PROJECT MANUAL – VOLUME 1:

General Requirements,
Specifications: Divisions 02 to 10

SENECA COLLEGE DOOR HARDWARE REPLACEMENT
NEWNHAM / SENECA @ YORK CAMPUSES

1750 FINCH AVENUE EAST & 70 THE POND ROAD
TORONTO ONTARIO

PROJECT No: M210110
AUGUST 2021

ISSUED FOR TENDER

1 General

1.1 SUMMARY

.1 Review drawings, site conditions, and other specification sections to ascertain the extent and nature of work of this section.

.2 The Work of this Section includes demolition and removal of portions of the following:

.1 Interior finish elements

.2 Exterior finishes and canopies as indicated on drawings.

.3 Exterior concrete curbs and walkways.

.4 Dispose of demolished materials except where required to be salvaged or reused.

.5 Refer to demolition notes indicated on drawings.

.3 Drawings contain details that suggest directions for solving some of the major demolition and removal requirements for this project; Contractor is required to develop these details further by submitting a demolition plan prepared by a professional engineer employed by the Contractor.

1.2 REFERENCE STANDARDS

.1 American National Standards Institute (ANSI):

.1 ANSI A10.8-2011, Scaffolding Safety Requirements

.2 Canadian Standards Association (CSA):

.1 CSA S350- M1980 (R2003), Code of Practice for Safety in Demolition of Structures.

.3 National Fire Protection Association (NFPA):

.1 NFPA 241-09, Standard for Safeguarding Construction, Alteration, and Demolition Operations

.4 Provincial Legislation:

.1 Legislation specific to Authority Having Jurisdiction for work governed by this Section

1.3 DEFINITIONS

.1 Demolish: Detach items from existing construction and legally dispose of them off site, unless indicated to be removed and salvaged or removed and reinstalled.

.2 Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.

.3 Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

.4 Existing to Remain: Existing items of construction that are not removed and that are not otherwise indicated as being removed, removed and salvaged, or removed and reinstalled.

1.4 EXAMINATION

.1 Visit and examine the site and note all characteristics and irregularities affecting Work of this Section. Submit a pre-demolition inspection report. Ensure the Owner of premises being inspected is represented at inspection.

.2 Where appropriate prepare a photographic or video record of existing conditions, particularly of existing work scheduled to remain.

.3 Where applicable, examine adjacent tenancies not part of the scope of work. Determine extent of protection required to areas and related components not subject to demolition.

1.5 SUBMITTALS

.1 Provide required information in accordance with Section 01 33 00.

.2 Action Submittals: Provide the following submittals before starting any work of this Section:

.1 Prepare schedule in conjunction with overall project schedule, and outline proposed methods in writing. Obtain approval before commencing demolition work, and indicate the following:

.1 Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity

.2 Interruption of utility services

.3 Coordination for shutoff, capping, and continuation of utility services

1.6 QUALITY ASSURANCE

.1 Conform to requirements of all authorities having jurisdiction.

.2 Comply with applicable requirements of CSA S350-M "Code of Practice for Safety in Demolition of Structures".

.3 Work of this Contract shall be executed by an approved company having a minimum of five (5) years continuous experience and able to deploy adequate equipment and skilled personnel to complete work expediently in an efficient and orderly manner.

.4 Perform cutting and coring, where applicable, by a firm specializing in this type of work, able to produce evidence of successful completion of similar work over a period of at least five (5) years immediately prior to date of contract.

.5 Apply for, secure, arrange and pay for all permits, notices and inspections necessary for proper execution and completion of work in this Section.

1.7 PROTECTION

.1 Prevent movement or settlement of adjacent work. Provide and place bracing or shoring and be responsible for safety and support of such work. Be liable for any such movement or settlement, and any damage or injury caused.

.2 Cease operations and notify Consultant if safety of any adjacent work or structure appears to be endangered. Take all precautions to support the structure. Do not resume operations until reviewed with the Consultant.

.3 Prevailing weather conditions and weather forecasts shall be considered. Demolition work shall not proceed when weather conditions constitute a hazard to the workers and site.

.4 Prevent debris from blocking surface drainage inlets and mechanical and electrical systems which remain in operation.

.5 Temporarily suspended work that is without continuous supervision shall be closed to prevent entrance of unauthorized persons.

1.8 REMAINING AND ADJACENT STRUCTURES

.1 Do not interfere with, encumber, endanger or create nuisance, from any cause due to demolition work, to public property or any adjacent attached and/or detached structures in possession of Owner or others, which are to remain, whether occupied or unoccupied during this work.

.2 Make good damage to such structures resulting from work under this Section at no cost to Owner. Make good adjacent building surfaces damaged by work of this Section.

1.9 PROTECTION OF SERVICES AND STRUCTURES

.1 Take necessary precautions to guard against movement, settlement or collapse of existing adjacent utility services, public property and/or structures, whether to remain or not. If these or other unforeseen conditions develop, take immediate emergency measures, report to Consultant, confirm in writing, and await instructions before proceeding with any further related demolition work.

1.10 EXISTING SERVICES

.1 Prior to start of demolition disconnect all electrical and telephone service lines in the areas to be demolished. Post warning signs on all electrical lines and equipment which must remain energized to serve other areas during period of demolition. Disconnect electrical and telephone service lines in demolition areas to the requirements of local authority having jurisdiction.

.2 In each case, notify the affected utility company in advance and obtain approval where required before commencing with the work on main services.

.3 Arrange with utility companies for locating of such services and for disconnection of existing services owned by utility companies and which will be disconnected by said utility companies, provided such services do not interfere with adjacent tenancy operators.

.4 Remove sewer and water lines where required within existing building as deemed necessary, and cap to prevent leakage, in accordance with authorities having jurisdiction.

1.11 EXISTING WARRANTIES

.1 Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

2 Products

2.1 DEBRIS, SALVAGED MATERIAL AND EQUIPMENT DISPOSAL

.1 All materials and or equipment salvaged from demolition work becomes property of demolition Contractor unless designated otherwise.

.2 At no cost to Owner repair or replace material and/or equipment scheduled to remain which is damaged by demolition work. Do not sell any salvaged material or equipment directly from project site.

.3 Remove waste debris continually and entirely from project site during demolition work. Do not load vehicles transporting such debris beyond their safe capacity or in a manner which might cause spillage on public or private property. If spillage does occur, clean up immediately to prevent traffic hazards or nuisance.

2.2 PROTECTION

.1 Temporary Protection:

.1 Erect temporary hoarding protection, as indicated in Section 01 56 26, to enclose openings in exterior walls, and/or provide security to partially occupied interior spaces.

.2 Erect temporary dust screens, as indicated in Section 01 50 00, to prevent dust and debree to enter areas of the building which are not scheduled for demolition. Remove temporary dust screens when no longer required.

2.3 REPAIR MATERIALS

.1 Use repair materials identical to existing materials:

.1 If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

.2 Use a material whose installed performance equals or surpasses that of existing material.

.3 Comply with material and installation requirements specified in individual Specification Sections.

.2 Floor Patching and Levelling Compounds: Cement based, trowelable, self-levelling compounds compatible with specified floor finishes; gypsum based products are not acceptable for work of this Section.

.3 Brick: Install brick and and mortar, cut and trimmed to fit existing opening to be filled, once demolition of hollow metal door and frame is completed. Match brick and mortar to existing adjacent materials as approved by the Consultant. Provide ties and accessories as required to complete the installation.

.4 Gypsum Board Patching Compounds: Joint compound to ASTM C475, bedding and finishing types thinned to provide skim coat consistency to patch and prepare existing gypsum board walls ready for new finishes in accordance with Section 09 21 16.

.5 Fireproofing: Patch and repair all fireproofing damaged during demolition of adjacent surfaces with compatible fireproofing materials. Provide test reports from fireproofing manufacture warranting installation, adhesion and compatibility between existing and new fireproofing materials.

3 Execution

3.1 GENERAL

.1 Exercise caution in dismantling, disconnecting of work adjacent to existing work designated to remain.

.2 Carry out demolition in a manner to cause as little inconvenience to the adjacent properties as possible.

.3 Carry out demolition in an orderly and careful manner.

.4 Demolition by explosives is not permitted.

.5 Selling or burning of materials on site is not permitted.

.6 Sprinkle exterior debris with water to prevent dust. Do not cause flooding, contaminated run-off or icing. Do not allow waste material, rubbish, and windblown debris to reach and contaminate adjacent properties.

.7 Lower waste materials in a controlled manner; do not drop or throw materials from heights.

.8 At end of each day's work, leave in safe condition so that no part is in danger of toppling or falling.

3.2 SAFETY AND SECURITY

.1 Maintain security of the building at all times during demolition work.

.2 Provide and maintain fire prevention equipment and alarms accessible during demolition.

3.3 ACCESS ROUTES

.1 Restrict operations to designated access routes.

.2 Do not obstruct roads, parking lots, sidewalks, hydrants and the like.

3.4 SELECTIVE DEMOLITION

.1 Provide necessary shoring and supports to assure safety of structure prior to cutting and coring.

.2 Where practical, sawcut and remove material as required.

.3 Where sawcutting is not appropriate, use suitable hand tools.

.4 Demolish, cut-out and remove from site all other work noted on drawings or required to permit new construction.

.5 Do not allow water to accumulate or flow beyond work area. Provide receptacles and mop-up as work proceeds.

.6 Fill all openings in gypsum board walls with gypsum board and steel framing to match existing, skim coat to make wall smooth and even.

.7 Demolish existing flooring and wall finishes, and adhesive remnants where indicated on Drawings, as follows:

.1 Floor and wall substrate shall be smooth, free from ridges and depressions, and adhesive remnants that could telegraph through new flooring and wall finishes.

.8 Patch and repair all walls, floor and ceilings damaged during demolition with material matching adjacent walls, prepare ready for new finishes.

.1 Prepare existing surfaces schedule to receive new finish by grinding, filling, over-coating, stripping, washing, etching, shot blasting or other chemical or mechanical means, as required to ensure satisfactory installation of new finish.

3.5 PATCHING AND REPAIRING

.1 Floors and Walls:

.1 Where walls or partitions that are demolished extend from one finished area into another, patch and repair floor and wall surfaces in the new space.

.2 Provide an level and smooth surface having uniform finish colour, texture, and appearance.

.3 Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform colour and appearance.

.4 Patch with durable seams that are as invisible as possible.

.5 Provide materials and comply with installation requirements specified in other Sections of these Specifications.

.6 Patch any existing areas adjoining / adjacent to new construction in good workmanship, filling and finishing gaps between finishes to allow new work to blend seamlessly with existing work.

.7 Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.

.8 Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

3.6 EXCESSIVE DEMOLITION

.1 Where excessive demolition occurs, be responsible for cost of replacing such work.

.2 Consultant shall determine extent of such 'over-demolition' and method of rectification.

3.7 COMPLETION

.1 Leave project site as directed, reasonably clean and presentable, free from above grade debris, any salvaged material and/or equipment except those designated to remain.

.2 Maintain access to exits clean and free of obstruction during removal of debris.

END OF SECTION

1 General

1.1 SUMMARY

.1 Supply and install materials in accordance with published 'Through-Penetration Firestop Systems' in UL's Fire Resistance Directory or the publication of another approved independent laboratory.

1.2 RELATED REQUIREMENTS

.1 Section 07 92 00: Sealants

.2 Contractor shall be responsible for coordinating this section with all related sections.

1.3 REFERENCE STANDARDS

.1 Underwriters Laboratories of Canada (ULC):

.1 CAN/ULC S115-05, Standard Method of Fire Tests and Firestop Systems

.2 American Society for Testing and Materials (ASTM):

.1 ASTM E814-11a, Standard Test Method for Fire Tests of Penetration Firestop Systems

1.4 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00.

.2 Shop Drawings:

.1 Provide details indicating all reinforcing, anchorages, fastening and proposed method of installation for the various conditions within the project.

.3 Samples:

.1 Submit samples of each type of firestop and smokeseal material and accessory.

1.5 QUALITY ASSURANCE

.1 Applicator shall be licensed by the manufacturer of fireproofing materials.

.2 Conform to flame and temperature ratings established by ULC CAN4-S115-05 and ASTM E814-11a.

.3 Submit manufacturer's certification that materials meet or exceed specified requirements.

.4 Maintain flame and temperature ratings equal to surrounding materials.

1.6 DELIVERY, STORAGE, HANDLING AND PROTECTION

.1 Deliver materials in original, unopened packages bearing name of manufacturer and product identification.

.2 Store materials off ground, under cover, and away from damp surfaces.

1.7 SITE CONDITIONS

.1 Do not apply materials when temperature of substrate material is below 4 deg C and surrounding air temperature is below 4 deg C, for 24 hours prior to application.

2 Products

2.1 MATERIALS

.1 Bears UL, ULC or Warnock Hersey label and confirmation of compliance with ASTM E814-11a or CAN4-S115.

