3 Replace scratched, etched or defective glazing

3.4 CLEANING

1. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.
2. Remove non-permanent labels immediately after glazing installation is complete.
3. Clean glass and adjacent surfaces after sealants are fully cured.
4. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Performance in accordance with glass manufacturer's written recommendations.

3.5 PROTECTION

1. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.
2. Remove and replace glass that is damaged during construction period prior to Date of Substantial Performance.
3. Replace scratched, etched, or defective glazing.

END OF SECTION

SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 06 10 00 - Rough Carpentry: Building framing and sheathing.
2. Section 07 25 00 - Weather Barriers: Water-resistive barrier over sheathing.

1.2 REFERENCE STANDARDS

1. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2020.
2. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2017.
3. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2022.
4. GA-216 - Application and Finishing of Gypsum Panel Products; 2016.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

PART 2 PRODUCTS

2.1 GYPSUM BOARD ASSEMBLIES

1. Provide completed assemblies complying with ASTM C840 and GA-216.

2.2 BOARD MATERIALS

1. Gypsum Board: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1.1 Standard: with tapered edges.
2. **Metal Studs**: To ASTM C645
 - 2.1 Non-load Bearing Channel Stud Framing: To ASTM 645, rolled from hot dipped galvanized sheet steel for screw attachment of gypsum board, size: 3 $\frac{5}{8}$ " x 25GA (92mm x 0.55m) thickness. Knock-out service holes at 406mm oc (16").
 - 2.2 Floor and Ceiling Tracks: to suit width of studs, bridging, metal channel bridging, angles, channels, and the like to form a rigid framing capable of supporting the drywall and other indicated and related loads.
 - 2.3 Load-bearing metal studs & Brick Veneer anchors: See section 05410

2.3 ACCESSORIES

1. Water-Resistive Barrier: As specified in Section 07 25 00.
2. Galvanized corner bead, 1-1/4" (32mm) perforated flanges.
3. Galvanized Type "L" casing bead with single perforated flange for joint filling.
4. Galvanized channel casing with single perforated flange for joint filling.
5. Screws: Self-drilling, self-tapping, case hardened Phillips head drywall screws with corrosion resistant finish to CAN/CSA-A82.31.
6. Corner Beads at VH1: SO-HSE-90 by Pittcon, or equal by Fry Chicago Metallics.
7. Bracing Channels: ASTM C645, for partitions, 19 x 9.5 x 1.2mm cold-rolled, galvanized steel.

8. Furring Channels: ASTM C645, #25 galvanized, nominal size of 22mm deep by 32mm face, hat type with knurled face.
9. Resilient Channels: ASTM C645, CGC "RC-1" or equivalent by Bailey Metals
10. Reinforcing Tape: 2" (50mm) wide Kraft paper perforated joint tape with feathered edges to ASTM C475
11. Joint Filler and Topping Compound: To CAN/CSA-A82.31 asbestos-free. Specific to each type of gypsum board.
12. Sound Insulation: Rockwool "Safe'n'Sound" batt insulation for metal stud @ 16" o.c.
13. Acoustical Sealant: To CGSB 10-GP-21M.
14. Ceiling Suspension: CSA A82.30.
 - 14.1 Runner Channels: ½" x ¾" x 16GA - 2m coated.
 - 14.2 Furring Channels: ¾" x 3/8" x 16GA - 2m coated.
 - 14.3 Wire Hangers: 12 GA Galvanized Annealed Steel.
 - 14.4 Tile Wires: 18 GA Galvanized Annealed Steel.
15. Insulating Strip: Rubberized, moisture resistant 3mm thick foam strip, 12mm wide with self-sticking adhesive on one side.
16. Stud Adhesive: To CAN/CGSB-71.25.
17. Laminating Compound: As recommended by manufacturer asbestos free.

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify that project conditions are appropriate for work of this section to commence.

3.2 BOARD INSTALLATION

1. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
2. Steel Studs:
 - 2.1 Execute under competent supervision by mechanics skilled in this trade.
 - 2.2 Install all materials in accordance with manufacturer's specifications except where indicated otherwise.
 - 2.3 Align partition tracks at floor and ceiling and secure at (600) mm o.c. maximum.
 - 2.4 Install dampproof course under stud shoe tracks of partitions on slabs on grade.
 - 2.5 Place studs vertically at (406) mm oc and not more than (50) mm from abutting walls, and at each side of openings and corners. Position studs in tracks at floor and ceiling. Cross brace steel studs are required to provide rigid installation to manufacturer's instructions.
 - 2.6 Erect metal studding to tolerance of 1:1000.
 - 2.7 Attach studs to bottom ceiling track using screws.
 - 2.8 Coordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure web openings are aligned.
 - 2.9 Coordinate erection of studs with installation of door/window frames and special supports or anchorage for specified in other Sections.

- 2.10 Double studs at all door jambs. At each jamb of doors exceeding either 900mm width or 60mm in thickness or both, install a structural channel reinforcing extending from floor structure to structure above, and adequately anchored at each end.
 - 2.11 Brace studs with stiffeners over doors in partitions of greater height than 3000mm spaced as preceding, and above and below window type openings spaced not more than 150mm from the top and bottom of openings. Stiffeners shall be 19mm bracing channels, wire tied or welded to each stud, and extending horizontally across entire length of each braced partition and across two full stud spaces at each side of door and window openings.
 - 2.12 Splice studs only when unavoidable by nesting with 200mm minimum lap, and fastened with one screw in each flange.
 - 2.13 Erect track at head of door/window openings and sills of sidelight/window openings to accommodate intermediate studs. Secure track to studs at each end, in accordance with manufacturer's instructions. Install intermediate studs above and below openings in same manner and spacing as wall studs.
 - 2.14 Frame openings and around built-in equipment, cabinets, access panels, on four sides. Extend framing into reveals. Check clearances with equipment suppliers.
 - 2.15 Provide 40 mm stud or furring channel secured between studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, and other fixtures including grab bars and towel rails, attached to steel stud partitions.
 - 2.16 Install steel studs or furring channel between studs for attaching electrical and other boxes.
 - 2.17 Extend partitions to ceiling height except where noted otherwise on drawings (extend to underside of structure).
 - 2.18 Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use 50mm leg ceiling tracks. Use double track slip joint (as indicated) or slotted top track.
 - 2.19 Install continuous insulating strips to isolate studs from uninsulated surfaces.
 - 2.20 Install two continuous beads of acoustical sealant insulating strip under studs and tracks around perimeter of sound control partitions.
3. **Ceiling Suspension:**
- 3.1 Attach wire hangers to joists and beams not to steel deck.
 - 3.2 Install runners level to tolerance of 3mm over 3.5m. Provide runners at interruptions of continuity and change in direction.
 - 3.3 Frame with furring channels, perimeter of openings to accommodate access panels, light fixtures, diffusers, grilles, and the like.
 - 3.4 Furr for vertical bulkheads within or at termination of ceilings.
 - 3.5 Furr above suspended ceilings for fire and sound stops and to form plenum areas indicated.
 - 3.6 Provide clearance under beams and structural slabs to prevent transmission of structural loads to vertical furring.
 - 3.7 Leave finished work rigid, secure, square, level, plumb, (curved to detailed radius) and erected to maintain finish line dimensions and contours. Drywall allowance for thermal movement.