.2 Provide fire stopping and smoke sealing systems in accordance with CAN4-S115-M and shall also conform to special requirements in part 3.5 of the Building Code.

.3 Fire-resistant rating of fire stopping material assemblies must meet or exceed the fire-resistance rating of the floor or wall section being penetrated.

.4 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control shall be elastomeric seal type. Do not use a cementitious, or rigid seal at such locations.

.5 Primers shall be to manufacturer's recommendation for specific material, substrate, and end use.

.6 Damming and backup materials, supports and anchoring devices shall be to manufacturer's recommendations, and in strict accordance with tested assembly being installed as acceptable to authorities having jurisdiction.

.7 Sealants for vertical joints, shall be non-sagging type.

3 Execution

3.1 PROTECTION

.1 Mask adjacent work of other Sections as necessary to avoid spillage onto adjoining surfaces. Remove stains on adjacent surfaces as required.

3.2 PREPARATION

.1 Examine sizes and conditions to establish correct thickness and installation of backup materials. Ensure surfaces are dry and frost free.

.2 Clean bonding surfaces of deleterious substances including dust, paint, rust, oil, grease and other foreign matter which may otherwise impair effective bonding.

.3 Do not apply firestops and smokeseals to surfaces previously painted or 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 Prepare surfaces in accordance with manufacturer's instructions.

.5 Priming and Sealing: Prime surfaces in accordance with manufacturer's instructions.

3.3 APPLICATION

.1 Mix materials in accordance with manufacturers' written instructions.

.2 Apply in strict accordance with ULC certification and manufacturer's recommendations to provide a temperature and flame rated seal equal as a minimum to the rating of the wall or floor surrounding.

.3 Seal all holes or voids made by penetrations to ensure an air and water resistant seal.

.4 Seal all joints to ensure an air and water resistant seal, capable to withstand compression due to thermal, wind or seismic joint movement.

.5 Consult with Mechanical Engineer and project manager prior to installation of UL firestop systems that might hamper the performance of fire dampers as it pertains to duct work.

.6 Apply to mechanical and electrical service through-penetrations, to formed, sleeved, or cored openings in smoke and fire rated masonry, or gypsum wallboard stud walls and structural floors and ceilings.

.1 Coordinate with plumbing, HVAC and electrical contractors to ensure proper firestopping application, providing smokeseal around penetrations through fire rated assemblies. Ensure that end joints between lengths of firestopping material have been properly sealed.

.7 Apply to head of smoke and fire rated gypsum wallboard stud wall abutting underside of structure (concrete or steel deck).

.8 Apply to control joints in rated stud walls.

.9 Apply to penetrations for passage of duct, cable, cable tray, conduit, piping, electrical busways and raceways through fire rated vertical barriers (walls and partitions), horizontal beams (floor/ceiling assemblies) and vertical service shaft walls and partitions.

.10 Apply to safing slots gaps between edge of floor slabs and curtain walls.

.11 Apply to openings between structurally separate sections of walls and floors.

.12 Apply to gaps between tops of walls and ceiling or roof assemblies.

.13 Apply to expansion joints in fire rated walls and floors.

.14 Apply to openings and penetrations in fire rated partitions or walls containing fire doors.

.15 Apply to openings around structural members which penetrate fire rated floors or walls.

.16 Apply firestop and smokeseal materials in accordance with manufacturer's directions, with sufficient pressure to properly fill and seal openings.

.17 Tool or trowel exposed surfaces.

.18 Remove excess compounds promptly as work of this Section progresses and upon completion of work of this Section.

3.4 CURING

.1 Cure materials in accordance with manufacturer's instructions.

.2 Do not cover up materials until proper curing has taken place.

3.5 IDENTIFICATION

.1 Identify through-penetration firestop systems with pressure-sensitive, self-adhesive, prepreinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestop system installation where labels will be visible to anyone seeking to remove penetrating items or firestop systems. Include the following information on labels:

.1 The words: "Warning: Through-Penetration Firestop System - Do Not Disturb"

.2 Contractor's name, address and telephone number.

.3 Designation of applicable testing and inspection agency.

.4 Date of installation.

.5 Manufacturer's name for firestop materials.

3.6 CLEAN UP AND REPAIRS

.1 Clean adjacent surfaces immediately and leave work neat and clean.

.2 Remove excess materials using recommended procedures, as work progresses.

.3 Remove dams after initial set of firestops and smokeseals as required.

.4 Correct staining and discolouring of adjacent surfaces as directed by Consultant.

.5 Remove all debris and excess materials entirely from the site and leave the work in a neat and tidy condition.

.6 Perform one simulated smoke test for each penetration type once per day. Simulate smoke at a rate of four seconds/100 cubic feet (2.8 cubic metres) and maintain the fog density until inspection is complete.

.7 After inspection is complete, repair all defective firestopping and smokeseals and test again. Continue this procedure until all firestopping and smokeseals passes test.

END OF SECTION

1 General

1.1 SUMMARY

.1 Read other Sections of the Specification for extent of sealant specified in those Sections. Do all other sealing indicated, specified or required.

.2 Provide all items, articles, materials, operations or methods listed, mentioned or scheduled on drawings and/or herein, including all labour, materials, equipment and incidentals necessary and required for the completion of the sealant.

1.2 RELATED REQUIREMENTS

.1 Section 03 30 00: Cast-in-Place Concrete

.2 Section 04 20 00: Masonry

.3 Section 05 50 00: Miscellaneous Metals

.4 Section 06 10 00: Rough Carpentry

.5 Section 07 46 19: Metal Wall Panels

.6 Section 07 84 00: Firestopping and Smokeseals

.7 Section 08 11 13: Steel Doors and Frames

.8 Section 08 44 13: Glazed Aluminum Curtain Wall

.9 Section 08 51 13: Aluminum Windows

.10 Section 08 62 13: Domed Unit Skylights

.11 Section 09 21 16: Gypsum Wallboard

.12 Section 09 90 00: Painting

1.3 REFERENCE STANDARDS

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

.1 ASTM C509-06(2011), Standard Specifications for Elastomeric Cellular Performed Gasket and Sealing Material

.2 ASTM C920-11, Standard Specification for Elastomeric Joint Sealants

.3 ASTM C-1382-11, Standard Test Method for Determining Tensile Adhesion Properties of Sealants when Used in Exterior Insulation and Finish Systems (EIFS) Joints

.4 ASTM D2240-05(2010), Standard Test Method for Rubber Property - Durometer Hardness

.2 Canadian General Standards Board (CGSB):

.1 CAN/CGSB-19.13-M87, Sealing Compound, One-Component, Elastomeric, Chemical Curing

1.4 SUBMITTALS

.1 Provide submittals in accordance with the General Conditions and Section 01 33 00.

.2 Action Submittals: Provide the following submittals before starting any work of this Section:

.1 Manufacturer's Data: Submit manufacturer's literature describing each material to be used in the work of this Section. Literature shall contain a statement that the material complies with the specified standard.

.2 Samples: Submit for approval and colour selection sample of each type of compound, recommended primers and joint filler or fillers proposed to be used.

.3 Mock-Up:

.1 If requested by the Consultant, construct mock-ups where directed to show location, size, shape, colour and depth of joints complete with back-up material, primer and sealant. Mock-up may be part of finished work.

.2 Allow 24-hours for inspection of work before proceeding with work.

.4 Safety Data Sheets: Submit WHMIS safety data sheets for inclusion with project record documents. Keep one copy of WHMIS safety data sheets on Site for reference by workers.

1.5 QUALITY ASSURANCE

.1 Adhere to Manufacturer's recommendations for mixing or preparation of materials listed in this Section.

.2 Pot life or installation times shall not be exceeded.

.3 Integral materials which compose a joint detail shall be compatible.

.4 Component parts, where possible, shall have the same manufacturer.

.5 A representative of sealant material manufacturer shall visit the site during application to ensure that all Work is carried out according to the manufacturer's printed instructions.

1.6 SITE CONDITIONS

.1 Apply sealants only to completely dry surfaces, and at air, substrate and material temperatures above minimum established by manufacturer's written specifications.

1.7 DELIVERY, STORAGE HANDLING AND PROTECTION

.1 Deliver all materials to the jobsite in their original, unopened containers, with all labels intact.

.2 Receive and store materials as recommended by materials manufacturer.

.3 Maintain containers and labels in undamaged condition.

1.8 WARRANTY

.1 Provide a written warranty endorsed and issued in the name of the Owner stating that all sealant work of this Section is warranted against leakage, cracking, crumbling, melting, running, deterioration, shrinkage, loss of cohesion, loss of adhesion, staining of adjoining or adjacent work or surfaces, or failure to provide intended seal for a period of five (5) years from the Date of Substantial Performance of the Work, and that any defects will be made good including, related materials and installation at no additional cost to the Owner.

2 Products

2.1 MATERIALS

.1 Joint Cleaner:

.1 Non-corrosive solvents as recommended by sealant manufacturer for applicable substrate material(s).

.2 Primer:

.1 Non-staining type as recommended by sealant manufacturer, for use on substrate conditions outlined, and compatible with specified sealant being applied.

.3 Joint Back-Up – Backer Rod:

.1 Round, open cell, reticulated foam, 50% compression, compatible with sealant and primer, non-adhering to sealant.

.4 Bond Breaker:

.1 Pressure sensitive plastic tape, not bondable to sealant as recommended by sealant manufacturer.

.5 Sealant Type "A" – Joints around Interior Door Frames, Windows and Under Exterior Thresholds:

.1 One-part, low or medium modulus, neutral curing 100% silicone joint sealant, conforming to ASTM C920-11, Type S, Grade NS, Class 35.

.1 DC CWS by Dow Corning.

.2 SWS by GE

.3 SikaSil WS-305CN by Sika

OR

.2 One component, low modulus, moisture curing, polyurethane joint sealant, conforming to ASTM C920-11, Type S, Grade NS, Class 25.

.1 Dymonic FC by Tremco Ltd., division of RPM Company.

.2 Sikaflex 1A by Sika Canada Inc.

.3 Sonolastic NP1 by BASF.

.6 Sealant Type "B" – Expansion / Control Joints:

.1 One-part, ultra low modulus, non-staining neutral curing 100% silicone joint sealant, conforming to ASTM C920-11, Type S, Grade NS, Class 50.

.1 DC 790 by Dow Corning.

.2 Spectrem 1 by Tremco

.3 SCS2700 SilPruf LM by GE

.4 SikaSil WS-290 by Sika

.7 Sealant Type "E" – Mould and Mildew Resistant:

.1 Mould and mildew resistant, Shore A Hardness 15-25, conforming to ASTM C920-11, Type S, Grade NS, Class25, use NT, G, and A:

.1 SCS1700 by GE

.2 DC 786 by Dow Corning

.3 Tremsil 200 by Tremco

.4 Omni Plus by Sonneborn

.5 SikaSil –GP by Sika

.8 Sealant Type "F" – Glazing Joints:

.1 Silicone Sealant: Butt glazing, one part, moisture curing, shore A hardness 15-25, conforming to CAN/CGSB-19.13-M, Classification C-1-40-B-N and C-1-25-B-N and ASTM C920-11, Type S, Grade NS, Class 25, use NT, G, A, O; Colour: clear (translucent):

.1 DC 795 by Dow Corning

.2 SCS2000 by GE.

.3 Multiseal by Chemtron.

.4 Spectrum 2 by Tremco

.5 SikaSil WS-295 by Sika

.9 Sealant Type "G" – Exterior Wall Joints:

.1 Air-seal sealant: One part, silicone, shore A hardness 15-25, conforming to CGSB 19-GP-13M, classification C-1-40-B-N and C-1-25-B-N and ASTM C920-11, Type S, Grade NS, Class 25. Use NT, M, G, A and O:

.1 DC 791 by Dow Corning

.2 UltraPruf II SCS 2902 by GE

.3 Spectrum 3 by Tremco

.4 SikaSil N-Plus by Sika

.10 Sealant Type “I” – HVAC Sealant:

.1 One-part, RTV, acetoxy-cure silicone sealant for heating, ventilation, air conditioning and refrigeration applications:

.1 Dow Corning HVAC Silicone Sealant

.11 Sealant Type “J” – Electrical Sealant:

.1 One-part, white, non-flowing moisture cure adhesive for electrical applications:

.1 Dow Corning 738 Electrical Sealant

.12 Preformed Compression Seal:

.1 Compartmental open cell neoprene extrusion type conforming to ASTM C509-06(2011), complete with liquid lubricant adhesive recommended by manufacturer.

3 Execution

3.1 INSPECTION

.1 Verify at site that joints and surfaces conditions provided will not adversely affect execution, performance or quality of completed work.

.2 Ensure masonry and concrete have cured 28 days minimum.

.3 Ascertain that sealers and coatings applied to substrates are compatible with sealant used and that full bond of the sealant and substrate is attained. Request samples of the sealed or coated substrate from their fabricators for testing of compatibility and adhesion, if necessary.