- 3.8 Use galvanize supports, members, angles and metal lathing in wet areas, exterior walls and exterior soffits.
- 3.9 Attach suspension to:
 - 3.9.1 Existing structure by ramset, cinch anchor.
 - 3.9.2 Metal joists at panel points of joist.
- 3.10 Secure grid members at perimeter of ceiling to wall mould with concealed fastenings.
- 3.11 Wrap the free end of all hangers and tie wires in a triple pigtail.
- 3.12 Install grid assemblies true, rigid, and level within a tolerance not exceeding 1:1000.
- 4. **Gypsum Board:**
 - 4.1 Erect In accordance with CAN/CSA-A82.31-M gypsum board application, except where indicated otherwise.
 - 4.2 Apply board only after anchors, blocking and the like have been installed and the electrical and mechanical are approved.
 - 4.3 Install board to minimize end joints; apply with long dimension parallel to framing members and with edge joints over bearing.
 - 4.4 Locate all end joints over bearing.
 - 4.5 Space screws as follows:
 - 4.5.1 **All Board:** Walls and ceilings - 8" (200mm) at edges.
 - 4.5.2 **Fire Rated Board:** Walls - 12" (300mm) at field; ceiling 8" (200mm) at field.
 - 4.5.3 **Non-rated Board:** Walls and ceilings - 12" (300mm) at field.
 - 4.6 Install perimeter screws at not less than 3/8" (10mm) nor more than 2" (13mm) from edges and ends and shall be opposite the screws on adjacent boards.
 - 4.7 Apply corner beads, Type "L" casing beads and channel casing beads (no J mould permitted).
 - 4.8 Caulk between casing beads and other construction where junctions are exposed to view in accordance with the requirements of Section 07 92 00.
 - 4.9 Wherever drywall abuts a dissimilar material, finish the drywall edge with a type L casing bead. (No J-mould permitted.)
 - 4.10 Review structural drawings to determine the nature and extent of the conditions.
 - 4.11 Construct fire rated assemblies in accordance with the requirements of the authorities having jurisdiction and/or the U.L.C. test design of the assembly. Co-operate with others and note particularly, special construction required where mechanical ducts pass through fire rated assemblies.
 - 4.12 Extend all fire rated and sound isolated partitions together with wallboard facings above ceilings to underside of structure above unless specifically noted otherwise.
 - 4.13 Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
 - 4.14 Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
 - 4.15 Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
 - 4.16 Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.

- 4.17 Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.
- 5. **Shadowmould** - Install shadowmould at wall/ceiling juncture.
- 6. **Access Doors:**
 - 6.1 Install access doors at locations of mechanical and electrical equipment and services.
 - 6.2 Rigidly secure frames to furring or framing system. Seal perimeter of frame.
- 7. **Sound Insulation:** Install friction fit insulation to fill stud space for full height of studs. Pack all voids.
- 8. **Drywall Over Masonry or Concrete:**
 - 8.1 Apply purpose-made adhesive to back of drywall in accordance with manufacturer's latest printed instructions.
 - 8.2 Secure panels to masonry or concrete with laminating compound and concrete nails.
 - 8.3 Finish joints and nail heads as previously specified.
- 9. **Load Bearing Studs:**
 - 9.1 Review installation of type and spacing of built-in brick ties with section 04 20 0.

3.3 ADJUSTMENT AND CLEANING

- 1. Make GWB good at cut-outs for services and other projections; fill in defective joints, holes and other depressions with joint compound.
- 2. Clean off beads, casings and other trim. Make good all defective work and ensure that surfaces are smooth, evenly textured and within specific tolerances and left ready to receive specified finishes.

END OF SECTION

SECTION 09 30 00 - TILING

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 09 21 16 - Gypsum Board Assemblies: Tile backer board.

1.2 REFERENCE STANDARDS

1. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2005 (Reaffirmed 2010).
2. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation; 2010 (Reaffirmed 2016).
3. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2012.
4. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2021.
5. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2022.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements for submittal procedures.
2. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.
3. Shop Drawings: Indicate tile layout, patterns, colour arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
4. Samples: Mount tile and apply grout on two plywood panels, minimum 460 mm by 460 mm in size illustrating pattern, colour variations, and grout joint size variations.

1.4 MOCK-UPS

1. See Section 01 40 00 - Quality Requirements for additional requirements.
2. Construct tile mock-up where indicated on Drawings, incorporating all components specified for the location.
 - 2.1 Minimum size of mock-up is indicated on Drawings.
 - 2.2 Approved mock-up may remain as part of the Work.
 - 2.3 Demolish mock-up when directed by Consultant, and remove debris from the site.

1.5 DELIVERY, STORAGE, AND HANDLING

1. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.6 SITE CONDITIONS

1. Do not install solvent-based products in an unventilated environment.
2. Maintain ambient and substrate temperature no lower than 10 degrees C during installation of mortar materials.

PART 2 PRODUCTS

2.1 TILE

1. Porcelain Tile, Type Floor/Wall: ANSI A137.1 standard grade.
 - 1.1 Daltile, Slate Attache Collection, Porcelain Tile, or approved equal.
 - 1.1.1 Type 1 (Floor): 610 x 610mm, nominal.
 - 1.1.2 Type 2 (Wall): 305 x 610mm, nominal.
 - 1.1.3 Type 3 (Accent): Format 2x2 Straight-Joint Mosaic, 1/4" thick, Matte Finish (Accent Tile for Floors & Walls)
 - 1.2 Thickness: 9.5 mm.
 - 1.3 Edges: Square.
 - 1.4 Surface Finish: Non-slip.
 - 1.5 Colour(s): To be selected by Consultant. Allow for 2 colours from full range. See Floor Finish Plans & Interior Elevations for locations & layouts

2.2 MATERIALS

1. **Adhesives:**
 - 1.1 **Thin Set Mortar:** Equal to Laticrete 254 "Platinum" multipurpose thick set mortar with Microban to A.N.S.I 118.4 (interior/exterior) or equal by Mapei.
2. **Water:** potable, free of minerals which are detrimental to mortar and grout mixes.
3. **Control Joint Sealant:** equal to Latasil tile and stone sealant with Alickoba.

2.3 TRIM AND ACCESSORIES

1. Schluter Systems profiles or equal by Benguard Floor Mouldings. See Interior Finishes Schedule for product details.

2.4 GROUTS

1. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
 - 1.1 Equal to Laticrete tripoly fortified Portland cement grout fortified with Laticrete 1776 grout Admix Plus – with Microban.
 - 1.2 Applications: Use this type of grout where indicated and where no other type of grout is indicated.
 - 1.3 Use sanded grout for joints 3.2 mm wide and larger; use unsanded grout for joints less than 3.2 mm wide.
 - 1.4 Grout mixtures, colours, additives and preparation will be in accordance with manufacturer's recommendations.
 - 1.5 Portland cement grout.
 - 1.6 Dry curing wall grout
 - 1.7 Colour(s): As selected by Consultant from manufacturer's full line.
 - 1.8 Colour(s): As indicated on Drawings.

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.

2. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.
3. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of setting materials to sub-floor surfaces.
4. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.
5. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within the following limits:
 - 5.1 Moisture Vapour Emission Rate: Not greater than 7.1 kg per 100 sq m per 24 hours, test in accordance with ASTM F1869.
 - 5.2 Alkalinity (pH): Verify pH range of 5 to 9, test in accordance with ASTM F710.
6. Verify that required floor-mounted utilities are in correct location.

3.2 PREPARATION

1. Protect surrounding work from damage.
2. Vacuum clean surfaces and damp clean.
3. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
4. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.3 INSTALLATION - GENERAL

1. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
2. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.
3. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.
4. Form internal angles square and external angles bullnosed.
5. Sound tile after setting. Replace hollow sounding units.
6. Keep control and expansion joints free of mortar, grout, and adhesive.
7. Prior to grouting, allow installation to completely cure; minimum of 48 hours.
8. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.
9. At changes in plane and tile-to-tile control joints, use flexible grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.4 INSTALLATION - FLOORS - MORTAR BED METHODS

1. Mortar Bed Thickness: 16 mm, unless otherwise indicated.

3.5 CLEANING

1. Clean tile and grout surfaces.

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3.6 PROTECTION

1. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

SECTION 09 50 00 - ACOUSTICAL WORK

PART 1 – GENERAL

1.1 RELATED WORK

1. Comply with requirements of Division 1 and Supplementary Conditions.
2. Diffuser and grille design - Division 23
3. Light Fixture types - Division 26
4. Sprinkler Heads - Division 26

1.2 EXISTING CEILINGS

1. Fire-resistance Rated Floor/Ceiling Assembly: Certified by a Canadian certification.

1.3 TEST REPORTS

1. Organization accredited by the Standards Council of Canada.

1.4 SAMPLES

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

1.5 ENVIRONMENTAL REQUIREMENTS

1. Permit wet Work to dry before commencement of installation.
2. Maintain uniform minimum temperature of 15°C and humidity of 20 - 40% before and during installation.
3. Store materials in Work area 48 hours prior to installation.

1.6 MAINTENANCE MATERIALS

1. Provide acoustical units amounting to 2% of gross ceiling area for each pattern and type required for project.
2. Extra materials to be from same production run as installed materials.
3. Clearly identify each type of acoustic unit, including colour and texture.
4. Deliver to Consultant, upon completion of the Work of this section.
5. Store where directed by Consultant.

PART 2 - PRODUCTS

2.1 GENERAL

1. Suspension System:
 - 1.1 Intermediate duty main beam classification to ASTM C635.
 - 1.2 Basic Materials: commercial quality cold rolled electroluted galvanized steel - exposed surfaces chemically cleansed capping prefinished in white baked polyester.
 - 1.3 Standard Non-fire Rated: 2 directional exposed tee-bar grid 24" x 24" (60 x 60 mm) 24" x 48" (610R x 1200 mm) Acceptable material: Armstrong Prelude ML 15/16" exposed tee system, Donn DX class A standard grid Balley Lance-lock exposed grid.
 - 1.4 Accessories: provide and/or fabricate all necessary clips, splicers, connectors, screws, or other special accessories in galvanized or coated steel of such strength and design compatible with the system to be installed.
 - 1.5 Hangers: No. 12 GA. galvanized annealed steel wire.

- 1.6 Tie Wire: No. 18 GA. galvanized annealed steel wire.
- 1.7 Hold-Down Clips: purpose made to secure acoustic panels to suspension; approved for use in fire rated systems.
- 1.8 Wall Moulding: standard angle mould - $\frac{3}{4} \times \frac{3}{4}$
OR
- 1.9 Stepped Shadow mould $\frac{3}{4} - \frac{1}{2} - \frac{3}{4}$ ".
2. Acoustical Panels: to CAN/CGSB-92.1. ASTM 1268
 - 2.1 Acceptable Products: Armstrong, CGC, CertainTeed.
 - 2.2 Standard, Type: Lay-in.
 - 2.2.1 Size: 24" x 24" (610 x 610 mm), 24" x 48" (610 x 1220mm).
 - 2.2.2 Texture: medium, non-directional, colour - white. Equal to Armstrong [select texture] Cortega (823).

PART 3 - EXECUTION

3.1 INSTALLATION

1. Install all materials in accordance with the manufacturers' recommendations for installation.
2. Before commencing examine the Work of others upon which the Work of this section depends. Do not commence until defects are remedied.
3. Ensure that all installations in the ceiling space have received the final review of the Architect and Structural, Mechanical, and Electrical Consultants before closing in with acoustic ceiling panels. The Contractor may, however, with the Consultant's approval, proceed with perimeter panels and those at ceiling fixtures, detectors, diffusers, and the like.
4. Install ceilings to layout shown and/or as approved by the Consultant. Note location of electrical fixtures, detectors, diffusers, grilles, and the like installed under Divisions 15 and 16.
5. Terminate ceilings at walls, bulkheads, or other ceilings with the perimeter detail indicated on the plans and/or spec sheets.
6. Ensure that all surface or recessed ceiling-mounted electrical fixtures and/or other electrical and mechanical equipment is fully supported (by others) independent of the grid.
7. Unless specified otherwise install all hangers at 4'-0" o.c. (1200 mm) in each direction from building structure over. Where hanger locations conflict with ductwork, piping, or other equipment, introduce the necessary intermediate steel framing to ensure that hangers are supported from building structure.
8. Attach suspension to:
 - 8.1 Cast-in-place concrete deck by ramset, cinch anchors, or pre-installed purpose made hanger attachments.
 - 8.2 Metal joists at panel points of joist.
9. Secure grid members at perimeter of ceiling to wall mould with concealed fastenings.
10. Wrap the free end of all hangers and tie wires in a triple pig tail.
11. Install grid assemblies true, rigid, and level within a tolerance not exceeding 1:1000.
12. Identify, in a manner acceptable to the Consultant, those tiles providing access to mechanical and/or electrical equipment.

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13. Cut tile must be large enough to lap all edges of grid by 1/4" regardless of the position of the tile within the panels.

14. Wherever possible ensure that no row of tile shows less than 50 percent of its normal face.

3.2 PROTECTION

1. Protect Work of this section and adjacent Work from damage. "Make good" all damaged Work to the satisfaction of the Consultant.

3.3 ADJUSTMENT AND CLEANING

1. Clean soiled or discoloured surfaces of Work on completion.

2. Replace components which are visibly damaged, marred, or unable to be cleaned.

3.4 EXISTING CEILINGS

1. "Make good" all ceilings as noted in room finish schedule. Remove and re-install ceilings as required by the Work of Divisions 23 and 26.

END OF SECTION

SECTION 09 51 00 - ACOUSTICAL CEILINGS

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 05 31 00 - Steel Decking: Placement of special anchors or inserts for suspension system.

1.2 REFERENCE STANDARDS

1. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
2. Shop Drawings: Indicate grid layout and related dimensioning.
3. Product Data: Provide data on suspension system components.