.4 Verify that specified recommended environmental conditions are present before commending work.

.5 Defective work resulting from application to unsatisfactory joint conditions will be considered the responsibility of those performing the work of this section.

.6 Do not start work of this Section until conditions are satisfactory.

3.2 PREPARATION

.1 Clean joint surfaces using joint cleaner as necessary, to remove dust, paint, loose mortar, and other foreign matter and dry joint surfaces.

.2 Remove dust, silt, scale and coatings from ferrous metals by wire brush, grinding or sandblasting.

.3 Remove oil, grease and other coatings from non-ferrous metals with approved cleaning solvent.

.4 Ensure surfaces are free of frost, rust, lacquers, laitance, release agents, moisture or other matter which might adversely affect adhesion of sealant.

.5 Examine joint sizes and correct as required to allow for anticipated movement and to achieve proper width/depth ratio per manufacturer's written recommendations for specified sealant.

.6 Support joint filler on horizontal traffic surfaces against vertical movement which might result from traffic loads or foot traffic.

.7 Prepare surfaces as recommended by sealant manufacturer.

.8 Fully remove existing sealant scheduled to be removed and replaced with new sealant, in areas indicated on the Drawings.

.1 Follow manufacturers procedures for removal of existing sealant and test areas for adhesion of new sealant. Provide the Consultant with field report identifying results of adhesion testing.

.9 Install joint backing material or apply bond breaker tape to achieve correct joint depth and prevent three-sided adhesion.

.10 To protect adjacent surfaces, mask adjacent surfaces with tape prior to priming and/or sealing.

.11 Prime sides of joints using two cloth method in accordance with manufacturer's directions immediately prior to sealing.

.12 Before any sealing is commended, a test of the material shall be made for indications of staining, poor adhesion or other undesirable effects.

.13 Seal joints in surfaces to be painted before painting. Where surfaces to be sealed are prime painted in shop before sealing, check to make sure prime paint is compatible with primer and sealant. If incompatible inform Consultant, consult the manufacturer, and change primer and sealant to approved compatible types.

.14 Check form release agent used on concrete for compatibility with primer and sealant. If incompatible inform Consultant and change primer and sealant to approved compatible types or clean concrete to Consultant's approval.

3.3 APPLICATION

.1 Apply sealant in accordance with manufacturer's directions, using a gun with proper nozzle size, ensuring to fill voids and joints completely, to leave a weathertight, airtight installation. Superficial pointing with skin bead is not acceptable.

.2 Neatly tool surface to a slight concave profile. Surface of sealant shall be smooth, free from ridges, wrinkles, sags, air pockets and embedded impurities.

.3 Clean adjacent surfaces immediately and leave Work neat and clean. Remove excess sealant and droppings, using recommended cleaners as Work progresses. Remove masking tape after tooling of joints.

3.4 CLEANING AND PROTECTION

.1 Remove all waste materials from site. Sealant shall be cleaned of all foreign material as recommended by the sealant manufacturer. Leave work in a condition satisfactory to the Consultant.

END OF SECTION

1 General

1.1 SUMMARY

.1 This Section includes requirements for supply and installation of the following:

.1 Exterior and Interior Steel Doors

.2 Exterior and Interior Steel Door Frames

.3 Sidelight Frames

.4 Fire rated door and frame assemblies

1.2 RELATED REQUIREMENTS

.1 Section 07 92 00: Sealants

.2 Section 08 70 00: Hardware

.3 Section 08 71 13: Automatic Door Operators

.4 Section 08 80 00: Glazing

.5 Section 09 90 00: Painting

1.3 DEFINITIONS

.1 Base Metal Thickness: Thickness dimensions are minimums as defined in referenced ASTM standards for both uncoated steel sheet and the uncoated base metal of metallic coated steel sheets.

.2 Opening Sizes: Standard metric door sizes indicated on Drawings are considered nominal dimensions, measured from frame rabbet width and height, with allowances for nominal clearances between head, jamb and door bottom in accordance with CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames.

1.4 REFERENCE STANDARDS

.1 American National Standards Institute (ANSI):

.1 ANSI/SDI A250.7-1997 (R2002), Nomenclature for Standard Steel Doors and Steel Frames

.2 ANSI/SDI A250.11-2001, Recommended Erection Instructions for Steel Frames.

.2 American Society for Testing and Materials (ASTM):

.1 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

.2 ASTM A879/A879M-12, Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface

.3 ASTM A924/A924M-10a, Standard Specification for General Requirements for Sheet Steel, Metallic-Coated by the Hot-Dip Process.

.3 Canadian General Standards Board (CGSB):

.1 CAN/CGSB 1.132-M90, Primer, Zinc Chromate, Low Moisture Sensitivity

.2 CAN/CGSB 41-GP-19Ma-78(1984), Rigid Vinyl Extrusions for Windows and Doors

.3 CAN/CGSB 82.5-M88, Insulated Steel Doors

.4 Canadian Standards Association (CSA):

.1 CSA W59-03 (R2008), Welded Steel Construction (Metal Arc Welding)

.5 Canadian Steel Door Manufacturers Association (CSDMA):

.1 Recommended Dimensional Standards for Commercial Steel Doors and Frames, 2007

.2 Fire Labelling Guide, 2009

.6 National Fire Protection Association (NFPA):

.1 NFPA 80-2010, Fire Doors and Windows

.2 NFPA 252-2012, Fire Tests of Door Assemblies

.7 Underwriters Laboratories Canada (ULC):

.1 CAN4 S104-M80 (R1985), Fire Tests of Door Assemblies

.2 CAN/ULC S105-09, Standard Specification for Fire Door Frames Meeting the Performance Required by CAN/ULC S104

.3 CAN4 S106-1980 (R1985), Standard Method for Fire Tests of Window and Glass Block Assemblies

1.5 SUBMITTALS

.1 Provide requested information in accordance with Section 01 33 00.

.2 Action Submittals: Provide the following submittals before starting any work of this Section:

.1 Product Data:

.1 Submit product data for each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details, label compliance, fire resistance ratings, and finishes.

.2 Shop Drawings:

.1 Show each type of frame, door, hardware blanking, reinforcing, tapping and drilling arrangements, metal gauges, thicknesses and finishes.

.2 Show details of doors including vertical and horizontal edge details.

.3 Submit door and frame schedule identifying each unit. Each unit shall bear a legible identifying mark corresponding to that listed in the door and frame schedule.

.3 Samples:

.1 Supply for Consultant's review, if requested, sample of frame corner showing construction, workmanship and finish.

.4 Informational Submittals: Provide the following submittals when requested by the Consultant:

.1 Source Quality Control Submittals: Submit information on zinc coating treatment and primer spot treatment, including instructions for surface treatment before site painting and any restrictions or special coating requirements.

.5 Certificates: Submit the following certificates or letters of compliance:

.1 Oversize Compliance: Submit oversize construction evidence indicating compliance with fire labelling for door and frame assemblies required to be fire protection rated and exceeding size limitations of labelled assemblies.

1.6 QUALITY ASSURANCE

.1 Manufacturer: Obtain hollow metal doors and frames from single source of supply and from a single manufacturer, and as follows:

.1 Fabricate work of this Section to meet the requirements of the Canadian Steel Door and Frame Manufacturer's Association, Manufacturing Specification for Doors and Frames as a minimum, and as further modified in this section.

.2 Fabricator shall be a member in good standing of the Canadian Steel Door and Frame Manufacturer's Association.

.2 Supplier: Obtain hollow metal doors and frames from single source of supply and from a single manufacturer.

.3 Installer: Use installers who are experienced with the installation of hollow metal doors and frames of similar complexity and extent to that required for the Project.

.4 Testing Agencies: Provide doors produced under label service program of a testing agency acceptable to Authorities Having Jurisdiction, and as follows:

.1 Steel Fire Rated Doors and Frames: Labelled and listed by an organization accredited by Standards Council of Canada for ratings specified or indicated.

.2 Provide fire labelled frame products for those openings requiring fire protection ratings, as scheduled:

.1 List by nationally recognized agency having factory inspection service and construct as detailed in Follow-up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

.2 Fabricate all rated doors, frames and screens to labelling authority standard.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Coordinate deliveries to comply with construction schedule and arrange ahead for off-the-ground, under cover storage location. Do not load any area beyond the design limits.

.2 Adequately protect units against rust and damage during manufacture, delivery and storage.

.3 Store materials on planks in a dry area and cover to protect from damage. Make good immediately any damage done. Clean scratches and touch-up with rust-inhibitive primer.

1.8 SITE CONDITIONS

.1 Site Measurements: Verify actual dimensions of openings by site measurements before fabrication and indicate measurements on shop drawings; coordinate fabrication schedule with construction progress to avoid delaying the Work.

.2 Established Measurements: Establish dimensions and proceed with fabricating doors and frames without site measurements where site measurements cannot be made without delaying the Work; coordinate construction to ensure that actual site dimensions correspond to established dimensions.

2 Products

2.1 MATERIALS

.1 Sheet Steel:

.1 Exterior Doors and Frames: Galvanized, AS120, steel sheets in accordance with ASTM A924/M924-14; coated to meet requirements of ASTM A653/A653M, Commercial Steel (CS), Type B; stretcher levelled standard of flatness where used for face sheets.

.2 Interior Doors and Frames (Normal Humidity): Electrolytic zinc coated steel sheets in accordance with ASTM A879/A879M-12, Commercial Steel (CS), Class B coating; mill phosphatized; suitable for unexposed applications; stretcher levelled standard of flatness.

.2 Gauges:

.1 Door and Screen Frames:

.1 Gauge: 16 msg

.2 Doors (Honeycomb or Polystyrene Core):

.1 Door Faces:

.1 Gauge: 18 msg.

.3 Top and Bottom End Channels:

.1 Gauge: 18 msg.

.4 Reinforcements:

.1 Lock and Strike Reinforcements:

.1 Gauge: 16 msg.

.2 Hinge Reinforcements:

.1 Gauge: 10 msg.

.3 Flush Bolt Reinforcements:

.1 Gauge: 16 msg.

.4 Door Closer or Holder Reinforcements:

.1 Gauge: 12 msg.

.3 Anchors:

.1 As required to suit condition.

.4 Rubber Bumpers:

.1 3 per door.

.5 Weatherstrip:

.1 Extruded aluminum with vinyl insert #W13 for head and jambs and #W5 for pairs of doors without mullions, manufactured by Crowdertrack Limited.

.6 Door Cores:

.1 Interior doors, except fire rated doors: Structural small cell; 1” maximum, kraft paper honeycomb; minimum weight 36 kg/ream; minimum density 16.5 kg/m^3; sanded to required thickness.

.2 Exterior doors: Rigid extruded, closed cell insulation, fire retardant treated meeting the requirements of ULC S701-11, Type 4, minimum thermal resistance R-Value 4.5/1” thickness.

.7 Adhesives:

.1 Core Adhesive: Heat resistant, single component adhesive recommended by manufacturer.

.8 Touch-Up Primer: Rust inhibitive primer meeting CAN/CGSB 1.132, touch up zinc coatings using shop applied primer; grey or red coloured primer, clear primer not acceptable; provide additional primer for site touch-up to repair damaged zinc and shop applied coatings.

.9 Accessories:

.1 Glazing Stops:

.1 Glass mouldings: Formed steel having 1/32” metal core thickness, screw fixed.

.2 Accurately fit and butt at corners glazing trim and stops; located on secure side of door, or interior of room window frame.

.2 Sealant: As specified in Section 07 92 00.

.3 Glass and Glazing: As specified in Section 08 80 00.

.4 Door Silencers (Bumpers or Mutes): Manufacturer's standard black or grey neoprene silencers; three silencers on strike jambs of single door frames; two silencers on heads of double-door frames; stick on bumpers are not acceptable.

.10 Materials for fire rated doors shall conform to ULC or ULI requirements.

2.2 FABRICATION AND MANUFACTURE

.1 Gauges of metal shall be as specified. No deviations or substitutions will be accepted

.2 Reinforcing specified is the minimum acceptable. Provide additional reinforcement where required to ensure a permanent, rigid, trouble free installation able to withstand the stresses of heavy commercial usage.

.3 Cut, shear, straighten and work the steel in manner to prevent disfigurement of the finished work.

.4 Punch frames for rubber door bumpers.

.5 Fill seams, joints and weld depressions with epoxy metal filler, disc sand to a smooth, flat, uniform scratch-free surface, with all arrises sharp and true to line. Drilled and punches holes shall be reamed and have all burrs removed.

.6 Finished work shall be free of warp, open seams, buckles, weld and grind marks and other surface defects detrimental to the production of a good paint finish.

.7 Fastenings shall be concealed except those required for loose glazing stops.

.8 Welding shall conform to CSA W59-03 (R2008).

.9 Hardware Requirements:

.1 Blank, mortise, reinforce, drill and tap doors and frames to receive templated hinges and other hardware as required. Check hardware lists for requirements.