1.4 SITE CONDITIONS

1. Maintain uniform temperature of minimum 16 degrees C, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.1 ACOUSTICAL UNITS

1. **Suspension System:**
 - 1.1 Intermediate duty main beam classification to ASTM C635.
 - 1.2 **Basic Materials:** commercial quality cold rolled electroluted galvanized steel - exposed surfaces chemically cleansed capping prefinished in white baked polyester.
 - 1.3 **Non-fire Rated:** 2 directional exposed tee-bar grid 24" x 24" (60 x 60 mm) 24" x 48" (610R x 1200 mm) Acceptable material: Armstrong Prelude ML 15/16" exposed tee system, Donn DX class A standard grid Balley Lance-lock exposed grid, Chicago Metallic snap grid 200
 - 1.4 **Accessories:** provide and/or fabricate all necessary clips, splicers, connectors, screws, or other special accessories in galvanized or coated steel of such strength and design compatible with the system to be installed.
 - 1.5 **Hangers:** No. 12 GA. galvanized annealed steel wire.
 - 1.6 **Tie Wire:** No. 18 GA. galvanized annealed steel wire.
 - 1.7 Stepped Shadow mould: $\frac{3}{4}" - \frac{1}{2}" - \frac{3}{4}"$.
2. **Acoustical Panels:** to CAN/CGSB-92.1.
 - 2.1 **Standard, Type:** drop-in.
 - 2.2 Size: 24" x 24" (610 x 610 mm), 24" x 48" (610 x 1220mm).
 - 2.3 **Standard Lay-in (Type 1):** equal to Armstrong Cirrus Second Look III 15/16 – fine texture - bevelled
 - 2.4 Size: 24" x 48" x $\frac{3}{4}"$ (1220 x 2440 x 22mm)
 - 2.5 **Patterned Type - Tegular (Type 2):** equal to Armstrong "Fine fissured" open plan square lay-in
 - 2.6 Size: 24" x 48" x $\frac{7}{8}"$ (1220 x 2440 x 19mm)

- 2.7 Borders at corridor ceilings – Standard Lay-in Type 1
- 2.8 Texture: fine fissured, colour - white equal to Armstrong “Cortega” “Second Look III”.
- 2.9 Wood Panels
- 2.10 : quarter-sliced Maple 4'-0 x 4'-0 x ½”, cut hole for light fixture.

PART 3 EXECUTION

3.1 EXAMINATION

- 1. Verify existing conditions before starting work.
- 2. Verify that layout of hangers will not interfere with other work.

3.2 INSTALLATION

- 1. Install all materials in accordance with the manufacturers' recommendations for installation.
- 2. Install fire-rated ceilings in accordance with the particular U.L.C. design no. required and/or in accordance with the requirements of the authorities having jurisdiction.
- 3. Before commencing examine the Work of others upon which the Work of this section depends. Do not commence until defects are remedied.
- 4. Ensure that all installations in the ceiling space have received the final review of the Consultants and Mechanical, and Electrical Consultants before closing in with acoustic ceiling panels. The Contractor may, however, with the Consultant's approval, proceed with perimeter panels and those at ceiling fixtures, detectors, diffusers, and the like.
- 5. Install ceilings to layout shown and/or as approved by the Consultant. Note location of electrical fixtures, detectors, diffusers, grilles, and the like installed under Divisions 23 and 26.
- 6. Terminate ceilings at walls, bulkheads, or other ceilings with the perimeter detail indicated on the plans and/or spec sheets.
- 7. Ensure that all surface or recessed ceiling-mounted electrical fixtures and/or other electrical and mechanical equipment is fully supported (by others) independent of the grid.
- 8. Unless specified otherwise install all hangers at 4'-0" o.c. (1200 mm) in each direction from building structure over. Where hanger locations conflict with ductwork, piping, or other equipment, introduce the necessary intermediate steel framing to ensure that hangers are supported from building structure.
- 9. Attach suspension to:
 - 9.1 Precast concrete deck by ramset, cinch anchors, or dropping hanger wires through slab joints prior to grouting.
- 10. Secure grid members at perimeter of ceiling to wall mould with concealed fastenings.
- 11. Wrap the free end of all hangers and tie wires in a triple pigtail.
- 12. Install grid assemblies true, rigid, and level within a tolerance not exceeding 1:1000.
- 13. Fit lay in tile in areas subject to uplift drafts (i.e. vestibules) with approved hold-down clips.
- 14. Identify in a manner acceptable to the Consultant those tiles providing access to mechanical and/or electrical equipment.
- 15. Cut tile must be large enough to lap all edges of grid by ¼” regardless of the position of the tile within the panels.

16. Wherever possible insure that no row of tile shows less than 50 percent of its normal face.

3.3 ADJUSTMENT AND CLEANING

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

END OF SECTION

SECTION 09 65 00 - RESILIENT FLOORING

GENERAL

1.1 RELATED REQUIREMENTS

1. Section 03 35 00 – Concrete Finishing
2. Section 06 10 00 – Rough Carpentry
3. Section 07 92 00 – Joint Sealants

1.2 REFERENCES

1. ASTM International (ASTM)
 - 1.1 ASTM F710-19e1, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
 - 1.2 ASTM F1066-04 (2018), Standard Specification for Vinyl Composition Floor Tile.
 - 1.3 ASTM F1303-04(2021), Standard Specification for Sheet Vinyl Floor Covering with Backing.
 - 1.4 ASTM F1344-21a, Standard Specification for Rubber Floor Tile.
 - 1.5 ASTM F1861-21, Standard Specification for Resilient Wall Base.
 - 1.6 ASTM F1869-16a, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
 - 1.7 ASTM F2034-18, Standard Specification for Sheet Linoleum Floor Covering.
 - 1.8 ASTM F2169-15 (2020), Standard Specification for Resilient Stair Treads.
 - 1.9 ASTM F2170-19a, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
2. Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - 2.1 SDS - Safety Data Sheets.
3. South Coast Air Quality Management District (SCAQMD), California State
 - 3.1 SCAQMD Rule 1113-16, Architectural Coatings.
 - 3.2 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.
4. ULC Standards
 - 4.1 CAN/ULC 102.2-2018, Standard Method of Test for Surface Burning Characteristics of Floor Coverings and Miscellaneous Materials and Assemblies.

1.3 ACTION SUBMITTALS / INFORMATIONAL SUBMITTALS

1. Submit in accordance with Division 01 requirements.
2. Product data:
 - 2.1 Submit one copy of product data for each type of product specified.
 - 2.2 Submit WHMIS SDS - Safety Data Sheets for flooring adhesive and seam welding. Indicate VOC content.
3. Samples:
 - 3.1 Submit duplicate full-sized samples of luxury vinyl tile planks.
 - 3.2 Submit duplicate 100 x 100 mm pieces of vinyl composite tile material, showing pattern, colour, and finish.

- 3.3 Submit duplicate manufacturer samples of resilient base, full profile, minimum 50 mm long.
- 3.4 Submit duplicate manufacturer samples of each type of transition strip, full profile, minimum 50 mm long.
- 4. Shop Drawings: Indicate:
 - 4.1 Tile installation orientation.
 - 4.2 Seam layout.
 - 4.3 Cut-outs: Show locations where cut-outs are required.
 - 4.4 Locations of transition strips.

1.4 CLOSEOUT SUBMITTALS

- 1. Provide manufacturer's printed recommendations for general maintenance, including cleaning instructions and guidelines for use of waxes and other protective coatings and appearance enhancers.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- 1. Extra Materials:
 - 1.1 Provide extra materials of resilient sheet flooring and adhesives.
 - 1.2 Provide 5% of each colour, pattern and type of flooring material required for project for maintenance use.
 - 1.3 Extra materials one piece and from same production run as installed materials.
 - 1.4 Deliver to Owner upon completion of the work of this Section.
 - 1.5 Store where directed by Consultant.

1.6 QUALITY ASSURANCE

- 1. Regulatory Requirements: Provide products that meet requirements of CAN/ULC S102.2 as applicable for required flame spread ratings; labelled and listed by Underwriters Laboratories of Canada (ULC), or another testing and inspecting agency acceptable to authorities having jurisdiction.
- 2. Provide preparation, materials, and workmanship in accordance with NFCA requirements as detailed in latest edition of NFCA Floor Covering Reference Manual of Canada, (www.floorcoveringreferencemanual.com) and material manufacturer's written recommendations for conditions of work and warranty periods stated.
- 3. Qualifications: Provide proof of qualifications when requested by Consultant:
 - 3.1 Installer shall be Trade Qualified for their specific flooring products by the National Floor Covering Association.
 - 3.2 Resilient Flooring Installer: employ installer who has minimum five years' documented experience in installation of resilient sheet flooring in accordance with manufacturer's training or certification program:
 - 3.3 Source Limitations: Obtain each type, colour, and pattern of flooring or accessories specified from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.
- 4. Mock-Up:
 - 4.1 Provide mock-up in accordance with Division 01 requirements.

- 4.2 Construct mock-ups as directed by Consultant to verify selections made under sample Submittals and to demonstrate aesthetic effects, patterns, and qualities of materials, and execution before installing flooring materials and accessories.
- 4.3 Install in area designated by Consultant, sample flooring installation of at least 10 m² in area, showing pattern as directed by Consultant, colour matching, and longitudinal and transverse joints for Consultant's review and acceptance.
- 4.4 The mock-up room shall represent minimum acceptable standard for the Work when identified modifications to mock-up are completed, reviewed, and accepted by the Consultant.
- 4.5 Accepted mock-up may remain as part of the Work.

1.7 DELIVERY, STORAGE, AND HANDLING

1. Deliver, store and handle materials in accordance with Division 01 requirements.
2. Deliver materials in good conditions to the jobsite in manufacturer's original unopened containers that bear name and brand of manufacturer, project identification, and shipping and handling instructions.
3. Store materials in clean, dry, enclosed space off ground, and protect from weather and extremes of heat and cold. Protect adhesive from freezing. Store flooring, adhesives, and accessories in spaces where they will be installed for at least 48 hours before beginning installation.

1.8 SITE CONDITIONS

1. Maintain air temperature and structural base temperature at flooring installation area above 20°C for 48 hours before, during and 48 hours after installation.

1.9 WARRANTY

1. Provide Manufacturer's Warranty for product to be free from manufacturer defects for period of five years from date of substantial performance.

PRODUCTS

2.1 RESILIENT FLOORING

1. **Vinyl Composition Tile:** to ASTM F1066, and as follows:
 - 1.1 Class: Two – through pattern tile.
 - 1.2 Wearing surface: smooth.
 - 1.3 Thickness: 3.2 mm.
 - 1.4 Tile size: 305 x 305 mm.
 - 1.5 Acceptable material:
 - 1.5.1 Standard Excelon Imperial Texture by Armstrong.
 - 1.5.2 Colour: Match existing floor finish.

2.2 RESILIENT BASE

1. Resilient Base: to ASTM F1861, and as follows: at Resilient Floors
 - 1.1 Type: TP – rubber, thermoplastic.
 - 1.2 Group: One – solid.
 - 1.3 Thickness: 3.2 mm.
 - 1.4 Height: 100 mm.

- 1.5 Length: 36.5 meter rolls.
- 1.6 Profile: Cove (with toe).
- 1.7 Acceptable material:
 - 1.7.1 Johnsonite Traditional Wallbase.
 - 1.7.2 Colour: Match existing where scheduled.

2.3 ACCESSORIES

1. Resilient Transition and Edge Strips: Extruded vinyl shapes meeting or exceeding ADA Recommendations for change of level transitions for transition between floors finishes having different levels; acceptable materials as follows:
 - 1.1 The following list is included to indicate the most commonly used transition and edge strip accessories; additional materials may be required where transition heights differ from the products listed and shall be included as a part of the Contract.
 - 1.1.1 Transition Strip: Carpet to Resilient Flooring Transition: Johnsonite CTA-XX-A Transitional Moulding between flooring materials having dissimilar thicknesses; colour: selected from manufacturer's standard range.
 - 1.1.2 Transition Strip: Ceramic Tile to Resilient Flooring Transition: Johnsonite CTA-XX-K Transitional Moulding between flooring materials having dissimilar thicknesses; colour: selected from manufacturer's standard range.
 - 1.1.3 Transition Strip: Carpet to Concrete Slab Transition: Johnsonite EG-XX-H Transitional Moulding between materials having a thickness to materials having no thickness; colour: selected from manufacturer's standard range.
 - 1.1.4 Transition Strip: Resilient Flooring to Concrete Slab Transition: Johnsonite SSR-XX-B Transitional Moulding between materials having a thickness to materials having no thickness; colour: selected from manufacturer's standard range.
 - 1.1.5 Transition Strip: Resilient Flooring to Resilient Flooring Transition: Johnsonite CTA-XX-N Transitional Moulding between materials having the same thickness; colour: selected from manufacturer's standard range.
2. Metal edge strips:
 - 2.1 Extruded, smooth, anodized aluminum with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.
3. Sub-floor filler and leveller: as recommended by flooring manufacturer for use with their product.
4. Primers and adhesives: of types recommended by resilient flooring manufacturer for specific material on applicable substrate.
5. Sealer and wax: type recommended by resilient flooring material manufacturer for material type and location.

EXECUTION

3.1 EXAMINATION

1. Install flooring and accessories after other finishing operations, including painting, have been completed. Close spaces to traffic during the installation of the flooring. Do not install flooring over concrete slabs until they are sufficiently dry to achieve bond with adhesive, in accordance with manufacturer's recommended bond and moisture tests.

2. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring substrate.
3. Ensure concrete floors have maximum 2.5% moisture content, exhibit normal alkalinity and no carbonization or dusting.
4. Ensure concrete floors are clean, smooth, and flat to plus or minus 3 mm over 3 metres.

3.2 PREPARATION

1. Clean floor and apply filler; trowel and float to leave smooth, flat hard surface. Prohibit traffic until filler cured and dry.
2. Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with sub-floor filler.
3. Prohibit traffic until filler is cured.
4. Clean substrates of contaminants.
5. Alkalinity and Adhesion Testing: perform tests recommended by manufacturer. Proceed with installation after substrates pass testing.
6. Moisture Testing: perform tests recommended by manufacturer and as follows:
 - 6.1 Perform anhydrous calcium chloride test ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapour-emission rate of 3 lb of water/1000 sq. ft in 24 hours.
 - 6.2 Perform relative humidity test using in situ probes, ASTM F2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level measurement.
 - 6.3 Proceed with installation after substrates pass testing.
7. Prime or seal concrete slab to resilient flooring manufacturer's printed instructions.

3.3 INSTALLATION: GENERAL

1. Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.
2. Provide high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system.
3. Apply adhesive uniformly using recommended trowel in accordance with flooring manufacturer's instructions. Do not spread more adhesive than can be covered by flooring before initial set takes place.
4. Cut flooring around fixed objects.
5. Continue flooring over areas which will be under built-in furniture.
6. Continue flooring through areas to receive movable type partitions without interrupting floor pattern.
7. Terminate flooring at centreline of door in openings where adjacent floor finish or colour is dissimilar.
8. Install metal edge strips at unprotected or exposed edges where flooring terminates.