.10 Frames:

.1 Fabricate frames to profiles shown. Frames shall be fabricated to suite the header conditions of masonry work. Mitre corners of frames. Cut frame mitres accurately and weld continuously on inside of frame. Fabricate header frame to suit. Where site welding or splicing is required due to size of unit, the location of field joints shall be shown on the shop drawings and strictly adhered to.

.2 Protect strike and hinge reinforcements and other openings with mortar guard boxes welded to frame.

.3 Cutouts in doors for mortise lock sets shall be fitted with leaf spring clips and back limit stop to facilitate easy positioning and setting of locksets.

.4 Weld floor clip angles to inside of each jamb profile, two holes in each for anchorage to floor. Where required provide adjustable type floor clip angles.

.5 Fit frames with channel or angle spreaders, two per frame, to ensure proper frame alignment. Install stiffener plates or spreaders between frame trim where required, to prevent bending of trim and to maintain alignment when setting and during construction.

.6 Where frames occur in masonry provide and adjustable T-strap type or wire type anchor for every 2'-0" of jamb length. Special anchors for frames to be set in concrete shall be as detailed.

.7 Construct door frames of labelled fire doors as approved by ULC or ULI. Ratings for frames shall match doors. Locate label on the frame jamb midway between the top hinge and the head of door frame so that it is concealed when the door is closed.

.8 Provide continuous weatherstripping at head and jambs of exterior door frames. Properly secure in place with screws and adjust as required.

.9 Insulate exterior frames to provide continuous thermal barrier in exterior frames.

.11 Doors:

.1 Fabricate doors to present one continuous face free from joints, tool markings and abrasions.

.2 Reinforce, stiffen honeycomb doors with small cell honeycomb core laminated to the inside faces of panels. The core shall completely fill the inside hollow of the door.

.3 Reinforce around frame openings required for glazing or louvers. Provide glazing stops with countersunk oval head screws.

.4 Exterior doors shall be completely filled with polystyrene foam core.

.5 Reinforce door edges with channel reinforcing. Bevel stiles 1/8". Assemble by tack welding and fill.

.6 Provide flush top edge on exterior doors.

.7 Fabricate fire rated door assemblies in accordance with ULC or ULI requirements. Provide labels for all fire rated doors. Locate label on the door midway between the top hinge and the head of the door so that it is concealed when the door is closed.

.8 Provide cutouts in doors for glazed lites as indicated on drawings and schedules. Glazing stops shall be square formed steel in single piece lengths sized to suit. Accurately mitre corners and finish in proper plane. Secure stops in place with flush, countersunk screws.

.12 Finishing

.1 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.

.2 Remove weld slag and splatter from exposed surfaces.

.3 Fill and sand smooth tool marks, abrasions and surface blemishes to present smooth uniform surfaces.

3 Execution

3.1 EXAMINATION

.1 Examine substrates, door swing arcs, areas of installation and conditions affecting installation for compliance with requirements for manufacturer’s installation tolerances and other conditions affecting performance of work of this Section.

.2 Verify roughing-in for embedded and built-in anchor locations before installing frames.

.3 Verify door and frame size, door swing and ratings with door opening number before installing frames.

.4 Installation of hollow metal doors and frames will denote acceptance of site conditions.

3.2 INSTALLATION

.1 Install steel doors, frames, and accessories in accordance with reviewed shop drawings, ANSI A250.11, CSDMA Installation Guide, manufacturer's data, and as specified in this Section.

.2 Door Frames:

.1 Remove temporary spreaders before installing door frames, leaving exposed surfaces smooth and undamaged.

.2 Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set; limit of acceptable frame distortion 1/16” out of plumb measured on face of frame, maximum twist corner to corner of 1/8”; align horizontal lines in final assembly.

.3 Brace frames rigidly in position until adjacent construction is complete; install wooden spreaders at third points of frame rebate to maintain frame width, install centre brace to support head of frames 4’ and wider in accordance with ANSI A250.1; do not use temporary metal spreaders for bracing of frames.

.4 Install glazing materials and studded door silencers.

.5 For frames over 1220mm (4’) in width, provide vertical support at the centre of head.

.3 Frame Tolerances: Install frames to tolerances listed in ANSI A250.11, and as follows:

.1 Squareness: Maximum 0.8mm (1/32”) measured across opening between hinge jam and strike jamb.

.2 Plumbness: Maximum 0.8mm (1/32”) measured from bottom of frame to head level.

.3 Alignment: Maximum 0.8mm (1/32”) measured offset between face of hinge jamb and strike jamb relative to wall construction.

.4 Twist: Maximum 0.8mm (1/32”) measured from leading edge of outside frame rabbet to leading edge of inside frame rabbet.

.4 Doors:

.1 Fit hollow metal doors accurately in frames within clearances required for proper operation; shim as necessary for proper operation.

.2 Install hardware in accordance with manufacturers' templates and instructions.

.3 Adjust operable parts for correct clearances and function.

.4 Install glazing materials and door silencers.

.5 Install fire rated doors within clearances specified in NFPA 80-2010.

.6 Install louvers and vents.

.5 Adjusting and Cleaning

.1 Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of air-drying primer compatible with factory applied primer, and as follows:

.1 Clean exposed surfaces with soap and water to remove foreign matter before site touch-up.

.2 Finish exposed site welds to a smooth uniform surface and touch-up with site applied rust inhibitive primer.

.3 Site apply touch-up primer on exposed surfaces where zinc coating or factory applied primer has been damaged during installation or handling.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

.1 Section Includes:

1. Aluminum-framed entrances and storefronts.

1.2 RELATED REQUIREMENTS

.1 Door Finish and Color: match existing and/or refer to drawings

.2 Glass and Glazing: Section 08 80 00, Glazing

.3 Hardware: Section 08 71 00, Door Hardware

.4 Automatic Door Actuators: Section 08 71 13, Automatic Door Operators

.5 Aluminum Finish and Colour – match existing and/or refer to drawings

1.3 PREINSTALLATION MEETINGS

.1 Conduct preinstallation meeting at project site minimum 30 days before beginning Work of this section.

.1 Required Participants:

.1 General Contractor (meeting organizer)

.2 Consultant

.3 Installer.

.4 Owner representative

.2 Meeting Agenda: General Contractor to distribute agenda to participants minimum 3 days before meeting and prepare the following for review:

.1 Installation schedule.

.2 Installation sequence.

.3 Preparatory work.

.4 Protection before, during, and after installation.

.5 Installation.

.6 Terminations.

.7 Transitions and connections to other work.

.8 Other items affecting successful completion.

.3 General Contractor to document and distribute meeting minutes to participants to record decisions affecting installation.

1.4 SUBMITTALS

.1 Submit copies of finish hardware schedule in accordance with Division 1, General Requirements.

.2 Submittal Drawings: Minimum 1:2 scale.

.1 Show size, configuration, and fabrication and installation details.

.2 Show anchorage and reinforcement.

.3 Show interface and relationship to adjacent work, including thermal, air, and water barrier continuity.

.3 Manufacturer's Literature and Data:

.1 Description of each product.

.2 Doors, each type.

.3 Entrance and Storefront construction.

.4 Installation instructions.

.5 Warranty.

.4 Samples:

.1 Door Corner Section: Minimum 450 mm x 450 mm (18 x 18 inches) for each specified door, showing head rail and hinge stile, door closer reinforcement, internal reinforcement and insulation in flush panel door.

.2 Aluminum Anodized Finish: sample extrusions minimum 150 mm (6 inches) long for each specified color in sets of three showing maximum color range.

.3 Aluminum Paint Finish: sample extrusions minimum 150 mm (6 inches) long for each specified color.

.5 Test reports: Certify each product complies with specifications.

.6 Certificates: Certify each product complies with specifications.

.1 Certify anodized finish thickness.

.7 Qualifications: Substantiate qualifications comply with specifications.

.1 Installer with project experience list.

.2 Welders and welding procedures.

.8 Delegated Design Drawings and Calculations: shop drawings signed and sealed by a professional structural engineer, where applicable.

.1 Show location and magnitude of loads applied to building structural frame.

.2 Identify deviations from details shown on drawings.

.9 Operation and Maintenance Data:

.1 Care instructions for each exposed finish product.

1.5 QUALITY ASSURANCE

.1 Manufacturer Qualifications:

.1 Regularly manufactures specified products.

.2 Manufactured specified products with satisfactory service on five similar installations for minimum five (5) years.

.1 Project Experience List: Provide contact names and addresses for completed projects.

.2 Installer Qualifications:

.1 Regularly installs specified products.

.2 Installed specified products with satisfactory service on five similar installations for minimum five years.

.1 Project Experience List: Provide contact names and addresses for completed projects.

.3 Welders and Welding Procedures Qualifications: AWS D1.2/D1.2M.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver products in manufacturer's original sealed packaging.

.2 Mark packaging, legibly. Indicate manufacturer's name or brand, type, color, production run number, and manufacture date.

.3 Before installation, return or dispose of products within distorted, damaged, or opened packaging.

.4 Store products indoors in dry, weathertight facility.

.5 Protect products from damage during handling and construction operations.

1.7 WARRANTY

.1 All items, except as noted below, shall be warranted in writing by the manufacturer against failure due to defective materials and workmanship for a minimum period of five (5) years commencing on the date of final completion and acceptance. In the event of product failure, promptly repair or replace item with no additional cost to the owner.

PART 2 - PRODUCTS

2.1 SYSTEM PERFORMANCE

.1 Delegated Design: Prepare submittal documents including design calculations and drawings signed and sealed by registered design professional, licensed in state where work is located.

.1 Minor deviations to details shown on drawings to accommodate manufacturer’s standard products may be accepted by Contracting Officer's Representative when deviations do not affect design concept and specified performance.

.2 Design aluminum framed entrances and storefronts complying with specified performance:

.2 Wind and Seismic Load Resistance: ASCE/SEI 7; Design criteria as indicated on Shop Drawings when tested according to ASTM E330/E330M.

.1 Wind Load: To be determined by structural engineer retained by sub-contractor for shop drawing review, as applicable.

.2 Maximum Deflection: 1/175 of span, maximum with minimum 1.65 safety factor.

.3 Thermal Movement: Accommodate ambient temperature range of 67 degrees C (120 degrees Fahrenheit).

.4 Windborne-Debris Impact Resistance: Pass ASTM E1886.

.1 Openings within 9144 mm (30 feet) of Grade: ASTM E1996 large missile test.

.2 Other Openings: ASTM 1996 small missile test.

.5 Condensation Resistance: NFRC 500.

.1 Fixed Framing: 45 CRF, minimum.

.6 Water Resistance: ASTM E331; No uncontrolled penetration at380 Pa (8 pounds/square foot), minimum, pressure differential.

.7 Fixed Framing Air Infiltration Resistance: ASTM E283; 0.30 liter/second/square meter (0.06 cubic foot/minute/square foot), maximum at 300 Pa (6.24 pounds/square foot), minimum, pressure differential.

.8 Entrance Doors Air Infiltration Resistance: ASTM E283; maximum allowable at 75 Pa (1.57 pounds/square foot), minimum, pressure differential.

.1 Single Doors: 2.5 liter/second/square meter (0.5 cubic foot/minute/square foot).

.2 Paired Doors: 6 liter/second/square meter (1.2 cubic foot/minute/square foot).

2.2 MATERIALS

.1 Aluminum:

.1 Sheet Metal: ASTM B209M (ASTM B209), minimum 1.6 mm (0.063 inch) thick.

.2 Extrusions: ASTM B221M (ASTM B221).

.1 Framing: Minimum 3 mm (0.125 inch) wall thickness.

.2 Glazing Beads, Moldings, and Trim: Minimum 1.25 mm (0.050 inch) thick.

.3 Alloy 6063 temper T5 for doors, door frames, fixed glass sidelights, storefronts, and transoms.

.4 Alloy 6061 temper T6 for guide tracks for sliding doors and other extruded structural members.

.1 Color Anodized Aluminum: Provide aluminum alloy required to produce specified color.

.5 Stainless Steel: ASTM A240/A240M; Type 302 or Type 304.

.6 Thermal Break: Manufacturer standard low conductive material retarding heat flow in the framework, where insulating glass is scheduled.

2.3 PRODUCTS - GENERAL

.1 Basis of Design: Refer to drawings. Match existing conditions to be best extent possible.

.2 Provide aluminum framed entrances and storefronts from one manufacturer and from one production run. Where possible, retain single source to install within existing framed openings by the same manufacturer.

.3 Match existing conditions: Provide aluminum entrances, storefront, windows, curtain wall systems from the same manufacturer as the existing system

2.4 FRAMES

.1 Framing Members: Extruded aluminum, thermally broken.

.2 Stops: Provide integral fixed stops and glass rebates and snap-on removable stops.

.3 Provide concealed screws, bolts and other fasteners.

.4 Secure cover boxes to frames in back of lock strike cutouts.