3.4 INSTALLATION: SHEET FLOORING

1. Apply adhesive uniformly using recommended trowel. Do not spread more adhesive than can be covered by flooring before initial set takes place. At perimeter of flooring and at seam locations provide minimum 100 mm wide strip of seaming adhesive.
2. Always lay sheets in sequence and follow numerical consecutive order of rolls. Unless otherwise indicated, lay flooring with seams parallel to building lines to produce a minimum number of seams.
3. Double cut sheet joints for tight fit according to manufacturer's recommendations when seams required. Provide additional length on the second and succeeding sheets to allow for proper pattern alignment. Always position flooring using Reverse method.
4. Unless otherwise indicated lay flooring with seams parallel to building lines to produce a minimum number of seams. No end seams unless room length exceeds length of roll.
5. As installation progresses, and after installation, roll flooring with roller of weight recommended by manufacturer to ensure full adhesion and to expel trapped air.
6. Heat-weld seams in accordance with flooring manufacturer's written instructions. At all seams, groove out joints and heat weld seams with suitable welding equipment and welding rod of colour as selected by Consultant, to matching flooring. Trim flush with surface of flooring. Finish flooring in accordance with material manufacturer's written requirements.
7. Adhere sheet flooring goods directly to the substrate using manufacturer's recommended adhesive, depending on the application. Follow instructions on the adhesive pail or those available from the flooring manufacturer.
8. As installation progresses and after installation is complete, roll resilient sheet flooring in accordance with manufacturer's instructions.
9. Clean and polish linoleum floor surface to flooring manufacturer's printed instructions.

3.5 INSTALLATION: FLOOR TILE

1. Lay flooring with joints parallel to building lines to produce symmetrical tile pattern. Border tiles minimum half tile width.
2. As installation progresses and after installation is complete, roll resilient tile flooring in accordance with manufacturer's instructions.

3.6 INSTALLATION: RESILIENT BASE

1. Lay out base to keep number of joints at minimum.
2. Clean substrate and prime with one coat of adhesive.
3. Apply adhesive to back of base.
4. Set base against wall and floor surfaces tightly by using 3 kg hand roller.
5. Install straight and level to variation of 1:1000.
6. Scribe and fit to door frames and other obstructions. Use pre-moulded end pieces at flush door frames.
7. Cope internal corners. Use pre-moulded corner units for right angle external corners. Use formed straight base material for external corners of other angles.

8. Use toeless type base where floor finish will be carpet, coved type elsewhere.
9. Install toeless type base before installation of carpet on floors.
10. Heat weld base in accordance with manufacturer's printed instructions.

3.7 APPLICATION: STAIRS

1. Install cove filler strips at joints between risers and treads.
2. Scribe each tread and riser to ensure correct fit.
3. Install stair treads and risers in one-piece full width of stairs, with top of riser scribed against next nosing. Apply adhesive evenly to back of coverings at rate sufficient to bond and to completely fill gaps between step treads and risers, particularly at junctions.
4. Set firmly in position tight to nosing and set with hand roller.
5. Install tactile warning strips at stair landings where shown, width of stair x 900 mm deep, set back from front edge of stair one tread depth.

3.8 INSTALLATION: ACCESSORIES

1. Install transition strips with manufacturer's recommended adhesive at unprotected and exposed edges where flooring terminates.

3.9 CLEANING

1. Progress Cleaning: clean in accordance with Division 01 requirements. Leave Work area clean at end of each day.
2. Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment. Perform cleaning after installation to remove construction and accumulated environmental dirt.
3. Manage and dispose of demolition and construction waste materials in accordance with Division 01 requirements.

3.10 PROTECTION

1. Protect new floors from time of final set of adhesive until final inspection.
2. Prohibit traffic on floor for 48 hours after installation.

END OF SECTION

SECTION 09 68 13 - TILE CARPETING

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 01 74 19 - Construction Waste Management and Disposal: Reclamation/Recycling of removed carpet tile.
2. Section 03 30 00 - Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors.
3. Section 09 05 61 - Common Work Results for Flooring Preparation: Independent agency testing of concrete slabs, removal of existing floor coverings, cleaning, and preparation.

1.2 PRICE AND PAYMENT PROCEDURES

1. Section 01 21 00 - Allowances: Cash allowances affecting this section.

1.3 REFERENCE STANDARDS

1. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2021.
2. NFCA (FCRM) - National Floor Covering Association, Floor Covering Reference Manual; Current Edition.

1.4 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
2. Shop Drawings: Indicate layout of joints, direction of carpet pile, and location of edge moldings.

1.5 QUALITY ASSURANCE

1. Installation Requirements: Install tile carpeting in accordance with written requirements of NFCA (FCRM), and manufacturer's written instructions.
2. Installer Qualifications: Company specializing in installing carpet tile with minimum three years documented experience and approved by carpet tile manufacturer.

1.6 SITE CONDITIONS

1. Store materials in area of installation for minimum period of 24 hours prior to installation.
2. Protect salvaged material from damage for reinstallation.

PART 2 PRODUCTS

2.1 MATERIALS

1. **Carpet Tile**: Existing tile to be removed and salvaged for reinstallation.

2.2 ACCESSORIES

1. **Sub-Floor Filler**: White premix latex; type recommended by flooring material manufacturer.
2. **Carpet Tile Adhesive**: Recommended by carpet tile manufacturer; releasable type.
3. **Carpet Protection**: Non-staining heavy-duty Kraft paper, or 6 mil (0.15 mm) thick poly film.
4. **Transition Strips**: by Schluter Schiene stainless steel appropriate for the location

5. Rubber Base: To match existing. Similar to Johnsonite/Tarkett, Traditional Wall Base, 4" high w/ Toe

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.
2. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive carpet tile.
3. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.
4. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for flooring installation by testing for moisture and pH.
 - 4.1 Test in accordance with Section 09 05 61.
 - 4.2 Test in accordance with ASTM F710.
 - 4.3 Conduct tests by an independent testing agency acceptable to Owner.
 - 4.3.1 Acceptable Testing Agencies:
 - 4.3.1.1 Other testing agency approved by Owner.
 - 4.3.1.2 Substitutions: Not permitted.
 - 4.4 Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.
5. Verify that required floor-mounted utilities are in correct location.

3.2 PREPARATION

1. Remove existing floor finish.
2. Prepare floor substrates for installation of flooring in accordance with Section 09 05 61.
3. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
4. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.
5. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.
6. Vacuum clean substrate.

3.3 INSTALLATION

1. Starting installation constitutes acceptance of sub-floor conditions.
2. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
3. Lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.
4. Locate change of colour or pattern between rooms under door centerline.
5. Fully adhere carpet tile to substrate.
6. Adhere carpet tile to substrate along centerline of rooms, at perimeter of rooms, where tiles are cut, and at 4.5 m intervals throughout rooms. Lay remainder of tile dry over substrate.

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7. Trim carpet tile neatly at walls and around interruptions.
8. Complete installation of edge strips, concealing exposed edges.

3.4 CLEANING

1. Remove excess adhesive without damage, from floor, base, and wall surfaces.
2. Clean and vacuum carpet surfaces.

END OF SECTION

SECTION 09 91 23 - INTERIOR PAINTING

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 05 50 00 - Metal Fabrications: Shop-primed items.
2. Section 09 91 13 - Exterior Painting.
3. Section 09 96 00 - High-Performance Coatings.

1.2 REFERENCE STANDARDS

1. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials; 2020.

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements for submittal procedures.
2. Samples: Submit paper "draw down" samples, 216 by 279 mm in size, illustrating range of colours available for each finishing product specified.
 - 2.1 Where sheen is specified, submit samples in only that sheen.
 - 2.2 Where sheen is not specified, submit each colour in each sheen available.

1.4 QUALITY ASSURANCE

1. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
2. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 5 years experience and approved by manufacturer.
3. **Standard of Acceptance:**
4. **Walls:** No defects visible from a distance of 1000 mm at 90° to surface.
 - 4.1 **Ceilings:** No defects visible from floor at 45° to surface when viewed using final lighting source.
 - 4.2 Final coat to exhibit uniformity of sheen across full surface area

1.5 DELIVERY, STORAGE, AND HANDLING

1. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
2. **Indicate on containers or wrappings:**
 - 2.1 Manufacturer's name and address.
 - 2.2 Type of paint.
 - 2.3 Compliance with applicable standard.
 - 2.4 Colour number in accordance with established colour schedule.
3. Remove damaged, opened and rejected materials from site.
4. Provide and maintain dry, temperature controlled, secure storage.
5. Observe manufacturer's recommendations for storage and handling.
6. Store materials and supplies away from heat generating devices.
7. Store materials and equipment in a well ventilated area with a temperature range of 7° to 30°C.

8. Store temperature-sensitive products above minimum temperature as recommended by manufacturer
9. Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Consultant. After completion of operations, return areas to clean condition to approval of Consultant.
10. Remove only in quantities required for same day use.
11. **Fire Safety Requirements:**
 - 11.1 Provide minimum one 9 kg. Type ABC dry chemical fire extinguisher adjacent to storage area
 - 11.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
 - 11.3 Handle, store use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.6 SITE CONDITIONS

1. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
2. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
3. Do not apply materials when relative humidity exceeds 85 percent; at temperatures less than 3 degrees C above the dew point; or to damp or wet surfaces.
4. Minimum Application Temperature for Paints: 10 degrees C for interiors unless required otherwise by manufacturer's instructions.
5. Provide lighting level of 860 lx measured mid-height at substrate surface.
6. **Safety:** Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.
7. **Ventilation:**
 - 7.1 Consultant will arrange for ventilation system to be operated during application of paint. Ventilate area of Work as directed by Consultant by use of approved portable supply and exhaust fans.
 - 7.2 Provide continuous ventilation during and after application of paint. Run ventilation system 24 hours per day during installation; provide continuous ventilation for seven days after completion of application of paint.
 - 7.3 Apply paint finishes only when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.
 - 7.4 Substrate and ambient temperature must be within limits prescribed and by manufacturer to approval of Consultant.
 - 7.5 Maintain minimum substrate and ambient air temperature of 5°C for Alkyd and 7°C for latex paints. Maximum relative humidity 85%. Maintain supplemental heating until paint has cured sufficiently.
 - 7.6 Provide temporary heating where permanent facilities are not available to maintain minimum recommended temperatures?

- 7.7 Apply paint finish only in areas where dust is no longer being generated by related construction operations such that airborne particles will not affect the quality of the finished surface.
- 7.8 Apply paint only when surface to be painted is dry, properly cured and adequately prepared.
- 7.9 Provide minimum 270 lx on surfaces to be painted.

1.7 EXTRA MATERIALS

- 1. Submit one four litre can of each type and colour of [primer] [finish coating]. Identify colour and paint type in relation to established colour schedule and finish formula.
- 2. Deliver to site, inform Consultant and store where directed.

1.8 WASTE MANAGEMENT

- 1. Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.
- 2. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal
- 3. Set aside and protect the following surplus and uncontaminated waste finish materials: Deliver to or arrange collection by [employees], [individuals], [organizations] for verifiable re-use or re-manufacturing.
- 4. Close and seal tightly all partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.
- 5. Do not dispose of paints or solvents by pouring on the ground, Place in designated containers and ensure proper disposal.
- 6. Solvent based paints, wood preservatives, stains and finishes, which cannot be reused, must be treated as hazardous waste and disposed of in an appropriate manner in accordance with hazardous waste regulations. Empty paint cans are to be dry prior to disposal or recycling (where available).
- 7. Where paint recycling is available, collect all waste paint by type and provide for delivery to recycling or collection facility.
- 8. Paints, stains, and finishes are regarded as hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from the Provincial Ministries of Environment and Regional levels of Government.

PART 2 PRODUCTS

2.1 PAINTS AND FINISHES - GENERAL

- 1. **Qualified Products:**
- 2. **Paint:** To match existing. Sherwin-Williams, Para, ICI (formerly Glidden and Devoe, CIL), Pittsburg, Benjamin Moore. Final coat tints to include "Low" to "0" VOC's. Provide data sheets prior to commencing on site.
 - 2.1 Exposed pre-cast concrete ceilings: spray a 20-25 mil thickness of Niagara Protective Coatings "Liquistone" # 50 in a 2 coat application
- 3. Paints and Finishes: Ready mixed, unless intended to be a site-catalyzed paint.

- 3.1 Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
- 3.2 Supply each paint material in quantity required to complete entire project's work from a single production run.
- 3.3 Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

2.2 COLOURS

1. Colour to match existing.
2. Perform all colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials allowed only with Consultant's written permission.
3. Tint second coat in a three coat system slightly lighter colour than top coat to show visible difference between coats.

PART 3 EXECUTION

3.1 EXAMINATION

1. Do not begin application of paints and finishes until substrates have been properly prepared.
2. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
3. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
4. If substrate preparation is the responsibility of another installer, notify Consultant of unsatisfactory preparation before proceeding.
5. Test shop-applied primer for compatibility with subsequent cover materials.
6. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 6.1 Gypsum Wallboard: 12 percent.
 - 6.2 Plaster and Stucco: 12 percent.
 - 6.3 Masonry, Concrete, and Concrete Masonry Units: 12 percent.
 - 6.4 Interior Wood: 15 percent, measured in accordance with ASTM D4442.
 - 6.5 Concrete Floors and Traffic Surfaces: 8 percent.

3.2 PREPARATION

1. Remove electrical cover plates, light fixtures, surface hardware on doors, door stops, bath accessories. Reinstall when painting is completed.
2. As painting operations progress, place "WET PAINT" signs in occupied areas to approval of Consultant.
3. Cut out as required and fill depressions, scratches, cracks, abrasions, etc... flushing patches with adjoining surfaces and allowing to dry before sealing and priming.
4. Fill or remove drywall imperfections, which become visible after prime coat has been applied. Make flush with adjoining surfaces, and spot-primed.
5. Clean all paintable surfaces and floors of loose dirt, dust or grit prior to application of materials.
6. Solvent-clean metal surfaces to remove grease and oil.

7. Fill with wood paste filler nail holes, cracks, etc... in woodwork after first coat specified has been applied.
8. If applied prime coat does not dry to uniform sheen over entire surface, spot-prime areas indicating suction before applying finish.
9. Spot-prime coat with shop coat caused by cleaning, repairing, erection, etc...
10. Tint filler to match stain for stained woodwork.
11. Wash galvanized metal surfaces thoroughly with mineral spirits followed by one coat of purpose made etch type primer.
12. Ensure that humidity level and concrete floor cure are acceptable to permit application of Dry-Fall paint at exposed structure and steel deck areas.
13. Preparation of existing surfaces may include but not be confined to cleaning, filling, sanding, scraping, wire brushing, acid etching and sand blasting.