2.5 STILE AND RAIL DOORS

.1 Stiles and Rails: Extruded aluminum, thermally broken.

.1 Thickness: 45 mm (1-3/4 inch).

.2 Stiles and Head Rails: 90 mm (3-1/2 inches) wide.

.3 Bottom Rails: 250 mm (10 inches) wide.

.2 Single-Acting Doors:

.1 Bevel: 3 mm (1/8 inch) at lock, hinge, and meeting stile edges.

.2 Clearances: 2 mm (1/16 inch) at hinge stiles, 3 mm (1/8 inch) at lock stiles and top rails, and 5 mm (3/16 inch) at floors and thresholds.

.3 Glass Rebates: Integral with stiles and rails.

.4 Glazing Beads: Extruded aluminum, 1.3 mm (0.050 inch) thick. Integral with stiles and rails or applied type, snap-fit secured.

.5 Stile and Rail Joints: Welded or interlocking dovetail joints between stiles and rails.

.1 Clamp door together through top and bottom rails with 9 mm (3/8 inch) primed steel tie rod extending into stiles, and having self-locking nut and washer at both ends.

.2 Reinforce stiles and rails to prevent door distortion when tie rods are tightened.

.3 Provide compensating spring-type washer under each nut for stress relief.

.4 Construct joints to remain rigid and tight when door is operated.

.6 Weather-stripping: Removable, woven pile type (silicone-treated) weather-stripping attached to aluminum or vinyl holder.

1. Make slots for applying weather-stripping integral with doors and door frame stops.
2. Apply continuous weather-stripping to heads, jambs, bottom, and meeting stiles of doors and frames so doors swing freely and close positively.

.7 Dimensions of stiles, rails, and other elements – match existing wherever possible.

2.6 FLUSH PANEL DOORS

.1 Frames: Aluminum extrusions.

.2 Doors: 45 mm (1-3/4 inches) thick.

1. Door Edges and Internal Reinforcing: Extruded aluminum tubes, single piece full height and width, welded joints.
2. Core: Manufacturer's standard non-combustible insulation.
3. Faces: Aluminum sheet metal with internal impact reinforcement, laminated to the door edges and core.

.3 Dimensions: match existing wherever possible.

2.7 COLUMN COVERS AND TRIM

.1 Column Covers and Trim: Sheet aluminum fabrications shown from sheet aluminum of longest available lengths.

.2 Provide concealed fasteners.

.3 Provide aluminum stiffeners and supporting members shown on drawings and as required to maintain component integrity and shape.

2.8 FABRICATION

.1 Form metal parts and fit and assemble joints, except joints designed to accommodate movement. Seal joints to resist air infiltration and water penetration.

.2 Welding:

.1 Make welds without distorting and discoloring exposed surfaces.

.2 Clean and dress welds. Remove welding flux and weld spatter.

.3 Prepare and reinforce doors and frames for hardware and accessories.

.1 Coordinate preparation with specified hardware. See Section 08 71 00, DOOR HARDWARE.

.2 Fabricate reinforcement from stainless steel plates.

.1 Hinge and pivot reinforcing: Minimum 4.5 mm (0.179 inch) thick.

.2 Lock Face, Flush Bolts, Concealed Holders, Concealed and Surface Mounted Closers Reinforcing: Minimum 2.6 mm (0.104 inch) thick.

.3 Other Surface Mounted Hardware Reinforcing: Minimum 1.5 mm (0.059 inch) thick.

.3 Where concealed hardware is specified, provide space, cutouts, and reinforcement for installation and secure fastening.

.4 Factory assembled doors.

2.9 FINISHES

.1 Aluminum Anodized Finish: NAAMM AMP 500.

.1 Clear Anodized Finish: AA-C22A41; Class I Architectural, 0.018 mm (0.7 mil) thick.

.2 Color Anodized Finish: AA-C22A42 or AA-C22A44; Class I Architectural, 0.018 mm (0.7 mil) thick.

.3 Clear Anodized Finish: AA-C22A31; Class II Architectural, 0.01 mm (0.4 mil) thick.

.4 Color Anodized Finish: AA-C22A32 or AA-C22A34; Class II Architectural, 0.01 mm (0.4 mil) thick.

.2 Aluminum Paint finish:

.1 Baked Enamel or Powder Coat: AAMA 2603; polyester resin, minimum 0.4 mm (1.5 mil) film thickness.

.2 Fluorocarbon Finish: AAMA 2604; 50 percent fluoropolymer resin, 3-coat metallic system.

.3 Fluorocarbon Finish: AAMA 2605; 70 percent fluoropolymer resin, 3-coat metallic system.

2.10 ACCESSORIES

.1 Dielectric Tape: Plastic, non-absorptive, with pressure sensitive adhesive; 0.18 to 0.25 mm (7 to 10 mils) thick. Installer to apply barrier coating to separate dissimilar metals and to separate metals from cementitious materials.

.2 Barrier Coating: ASTM D1187/D1187M.

.3 Welding Materials: AWS D1.2/D1.2M, type to suit application.

.4 Fasteners:

.1 Aluminum: ASTM F468, Alloy 2024.

.2 Stainless Steel: ASTM F593, Alloy Groups 1, 2 and 3.

.3 Anchors: Aluminum or stainless steel; type to suit application.

.4 Galvanizing Repair Paint: MPI No. 18.

.5 Touch-Up Paint: Match shop finish.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Examine and verify substrate suitability for product installation.
  .1 Coordinate floor closer installation recessed into concrete slabs.
  .2 Coordinate anchor installation built into masonry and concrete.
.2 Protect existing construction and completed work from damage.
.3 Clean substrates. Remove contaminants capable of affecting subsequently installed product's performance.
.4 Apply dielectric tape or barrier coating to aluminum surfaces in contact with dissimilar metals and cementitious materials to minimum 0.7 mm (30 mils) dry film thickness.

3.2 INSTALLATION – GENERAL

.1 Install products according to manufacturer's instructions and approved submittal drawings.
  .1 When manufacturer's instructions deviate from specifications, submit proposed resolution for Contract Administrator consideration.
.2 Install aluminum framed entrances and storefronts plumb and true, in alignment and to lines shown on drawings.
.3 Anchor frames to adjoining construction at heads, jambs and sills.
.4 Provide concealed aluminum clips to connect adjoining frame sections.
.5 Install door hardware and hang doors. See Section 08 71 00, Door Hardware.
.6 Install door operators. See Section 08 71 13, Automatic Door Operators
.7 Adjust doors and hardware uniform clearances and proper operation.
.8 Touch up damaged factory finishes.
  .1 Repair galvanized surfaces with galvanized repair paint.
  .2 Repair painted surfaces with touch up primer.
.9 Tolerances:
  .1 Variation from Plumb, Level, Warp, and Bow: Maximum 3 mm in 3 meters (1/8 inch in 10 feet).
  .2 Variation from Plane: Maximum3 mm in 3.65 meters (1/8 inch in 12 feet); 6 mm (1/4 inch) over total length.
  .3 Variation from Alignment: Maximum 1.5 mm (1/16 inch) in-line offset and maximum3 mm (1/8 inch) corner offset.
  .4 Variation from Square: Maximum 3 mm (1/8 inch) diagonal measurement differential.

3.3 PROTECTION, CLEANING AND REPAIRING

.1 Clean exposed aluminum and glass surfaces. Remove contaminants and stains.

.2 Protect aluminum-framed entrances and storefronts from construction operations.

.3 Remove protective materials immediately before acceptance.

.4 Repair damage.

END OF SECTION

SECTION 08 71 00 – DOOR HARDWARE

PART I – GENERAL

1.01 SUMMARY

1. SECTION INCLUDES

    1. The work in this section includes furnishing and installation of all items of finish hardware as hereinafter specified or obviously necessary for all swinging, sliding, folding and other doors. Except items, which are specifically excluded from this section of the specification or of unique hardware, specified in the same sections as the doors and frames on which they are installed.

2. RELATED DOCUMENTS

    1. Related documents, drawings and general provisions of contract, including General and Supplementary Conditions and Division 1 specification sections apply to this section.

3. RELATED SECTIONS

    ~~1. 06 20 00 – Finish Carpentry~~
    ~~2. 06 48 16 – Interior Wood Door Frames~~
    ~~3. 08 01 00 – Operations and Maintenance~~
    4. Door Hardware Schedule – Refer to drawings
    5. 08 11 13 – Steel Doors and Frames
    ~~6. 08 14 13 – Flush Wood Doors~~
    ~~7. 08 14 23 – Clad Wood Doors~~
    8. 08 41 00 – Entrances and Storefronts
    9. 08 71 13 – Automatic Door Operators
    ~~10. 08 74 00 – Access Control Hardware~~
    ~~11. 28 13 00 – Access Control~~
    12. 02 41 19 – Selective Demolition
    13. 07 84 00 – Firestopping and Smokeseals
    14. 07 92 00 – Sealants
    15. 08 80 00 – Glazing
    16. 09 90 00 – Painting
    17. 10 26 00 – Door Protection

1.02 REFERENCES

1. STANDARDS

    1. ANSI-A250.4 – Steel Doors and Frames Physical Endurance
    2. ANSI A156.1 – Butts and Hinges
    3. ANSI A156.2 – Bored Locks and Latches
    4. ANSI A156.3 – Exit Devices
    5. ANSI A156.4 – Door Controls – Door Closers
    6. ANSI A156.5 – Auxiliary Locks and Associated Products
    7. ANSI A156.6 – Architectural Door Trim
    8. ANSI A156.7 – Template Hinge Dimensions

9. ANSI A156.8 – Door Controls – Overhead Holders
10. ANSI A156.13 – Mortise Locks and Latches
11. ANSI A156.15 – Closer Holder Release Devices
12. ANSI A156.16 – Auxiliary Hardware
13. ANSI A156.18 – Material and Finishes
14. ANSI A156.26 – Continuous Hinges
15. UL10C – Positive Pressure Fire Tests of Door Assemblies

2. CODES

1. NFPA 101 – Life Safety Code
2. OBC 2006 - Ontario Building Code
3. ANSI A117.1 – Accessible and Usable Buildings and Facilities

1.03 SUBMITTALS

1. GENERAL REQUIREMENTS

1. Submit copies of finish hardware schedule in accordance with Division 1, General Requirements.

2. SCHEDULES AND PRODUCT DATA

1. Prior to hardware schedule submittal, the successful bidder shall review all drawings and related documents to ensure compatibility and completeness. Schedules to be in vertical format, listing each door opening, and organized into “hardware sets” indicating complete designations of every item required for each door opening to function as intended. Hardware schedule shall be submitted within two (2) weeks from date the purchase order is received by the finish hardware supplier. Furnish four (4) copies of revised schedules after approval for field and file use. Note any special mounting instructions or requirements with the hardware schedule. Schedules to include the following information:

    1. Location of each hardware set cross-referenced to indications on drawings, both on floor plans and in door and frame schedule.
    2. Handing and degree of swing of each door.
    3. Door and frame sizes and materials.
    4. Keying information.
    5. Type, style, function, size, and finish of each hardware item.
    6. Provide complete methods of operation for all openings containing electronic components. Operational descriptions to detail how each electrical component functions within the opening incorporating all conditions of ingress and egress.
    7. Provide elevation drawings of electronic hardware and systems identifying locations of the system components with respect to their placement in the door opening
    8. Name and manufacturer of each hardware item.
    9. Fastenings and other pertinent information.
    10. Explanation of all abbreviations, symbols and codes contained in schedule
    11. Mounting locations for hardware when varies from standard.

2. Submit catalog cuts and/or product data sheets for all scheduled finish hardware.

3. Submit separate detailed keying schedule for approval indicating clearly how the owner's final instructions on keying of locks has been fulfilled.

4. It is the responsibility of the hardware supplier to update and keep current the hardware schedule. All approved hardware changes shall be noted in the hardware schedule and kept current throughout the duration of the project. Update pages as necessary to the contractor for furtherance to the architect. Provide the end user with the original tendered hardware schedule and a copy of the updated hardware schedule incorporating all changes upon completion of the project. Where changes occur to electrical products and functions the hardware supplier shall be responsible to produce new elevations and methods of operation both for submittal with changes and update the hardware schedule.

3. SAMPLES

1. Upon request, samples of each type of hardware in finish indicated shall be submitted. Samples are to remain undamaged and in working condition through submittal and review process. Items will be returned to the supplier or incorporated into the work within limitations of keying coordination requirements.

4. TEMPLATES

1. Furnish a complete list and suitable templates, together with finish hardware schedule to contractor, for distribution to necessary trades supplying materials to be prepped for finish hardware.

5. ELECTRONIC HARDWARE SYSTEMS

1. Wiring Diagrams: Prepared and submitted within 2 weeks of receipt of purchase order by or under the supervision of supplier and coordinated with all drawings and related documents to ensure accurate function and coordination.

    1. Elevations: Provide diagrams for each unique opening with electronic hardware components indentifying individual item locations, conduits, back boxes, junction boxes and miscellaneous system requirements and devices.
    2. Risers: Provide diagrams detailing locations and infrastructure between door openings, power supplies, access control panels and system components.
    3. Point to Points: Provide diagrams detailing wiring terminations at all electrified devices as applicable to function of all openings. (inclusion depending on installation)
    4. Responsibility matrix: Provide documentation for approval detailing basic responsibilities inclusive of all related sections involved in the preparation for, installation and commissioning of electrified systems.

2. Proof of Certification: Provide copy of manufacturer(s) official certification or accreditation document indicating proof of status as a qualified and authorized provider and/or installer of specified integrated locking products.

6. OPERATIONS AND MAINTENANCE MANUALS

1. Upon completion of construction and building turnover, furnish two (2) complete maintenance manuals to the owner. Manuals to include the following items:

1. Approved hardware schedule, catalog cuts and keying schedule.
2. Hardware installation and adjustment instructions.
3. Manufacturer's written warranty information.
4. Wiring diagrams, elevation drawings and operational descriptions for all electronic openings.

1.04 QUALITY ASSURANCE

1. SUBSTITUTIONS

1. All requests for approved alternates must be submitted in writing 10 working days prior to closing date. Approval of products is at the discretion of the Architect, owner and hardware consultant.

2. SUPPLIER QUALIFICATIONS

1. A recognized architectural door hardware supplier who has maintained an office and has been furnishing hardware in the project's vicinity for a period of at least five (5) years.

2. Hardware supplier shall have office and warehouse facilities to accommodate this project.

3. Hardware supplier must be an authorized factory distributor of all products specified herein.

4. Hardware supplier shall have in his employment at least one (1) Architectural Hardware Consultant (AHC) accredited in the Continuing Education Program (CEP) administered by The Door and Hardware Institute, Chantilly, VA.

5. It shall be clearly understood that within the terms of this Subcontract, the Hardware Supplier is bound not just as a supplier but also is responsible for the supply of hardware services relative to the project co-ordination, supervision and inspection**.**

6. Hardware Subcontractor shall meet with the Owner, Architect, Electrical Subcontractor, Security Consultant, and Access Control Subcontractor to review, coordinate and implement all details relating to the proper operation of all electronic hardware including locations of power supplies, back boxes, junction boxes and conduit details prior to start of construction.

7. Hardware supplier shall provide all-inclusive consultation and solutions to the Architect and related trades and shall be fully responsible for coordinating, managing, and assisting in the design of full system integration of security access control (i.e. proximity card reader, CCTV, and other electrified security hardware components not specified in the hardware schedule) and electronic hardware.

1.05 FIRE-RATED OPENINGS

1. Provide door hardware for fire-rated openings that comply with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed by

Underwriter's Laboratories (UL) or Warnock Hersey (WH) for use on types and sizes of doors indicated.

1.06 DELIVERY, STORAGE AND HANDLING

1. MARKING AND PACKAGING

    1. Properly package and mark items according to the approved hardware schedule, complete with necessary screws and accessories, instructions and installation templates for spotting mortising tools. Contractor shall check deliveries against accepted list and provide receipt for them, after which he is responsible for storage and care. Any shortage or damaged good shall be made without cost to the owner.

    2. Packaging of door hardware is the responsibility of the supplier. As hardware supplier receives material from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set and door numbers to match the approved hardware schedule. Two or more identical sets may be packed in same container.

2. DELIVERY

    1. The supplier shall deliver all hardware to the project site; direct factory shipments are not allowed unless agreed upon beforehand. Hardware supplier shall coordinate delivery times and schedules with the contractor. Inventory door hardware jointly with representatives of hardware supplier and hardware installer/contractor until each is satisfied that count is correct.

    2. No keys, other than construction master keys and/or temporary keys are to be packed in boxes with the locks.

    3. At time of hardware delivery, the hardware supplier in conjunction with the contractor shall check in all hardware and set up a hardware storage room.

3. STORAGE

    1. The Contractor shall set up a clean, dry & secure hardware storage room with adequate shelving to layout each item of hardware by door number and hardware schedule item number. It is the responsibility of the hardware supplier/installer to coordinate the room size with the Contractor to ensure proper layout of products. Hardware is to be shipped to site floor specific, if required.

1.07 WARRANTY

1. All items, except as noted below, shall be warranted in writing by the manufacturer against failure due to defective materials and workmanship for a minimum period of one (1) year commencing on the date of final completion and acceptance. In the event of product failure, promptly repair or replace item with no additional cost to the owner.

    1. Hinges - Lifetime
    2. Electrified Hinges – One (1) year
    3. Cylindrical locksets – Extra Heavy Duty: Ten (10) years
    4. Mortise locksets - Seven (7) years

5. Electrified Locksets – Two (2) years
6. Exit Devices - Five (5) years
7. Door closers - Ten (10) years
8. Electric Strikes – Five (5) years
9. Securitron electrified hardware - Unlimited Lifetime

PART II – PRODUCTS

2.01 MANUFACTURERS

1. Manufacturers as listed below have been determined as the acceptable standard. Obtain each type of finish hardware (hinges, latch and locksets, exit devices, door closers, etc.) from a single manufacturer.

2.02 MATERIALS

1. SCREWS AND FASTENERS

    1. All required screws shall be supplied as necessary for securing finish hardware in the appropriate manner. Thru-bolts shall be supplied for exit devices and door closers where required by code and the appropriate blocking or reinforcing is not present in the door to preclude their use.

2. HANGING DEVICES

    1. HINGES

        1. Hinges shall conform to ANSI A156.1 and have the number of knuckles as specified, oil-impregnated bearings as specified with NRP (non-removable pin) feature, at all exterior and interior locked reverse bevel doors. Unless otherwise scheduled, supply 2 hinges for doors up to 60”(1520mm) in height and supply one (1) additional hinge for every 30” (760mm) of door height or part thereof. Hinges shall be sized per the manufacturer’s recommendations. Hinges shall be a minimum of 4 1/2” high and 4” wide; heavy weight hinges (.180+) shall be supplied at all doors where specified.

            Provide hinge size to comply with the following:

Door Width	Hinge Height	Hinge Width
Up to 36”	4-1/2”	4”
Over 36”	5”	4-1/2”
Up to 48”	5”	5”
Over 48”	6”	6”

            1) Specified Manufacturer: McKinney TA/T4A Series

2. ELECTRIC HINGES

    1. Electric hinges shall be provided with Molex standardized plug connectors to accommodate up to twelve (12) wires. Plug connectors shall plug directly into Molex through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number of concealed wires to accommodate electric function of specified hardware. Provide a mortar guard for each electric hinge specified.

        1) Specified Manufacturer: McKinney/Markar - QC Series

3. CONTINUOUS GEARED HINGES

    1. All hinges to be non-handed and completely reversible. Hinge line to be available in concealed flush mount with or without inset, full surface and half surface types as specified in the hardware sets. All hinges to be made of extruded 6060 T6 aluminum alloy with polyacetal thrust bearings, anodized after cutouts are made for bearings. All concealed hinges to be fire-rated for 20, 45 and 90 minutes when incorporated into proper door and frame labeled installations, without necessitating the use of fusible-link pins. All concealed hinges to be available in standard, heavy, and extra heavy duty weights; all full surface and half surface hinges in standard and heavy duty weights as specified in the hardware sets. All hinges to be factory cut for door size.

    2. Where specified electric continuous geared hinges shall be provided with a removable access panel to allow connection/testing without requiring the removal of the door. Provide with Molex standardized plug connectors to accommodate up to twelve (12) wires. Plug connectors shall plug directly into Molex through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number of concealed wires to accommodate electric function of specified hardware. Provide a mortar guard for each electric hinge specified.

        1) Specified Manufacturers: McKinney - MCK12HD (MCK12HDK for Kawneer doors)

4. CONTINUOUS STAINLESS STEEL HINGES

    1. All hinges to be non-handed and of slim barrel design. Hinges to made of type 304 stainless steel and shall have a concealed Teflon-coated stainless steel pin with twin self-lubricated nylon bearings at each knuckle. Hinges shall be UL list up to and including 3 hours and shall be available with power transfer cutouts when necessary. Provide hinge guard wrap around continuous hinge with Adjusta-screw fasteners where required to protect door hinge stile.

        1) Approved Manufacturers: McKinney

5. PIVOTS

    1. All pivots shall conform to ANSI 156.4 Grade 1 and shall have oil impregnated bronze bearing in the top pivot and a radial roller and thrust bearing in the bottom pivot. The

bottom pivot shall carry the full weight of the door. Include intermediate pivots as per the manufacturer's recommendations.

1) Specified Manufacturer: Rixson

6. FLOOR CLOSERS

1. Floor closer shall be of offset hung type and available for labeled, lead lined and regular doors. Floor closer shall have independent and adjustable valves for closing speed, latch speed, and backcheck. Floor closers shall have a built in dead stop to prevent the door from swinging beyond the opening degree and all shall be of non-hold open type unless specified otherwise. Include top and intermediate pivots per the manufacturer's recommendations.

1) Specified Manufacturer: Rixson

3. FLUSH BOLTS AND ACCESSORIES

1. All automatic flush bolts to be furnished as specified.

1. Specified Manufacturer: Rockwood

4. CYLINDERS AND KEYING FOR NEW CONSTRUCTION

1. CYLINDERS

1. All cylinders shall meet the requirements of UL437 including those for pick and drill resistance. Pick resistance shall incorporate two or more independent locking mechanisms including a pin tumbler device with six top pin chambers with mushroom shaped driver pins and a coded sidebar locking mechanism operated independently from the six top pin tumbler device. Drill resistance shall incorporate cylinder housing with fixed in-place case-hardened inserts to protect the pin tumbler shear line, cylinder plugs with case-hardened inserts to protect the pin tumbler shear line and the side bar, mushroom shaped stainless steel driver pins and stainless steel sidepins. All cylinders shall be factory master keyed or as directed by Seneca College.

2. Provide LFIC (Large Format Interchangeable Core) sub-assembled or factory keyed permanent cores as instructed by Seneca College. Include construction cores. Construction keys to be issued by Seneca College.

3. Specified Manufacturer: ASSA Twin Max +, ASSA Twin 6000 (to be verified by Seneca College)

5. CYLINDERS AND KEYING FOR EXISTING FACILITIES

1. CYLINDERS

1. All cylinders shall meet the requirements of UL437 including those for pick and drill resistance. Pick resistance shall incorporate two or more independent locking mechanisms including a pin tumbler device with six top pin chambers with mushroom shaped driver pins and a coded sidebar locking mechanism operated independently from the six top pin tumbler device. Drill resistance shall incorporate cylinder housing with fixed in-place case-hardened inserts to protect the pin tumbler shear line, cylinder plugs with case-hardened inserts to protect the pin tumbler shear line and the side bar, mushroom shaped stainless steel driver pins and stainless steel sidepins. All cylinders shall be factory master keyed or as directed by Seneca College.

2. Include construction cores. Construction keys to be issued by Seneca College.

3. Specified Manufacturer: ASSA V-10

2. KEYING

a. Keying: All locks and permanent cylinders to be master-keyed or grandmaster-keyed as directed by the owner (or sub-assembled if requested by owner). The factory shall key all locks and cylinders and maintain keying records.

b. The contractor shall be responsible to install all construction cores and Seneca College to install all permanent cores otherwise directed by the owner.

c. Pack all permanent cylinders and keys separately from locksets. Identify door number and keyset symbol on each envelope and ship directly to owner.

d. Construction keys are to be issued by the Owner. Do not ship construction keys with locksets.

e. Ship the control keys directly to the owner unless directed otherwise.

f. Furnish the following (for large projects):
   1) Two (2) change keys per lock. Determine final quantities during keying meeting.
   2) Allow for 150 key blanks. Determine quantity per key set during keying meeting.
   3) All cylinders and keys are to be provided with visual, keyset symbol, key control.
   4) I/C Core – four (4) construction control keys and four (4) permanent control keys.
   5) Fifteen (15) construction keys.
   6) Twenty (20) Extra combinated cores.
   7) 1 only Molex Service Kit QCR-001.(ship direct to owner)
   8) 1 only WT-2 tester.
   9) Master keys and all high-security or patented keyway blanks shall be sealed in tamper-proof packaged boxes when shipped from the factory. The boxes shall be shrink wrapped and imprinted to ensure the integrity of the packaging. Deliver all keys and key blanks directly to owner’s representative as directed.
   10) The construction keys are to be shipped separate from the locksets, directly to the contractor.

6. LOCKING DEVICES

1. MORTISE LOCKSETS FOR NEW CONSTRUCTION

1. All locksets shall be ANSI 156.13 Series 1000, Grade 1 Certified. All functions shall be manufactured in a single sized case formed from 12 gauge steel minimum. The lockset shall have a field-adjustable, beveled armored front, with a .125" minimum thickness and shall be reversible without opening the lock body. The lockset shall be 2 3/4" backset with a one-piece 3/4" anti-friction stainless steel latchbolt. The deadbolt shall be a full 1" throw made of stainless steel and have 2 hardened steel roller inserts. All strikes shall be non-handed with a curved lip. To insure proper alignment, all trim, shall be thru-bolted and fully interchangeable between rose and escutcheon designs and shall be the product of one manufacturer.

1) Specified Manufacturer: Sargent 8200 Series LNL Lever

2. CYLINDRICAL LOCKSETS – EXTRA HEAVY DUTY FOR EXISTING DOORS

1. All locksets shall be ANSI 156.2 Series 4000, Grade 1 Certified. All locksets shall be tested to eight million cycles without noticeable lever sag and shall be able to withstand 3000 inch pounds of torque applied to the locked lever without gaining access. Locksets shall fit a standard 2 1/8" bore without the use of thru-bolts. Standard rose size shall be 2 3/4" diameter. Levers shall be made of solid material with no plastic fillers. Latchbolt head shall be one-piece stainless steel and must be encased within the lock body.

1) Specified Manufacturer: Sargent 11 Line

3. ELECTRIFIED LOCKSETS

1. Mechanical features of locksets shall conform to standards as specified above. Locksets shall be fail-secure unless otherwise specified. Where specified electrified locksets shall be provided with a switch to monitor inside or outside lever handle and a switch to monitor the latchbolt/deadbolt position.

1) Specified Manufacturers: Sargent

4. LOCKSET STRIKES

1. Strikes shall be non-handed and available with curved lip, full lip or ASA type strikes as required. Provide strikes with lip-length required to accommodate jamb and/or trim detail and projection.

7. ELECTRIC STRIKES

1. STANDARD STRIKES

1. All standard electric strikes shall meet BHMA standard 501, grade 1 and be UL Listed for Burglary Resistance, category 1034. Strikes shall be all stainless steel construction for

corrosion resistance, strength and durability. Strikes shall have been tested to withstand a forcing strength of a minimum 2400 lbs. before releasing and perform with a minimum of one million cycles of operation. Strikes shall be 24VDC fail-secure unless otherwise specified. Provide an in-line power controller with all electric strikes.

1) Specified Manufacturers: HES 1006 Series

2. STANDARD STRIKES

1. All standard electric strikes shall meet BHMA standard 501, grade 1 and be UL Listed for Burglary Resistance. Strikes shall be all stainless steel construction for corrosion resistance, strength and durability. Strikes shall have been tested to withstand a static strength of a minimum 1500 lbs. before releasing and perform with a minimum of 500,000 cycles of operation. Strikes shall be 24VDC fail-secure unless otherwise specified. Provide an in-line power controller with all electric strikes.

1) Specified Manufacturers: HES 5200 Series

3. SURFACE MOUNTED STRIKES

1. All surface mounted electric strikes shall meet BHMA standard 501, grade 1 and be UL Listed for Burglary Resistance, category 1034. Strikes shall have two heavy-duty, stainless steel locking mechanisms operating independently to provide tamper resistance. Optional latchbolt and latchbolt strike monitoring that indicates position of the latchbolt and locked condition of the strike shall be available. Strikes shall have been tested for a minimum of 500,000 operating cycles. Provide an in-line power controller with all electric strikes.

1) Specified Manufacturers: HES 9500

8. EXIT DEVICES

1. CONVENTIONAL DEVICES – PUSH RAIL

1. All exit devices shall be ANSI A156.3, Grade 1 Certified and shall be listed by Underwriters Laboratories and bear the UL label for life safety in full compliance with NFPA 80 and NFPA 101. Mounting rails shall be formed from a solid single piece of stainless steel, brass or bronze no less than 0.072” thick. Push rails shall be constructed of 0.062” thick material. Painted or anodized aluminum shall not be considered heavy duty and is not acceptable. Lever trim shall be available in finishes and designs to match that of the specified locksets.

1) Specified Manufacturer: Sargent 80 Series

2. ELECTRIFIED DEVICES

1. Electrified exit devices shall conform to all traditional exit device standards as specified above. All power requirements for exit devices used must utilize a continuous circuit electric hinge for clean design and no visible means of interrupting power to device.

2. Provide exterior doors with latch bolt monitoring, request to exit and latch retraction as specified.

3. All exit devices, both fire labeled and non-labeled devices, requiring electric dogging shall be held in the "dogged" or retracted position. All exit devices with electric latch retraction shall provide for a remote means of unlocking for momentary or maintained periods of time.

4. Exit devices with electrified trim shall be fail-secure unless otherwise specified.

5. Where specified exit devices shall be provided with a switch to monitor push rail or signal remote location and latchbolt monitoring.

6. Provide an in-line power controller with all electrified exit devices.

    1) Specified Manufacturers: Sargent

9. DOOR CLOSERS

1. SURFACE MOUNTED CLOSERS – HEAVY DUTY

a. All exterior door closers shall be ANSI 156.4, Grade 1 Certified. All closers shall have cast iron bodies, forged steel arms, and separate valves for adjusting backcheck, closing and latching cycles and adjustable spring to provide up to 50% increase in spring power. Closers shall be furnished with parallel arms mounting on all doors opening into corridors or other public spaces and shall be mounted to permit 180 degrees door swing wherever wall conditions permit. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

    1) Specified Manufacturer: LCN 4041XP

2. SURFACE MOUNTED CLOSERS – STANDARD DUTY

a. All interior door closers shall be ANSI 156.4, Grade 1 Certified. All closers shall have aluminum alloy bodies, forged steel arms, and separate valves for adjusting backcheck, closing and latching cycles and adjustable spring to provide up to 50% increase in spring power. Closers shall be furnished with parallel arms mounting on all doors opening into corridors or other public spaces and shall be mounted to permit 180 degrees door swing wherever wall conditions permit. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

    1) Specified Manufacturer: Sargent 1431 Series

3. HOLD OPEN CLOSERS

   a. SINGLE-POINT HOLD OPEN

      1) Closers to have adjustable hold-open range of 85 to 110 degrees. Mountings for regular and double egress arm applications to be supplied where necessary. When a detector is required, use integral photo-electric type with LED indicator. Voltage to be 24VDC unless otherwise specified.

         a) Specified Manufacturers: Sargent Fire Guard

   b. MULTI-POINT HOLD OPEN

      1) Closers to have multi position hold-open range of 10 to 170 degrees, with trim permitting. When called for swing free application to be supplied for pull side mounting. When detector is required, use integral photo electric type with LED indicator. Voltage to be 24VDC unless otherwise specified.

         a) Specified Manufacturers: Sargent Fire Guard

4. AUTOMATIC DOOR OPERATORS – HEAVY DUTY

   a. Door operators shall be in accordance with ANSI 156.19 and work in conjunction with the fire rated hardware. Operators shall be powered by 24V, 1/8 hp motor. Non handed operator with adjustable spring to compensate for different manual push forces required on varying door widths. Microprocessor controlled unit shall control the operation and switching of the swing power operator. Operator to include power open, power close, power assist, electronic dampening, stack pressure consumption and lock retry circuit features. Provide 6” x 36” 10LPR36 hardwired actuators.

      1) Specified Manufacturer: Besam SW200i

10. DOOR TRIM AND PROTECTIVE PLATES

    1. Door Pulls/Push/Kick/Armour Plates: to be 0.050 inches thick and 1.5 inches less full width of door, or as specified. Furnish all push/kick and armour plates with ‘B4E’ beveled edges with self-adhesive tape fastening for new doors and stainless steel mechanical fasteners for existing doors. Follow specific mounting instructions where push plate, door pull and deadlock applications occur. Fasteners for push plates, pull plates, door pulls and miscellaneous door trim shall be as shown in the hardware schedule. Where full height door pulls are specified supply units less 150mm from the top of door and 300mm from bottom of door. Submit shop drawing of pulls for review.

       1) Specified Manufacturer: Rockwood

11. DOOR STOPS AND HOLDERS

1. WALL MOUNTED DOOR STOPS

    1. Where a door is indicated on the plans to strike flush against a wall, wall bumpers shall be provided. Provide convex or concave design as indicated.

        1) Specified Manufacturers: Rockwood

2. OVERHEAD STOPS/HOLDERS

    1. Where specified, overhead stops/holders as shown in the hardware sets are to be provided. Track, slide, arm and jamb bracket shall be constructed of extruded bronze and shock absorber spring shall be of heavy tempered steel. Overhead stops shall be of non-handed design.

        1) Specified Manufacturers: Glynn Johnson 100, 90 Series, Rixson 6/9 Series

3. MAGNETIC DOOR HOLDERS

    1. Magnetic door holders shall meet or exceed ANSI A156.15 and be UL listed 228 for Door Closer and Holders, with or without integral smoke detectors. Holding force shall be 25 to 40 pounds (unless otherwise specified) and shall be fail-safe. Pushpin release that eliminates residual magnetism shall be standard. Provide magnetic hold-opens with triple-voltage coil that can receive 12 VDC, 24 VAC/DC, or 120VAC; or coordinate required voltage with electrical. Use at oversized door locations only.

        1) Specified Manufacturers: Rixson

12. GASKETING AND THRESHOLDS

    1. On exterior doors and smoke, light, or sound seals on interior doors where indicated or scheduled. Provide seals as required to meet UL10C. Provide only those units where silicon seal strip is easily replaceable and readily available from stocks maintained by manufacturer. Provide head seal as solid aluminum extrusion suitable for stop applied hardware ie P/A closers or surface overhead door stops.

    2. Door Sweeps: House nylon brush seal in extruded aluminum case. Surface applied and adjusted to suit gap at bottom of door, complete with snap cover.

    3. Auto Door Bottoms: Surface or semi mortise automatic door bottoms housed in aluminum case and equipped with nylon brush or silicone inserts. Each unit sized to suit the door width and meets the requirements of ANSI/BHMA 156.22-2003 for latching force and air infiltration.

    4. Astragal Seal: Overlapping stainless steel astragal. Surface applied, meeting stile astragal consisting of one piece attached to active leaf, pull side face of door.

5. Provide threshold units not less than 5” wide at hollow metal frames and not less than 4” at aluminum frames, formed to accommodate change in floor elevation where indicated, fabricated to accommodate door hardware and to fit door frames.

    1. Specified Manufacturers: Pemko

13. SILENCERS

    1. Furnish rubber door silencers all hollow metal frames; two (2) per pair and three (3) per single door frame.

14. ELECTRONIC PRODUCTS AND ACCESSORIES

    1. IN-LINE POWER CONTROLLER

        1. Where specified, electrified products shall be supplied with an in-line power controller that enables the hardware to operate from 12 to 32 volts. On board safety features shall include an in-line fuse to protect the hardware and host system from any possible reverse current surges. The controller shall regulate current to provide continuous duty operation without the typical head build up.

            1) Specified Manufacturers: HES 2005 Smart-Pac III

    2. POWER SUPPLIES

        1. Power supplies shall furnish regulated 24VDC and shall be UL class 2 listed. LED’s shall monitor zone status (voltage/no voltage) and slide switches shall be provided to connect or disconnect the load from power; 1, 4 or 8 separate output circuit breakers shall be provided to divide the load. Power supplies shall have the internal capability of charging optional 24VDC sealed lead acid batteries in addition to operating the DC load. Power supplies shall be supplied complete requiring only 120VAC to the fused input and shall be supplied in an enclosure. Power supplies shall be provided with emergency release terminals that allow the release of all devices upon activation of the fire alarm system. Power supplies to be provided for local installation at required electrified openings.

            1) Specified Manufacturer: Securitron BPS

    3. ELYNX CABLES

        a. All power transfer hinges, electrified locksets, electric exit device trim and electric exit devices are to be equipped with Molex plug connectors. Door and Frame Elynx cables have been specified at a provisional length at each of these locations. It is the responsibility of the finishing hardware supplier to supply these cables, prior to door/frame manufacture, in appropriate lengths required by the various manufacturers. The hardware supplier is responsible to contact the door manufacturers to determine the cabling route and supply the correct length. Where the door manufacturer requires flying ends on Elynx cables the hardware installer will be responsible to map and pin Molex connectors.

1) Specified Manufacturer: McKinney

2.03 FINISHES

1. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18 or traditional U.S. finishes shown by certain manufacturers for their products.

2. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.

PART III – EXECUTION

3.01 EXAMINATION

A. Contractor shall ensure that the building is secured and free from weather elements prior to installing interior door hardware. Examine hardware before installation to ensure it is free of defects.

B. It is the responsibility of the Hardware Supplier's AHC to provide a written inspection report to the Contractor, Architect and Hardware Consultant after door hardware installation has been completed. The report is to certify that the finishing hardware has been supplied as specified and has been installed and is functioning according to the manufacturer's instructions. Subsequently the deficiencies will be corrected by the Contractor and reported in writing to the Architect and Hardware Consultant.

C. After the deficiencies have been corrected, the Hardware Consultant will provide the final inspection. Any deficiencies found during this final inspection will be reported, in writing, to the Architect.

D. Existing Openings: Hardware supplier is responsible for surveying all existing doors and frames to verify existing site conditions, preparations and opening details to ensure compatibility with specified hardware prior to submittal of schedules and shop drawings. Provide a letter confirming that the survey was completed accompanied with a list by door number of evident discrepancies or conflicts. Discrepancies and conflicts to be resolved in writing prior to order of hardware.

3.02 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with the manufacturer's written instructions and according to specifications. All items to be installed with fasteners indentified by manufacturer's installation instructions unless otherwise noted.

B. Mounting Heights: Install door hardware at heights indicated in the following applicable publications unless; specifically indicated or required by local governing regulations, requirements to match existing conditions, special templates, necessary coordination with door elevations, and or to ensure consistency with pairs of doors.

1. DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames"
2. DHI's "Recommended Locations for Architectural Hardware for Wood Flush Doors"
3. ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities"
4. NWWDA

C. Integrated Wiegand/PoE access control products are required to be installed, connected, programmed and tested by a 'Certified Integrator' (CI) as authorized by ASSA ABLOY. Verification of all electromechanical lockset/exit device features will be done from the frame side of the power transfer hinge utilizing the WT1/RP2 tester. Testing will confirm all functions of lockset/exit device are operational for written acceptance by the Contractor.

D. Aperio, wireless, electromechanical locking devices and hubs to be installed, programmed and tested by a 'Certified Integrator' as authorized by ASSA ABLOY. Testing to include verification of all electromechanical locking device features, hub features, signal strength and pairing of devices for written acceptance by the Contractor.

E. Power door operator products and accessories are required to be installed by an AAADM certified technician as approved by the manufacturer. Adjust for proper opening and closing operation after final balancing of HVAC system.

F. Floor closers: Adjust all floor closers after final balancing of HVAC system to ensure; proper latching of doors, proper closing/latch speed, adequate backcheck and opening force in accordance with OBC/AODA. Seal around clser casing in accordance with Division 7, Section 07 92 00, Joint Sealants.

G. Wall stops: Locate wall stops to contact door pulls/levers at mounting post connecting to door. Ensure existence of necessary wall reinforcing where specified for installation on drywall, plaster or clad wall conditions prior to installation.

H. Vertical rods: Adjust rod lengths to ensure positive latching of devices. Install bottom strikes as required by finished flooring conditions and in coordination with flooring subcontractor.

I. Closers: Size closers as per manufacturer's installation instructions. Adjust all closers after final balancing of HVAC system to ensure; proper latching of doors, proper closing/latch speed, adequate backcheck and opening force in accordance with referenced accessibility requirements.

J. Protection plates – Install on clean surface, and in temperature range of 5-25 degrees Celsius where tape applied. Pre-drill pilot holes doors when using mechanical fasteners.

K. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 7, Section 07 92 00, Joint Sealants.

L. Architectural Seals – Install prior to other soffit mounted door hardware as indicated in hardware schedule. Ensure continuous seal of gasketing to door without impeding latching.

M. Door Bottoms – Ensure continuous seal to threshold or finished floor.

N. Electronic hardware systems: Install all electronic hardware as per electrical elevations and point-to-point drawings furnished under Submittals.

O. Retrofitting: Install door hardware to comply with manufacturers published templates and written instructions. Coordinate; cutting and fitting of doors and frames, installation of door hardware items, and removal of protective coverings with related sections.

3.03 FIELD QUALITY CONTROL

A. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures for coordinating all portions of the work under the Contract, unless the contract Documents give other specific instructions concerning these matters.

B. The hardware supplier shall attend site meetings to make certain of proper execution of the guidelines set in this document. The Contractor will do periodic inspection of door frames, prior to door and hardware installation to ensure frames have been installed plumb and true.

C. The installer will verify all frames to be plumb and true, prior to hardware installation.

3.04 ADJUSTING, CLEANING, AND DEMONSTRATING

A. Prior to acceptance or occupancy, adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.

B. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore to proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

C. Instruct owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes and usage of any electronic devices.

3.05 PROTECTION

A. Contractor shall protect all hardware, as it is stored on construction site in a covered, dry and secure place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

3.06 HARDWARE SCHEDULE

A. The following schedule is furnished for whatever assistance it may afford the Contractor; do not consider it as entirely inclusive. Prior to tender closing, it is the responsibility of the hardware supplier, to bring to the attention of the Contractor any errors or omissions. Cross-reference hardware schedule with architectural drawings and door schedule. Should any particular door or item be omitted in any scheduled hardware heading, provide door or item with hardware same as required for similar purposes. Hardware supplier is responsible for handing and sizing all

products as listed in the hardware heading. Quantities listed are for each pair of doors, or for each single door.

MANUFACTURERS:

1. MK - McKinney
2. RO - Rockwood
3. SA - Sargent
4. AA - ASSA High Security Locks
5. 00 - Other
6. SU - Securitron
7. HS - HES
8. RF - Rixson
9. GJ - Glynn-Johnson
10. LC - LCN Closers
11. BM - Besam
12. PE - Pemko
13. OT - By Others
14. MC - Medeco

Hardware Schedule

Set: 1.0

Description: New Construction - Ext PR Alum No Mullion with Operator

2 Continuous Hinge	MCK-12HD SER-12 x Dr Height	CL	MK
1 Exit Device (Elect)	31 56 AD8410 Less Cyl x Dr Height	US32D	SA
1 Exit Device (Elect)	31 56 AD8410 x 106 Less Cyl x Dr Height	US32D	SA
1 Mortise Cylinder	AS-V 6552IC/2 (sub assembled)	626	AA
1 Cylinder Ring	K-24-26 D (keydex)	26D	00
2 Door Pull	RM3312MP 12XHD x Dr Height (-450mm) x Thickness	US32D	RO
2 Concealed Overhead Stop	10_S	US32D	GJ
1 Closer	4041XP REG ST3179	689	LC
1 Auto Door Operator	SW200i-OS-99-CL	628	BM
1 Threshold	252x2AFG	627	PE

2 Sweep	29326CNB TKSP8	628	PE
1 Card Reader	BY ACCESS CONTROL SUPPLIER		00
2 Actuator	CM – 7509/4	628	BM
2 Door Position Switch	3287		SA
2 ElectroLynx Harness (In Frame)	QC-C1500P		MK
2 ElectroLynx Harness	QC-C006		MK
1 Power Supply	BPS-24-2		SU
1 Wiring Diagrams	POINT TO POINT		00

Notes: Integral weatherstrip by aluminum door supplier.
Division 26 to provide; 120VAC power to frame header, final connection of auto door operator, 120VAC power connection to power supply, all back boxes, and conduit with low-voltage wiring.

Description of operation:
- Entry by access control system schedule or presenting authorized card at card reader or by mechanical key override. Presenting authorized card at card reader allows power to exterior actuator for use of automatic door operator.
- Exit by pushing actuator or by pushing door open. Free egress at all times.
- Latch bolt and request to exit monitoring.

Set: 2.0

Description: New Construction - Ext PR Alum No Mullion without Operator

2 Continuous Hinge	MCK-12HD SER-12 x Dr Height	CL	MK
1 Exit Device (Elect)	31 56 AD8410 Less Cyl x Dr Height	US32D	SA
1 Exit Device (Elect)	31 56 AD8410 x 106 Less Cyl x Dr Height	US32D	SA
1 Mortise Cylinder	AS-V 6552IC/2 (sub assembled)	626	AA
1 Cylinder Ring	K-24-26 D (keydex)	26D	00
2 Door Pull	RM3312MP 12XHD x Dr Height (-450mm) x Thickness	US32D	RO
2 Concealed Overhead Stop	10_S	US32D	GJ
2 Closer	4041XP REG	689	LC
2 Drop Plate	4040-18G	689	LC
1 Threshold	252x2AFG	627	PE
2 Sweep	29326CNB TKSP8	628	PE
1 Card Reader	BY ACCESS CONTROL		00

	SUPPLIER	
2 Door Position Switch	3287	SA
2 ElectroLynx Harness (In Frame)	QC-C1500P	MK
2 ElectroLynx Harness	QC-C006	MK
1 Power Supply	BPS-24-2	SU
1 Wiring Diagrams	POINT TO POINT	00

Notes: Integral weatherstrip by aluminum door supplier.
Division 26 to provide; 120VAC power connection to power supply, all back boxes, and conduit with low-voltage wiring.

Description of operation:
- Entry by access control system schedule or presenting authorized card at card reader or by mechanical key override. Presenting authorized card at card reader allows power to exterior actuator for use of automatic door operator.
- Exit by pushing actuator or by pushing door open. Free egress at all times.
- Latch bolt and request to exit monitoring.

Set: 3.0

Description: New Construction - Ext PR Alum with Removable Mullion with Operator

2 Continuous Hinge	MCK-12HD SER-12 x Dr Height	CL	MK
1 Mullion Adapter	507A		SA
1 Removable Mullion	L980A x 980C1 Less Cyl	US28	SA
1 Stabilizer	651	PC	SA
1 Exit Device (Elect)	31 56 AD8510	US32D	SA
1 Exit Device (Elect)	31 56 AD8504 Less Cyl	US32D	SA
1 Rim Cylinder	AS-V6552IC/2 (sub-assembled)	626	AA
1 Mortise Cylinder (Mullion)	AS-V6552IC/2 (sub-assembled)	626	AA
2 Cylinder Ring	K-24-26 D (Keedex)	26D	00
2 Door Pull	RM3312MP 12XHD x Dr Height (-450mm) x Thickness	US32D	RO
2 Concealed Overhead Stop	10_S	US32D	GJ
1 Closer	4041XP REG ST3179	689	LC
1 Auto Door Operator	SW200i-OS-99-CL	628	BM
1 Threshold	252x2AFG	627	PE
2 Sweep	29326CNB TKSP8	628	PE
1 Card Reader	BY ACCESS CONTROL SUPPLIER		00
2 Actuator	CM – 7509/4	628	BM

2 Door Position Switch	3287	SA
2 ElectroLynx Harness (In Frame)	QC-C1500P	MK
2 ElectroLynx Harness	QC-C006	MK
1 Power Supply	BPS-24-2	SU
1 Wiring Diagrams	POINT TO POINT	00

Notes: Integral weatherstrip by aluminum door supplier.
Division 26 to provide; 120VAC power to frame header, final connection of auto door operator, 120VAC power connection to power supply, all back boxes, and conduit with low-voltage wiring.

Description of operation:
- Entry by access control system schedule or presenting authorized card at card reader or by mechanical key override. Presenting authorized card at card reader allows power to exterior actuator for use of automatic door operator.
- Exit by pushing actuator or by pushing door open. Free egress at all times.
- Latch bolt and request to exit monitoring.

Set: 4.0

Description: New Construction - Ext PR Alum with Removable Mullion without Operator

2 Continuous Hinge	MCK-12HD SER-12 x Dr Height	CL	MK
1 Mullion Adapter	507A		SA
1 Removable Mullion	L980A x 980C1 Less Cyl	US28	SA
1 Stabilizer	651	PC	SA
1 Exit Device (Elect)	31 56 AD8510	US32D	SA
1 Exit Device (Elect)	31 56 AD8504 Less Cyl	US32D	SA
1 Rim Cylinder	AS-V6552IC/2 (sub-assembled)	626	AA
1 Mortise Cylinder (Mullion)	AS-V6552IC/2 (sub-assembled)	626	AA
2 Cylinder Ring	K-24-26 D (Keedex)	26D	00
2 Door Pull	RM3312MP 12XHD x Dr Height (-450mm) x Thickness	US32D	RO
2 Concealed Overhead Stop	10_S	US32D	GJ
2 Closer	4041XP REG	689	LC
2 Drop Plate	4040-18G	689	LC
1 Threshold	252x2AFG	627	PE
2 Sweep	29326CNB TKSP8	628	PE
1 Card Reader	BY ACCESS CONTROL SUPPLIER		00
2 Door Position Switch	3287		SA

2 ElectroLynx Harness (In Frame)	QC-C1500P	MK
2 ElectroLynx Harness	QC-C006	MK
1 Power Supply	BPS-24-2	SU
1 Wiring Diagrams	POINT TO POINT	00

Notes: Integral weatherstrip by aluminum door supplier.
Division 26 to provide; 120VAC power connection to power supply, all back boxes, and conduit with low-voltage wiring.

Description of operation:
- Entry by access control system schedule or presenting authorized card at card reader or by mechanical key override.
- Exit by pushing door open. Free egress at all times.
- Latch bolt and request to exit monitoring.

Set: 5.0

Description: New Construction - Ext SGLE Alum with Operator

1 Continuous Hinge	MCK-12HD SER-12 x Dr Height	CL	MK
1 Exit Device (Elect)	31 56 AD8504 Less Cyl	US32D	SA