3.3 APPLICATION

1. General:

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

2. Finishing:

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

3. Gloss Values:

- 3.1 Gloss value shall be in accordance with ASTM D523 tentative method of test for 60 Deg. Specular gloss.
- 3.2 Gloss values shall be as follows:

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Flat	Less than 10
Eggshell	10 to 35
Semi-gloss	35 to 60
Gloss	60 to 80
High Gloss	80 to 90

3.4 INTERIOR FINISHES

1. **General:**

- 1.1 Paint to match existing

2. **Metal:**

- 2.1 One coat Zinc Chromate primer (unless shop primed by others).
2.2 Two coats oil based enamel.

Note: Galvanized metal to receive one coat of galvanized iron primer.

3. **Masonry Block:**

- 3.1 One coat tinted block filler. Spray applied, then rolled.
3.2 Two coats of acrylic latex, Eggshell.

4. **Drywall:**

- 4.1 One coat latex sealer.
4.2 Two coats acrylic latex paint, eggshell.

5. **Concrete Floors:**

- 5.1 Equal to Sherwin-Williams armor-seal tread-flex water-based single component acrylic coating.
5.2 First coat application 1.5-2.0 mils primer - second coat 1.5-2.0 finish- semi-gloss.
5.3 Remove sealer, fill bug hole, voids, sweep clean.
5.4 Entire installation to manufacturers latest printed instruction. Including adequate curing time, moisture content and temperature.

6. **Glazed Coated Areas:** Doors, door frames, grilles, convectors, trims and the like in glazed coated areas are to be painted as specified.

7. **Painting Above New Open Grid or Louvered Luminous Ceiling or Luminous Interior Soffit**

Areas: All structure, pipes, ducts and the like, above the level of the lamps of the luminous ceiling shall receive one spray coat of flat back acrylic latex paint. Portions between the lamps and the ceiling shall receive two coats of white alkyd paint.

3.5 CLEANING

1. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.
2. On completion, touch up and refinish minor defective Work. Refinish entire surfaces where finish is damaged or not acceptable. Remove spills or spots from surfaces of others and be totally responsible for damage to same.

3.6 PROTECTION

1. Protect finishes until completion of project.

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2. Touch-up damaged finishes after Substantial Performance.

END OF SECTION

SECTION 10 28 00 - MISCELLANEOUS ACCESSORIES

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 04 20 00 Masonry
2. Section 10 21 13.13 - Metal Toilet Compartments.
3. Section 10 21 13.16 - Plastic-Laminate-Clad Toilet Compartments.
4. Section 10 21 13.17 - Phenolic Toilet Compartments.
5. Section 10 21 13.19 - Plastic Toilet Compartments.

1.2 REFERENCE STANDARDS

1.3 SUBMITTALS

1. See Section 01 30 00 - Administrative Requirements for submittal procedures.
2. **Shop Drawings:**
 - 2.1 Submit drawings and/or fixture cuts, which clearly show the materials being supplied including dimensions, clearances, anchorages and attachments.
 - 2.2 Include Manufacturer's installation instructions

PART 2 PRODUCTS

2.1 MATERIALS

1. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
2. **Washroom Accessories:**
 - 2.1 **General:** Specified manufacturer's catalogue references establish minimum acceptable standards for Work of this section. Accessories listed below refer to the design, size, finish and basic quality of products manufactured by Bobrick.
 - 2.2 Approved Alternate Manufacturers: ASI Group Canada, Twin-Cee Ltd., Frost Products Ltd., and Bradley Corporation.
 - 2.3 **Framed Mirror:**
 - 2.3.1 Mirrors must be max 1000 mm AFF and not be inclined/tilted. Full length mirrors must start max 175 mm AFF**Mounting:** Flat mounted, Vandalproof
Frame: Stainless Steel
 - 2.4 **Toilet Tissue Dispenser:**
Location: At each toilet
Mounting: Recessed
Finish: Stainless Steel, No. 4 finish
Type: Bobrick Classic Series Multi-roll toilet dispenser, reserve roll, B3888
 - 2.5 **Sanitary Napkin Disposal:**
Finish: 18-8 Type 304, 22GA satin finish stainless steel with 313/16 x 8" L shelf.
Mounting: Surface.
Size: 7 $\frac{7}{8}$ " w x 11" h x 33/16" d.

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Locations: 1 at each wc at public washrooms.

- 2.6 Grab Bars: 1¼" (32mm) Φ 18GA type – 304 stainless steel tubing c/w mandrel bends. 4" (100mm) bends and 2½" (65mm) No. 14 screws capable of supporting a 2.3 Kn pull.

Location: see typical plan for location

Mounting: surface

Lengths: see D-sheet

- 2.7 Heavy Duty Paper Towel Dispenser:

Location: At public washroom

Mounting: Surface

Finish: Stainless steel.

- 2.8 Soap Dispenser: One heavy duty soap dispenser/lather at each lav.

Finish: Stainless steel.

- 2.9 Waste Paper Receptacle: One wall mounted waste paper receptacle at lav.

Finish: Stainless steel.

3. **Identifying Devices:**

- 3.1 Provide sign "Washroom"

- 3.2 Purchase from Hardware Allowance. Install under this contract.

4. **Corner Guards:**

- 4.1 Equal to C/S surface mounted corner guards model SM-20 (¼", 6.35mm radius) as manufactured by Construction Specialties, Mississauga.

- 4.2 Manufacture from c/w Acrovyn vinyl/acrylic extrusions in nominal wall thickness of .078" (1.98mm). Include end closers.

Finish: Stainless steel - adhesion strips.

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify existing conditions before starting work.
2. Verify exact location of accessories for installation.
3. For electrically-operated accessories, verify that electrical power connections are ready and in the correct locations.
4. Verify that site measurements are as indicated on Drawings.

3.2 PREPARATION

1. Deliver inserts and rough-in frames to site for timely installation.
2. Provide templates and rough-in measurements as required.

3.3 INSTALLATION

1. Install accessories in accordance with manufacturers' instructions in locations indicated on Drawings.
2. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.
 - 2.1 Grab Bars: As indicated on Drawings.
 - 2.1.1 At stud partitions: Secure grab bar mounting fasteners to steel or wood reinforcing, purposely built into the partition.
 - 2.2 Mirrors: measured from floor to bottom of mirrored surface.

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- 2.3 Electric Hand Dryers: Measured from floor to bottom of nozzle:
 - 2.3.1 Men: 1110 mm.
 - 2.3.2 Women: 1060 mm.
 - 2.3.3 Teenager: 1035 mm.
 - 2.3.4 Child: 810 mm.
 - 2.3.5 Handicap: 910 mm.
- 2.4 Other Accessories: As indicated on Drawings.
- 2.5 Install Work plumb, level, straight, tight and secure to mounting surfaces.
- 2.6 Use only fasteners that match material and finish of fastened Work where exposed to view
- 2.7 Use tamper proof screws or bolts to fasteners

3.4 PROTECTION

- 1. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION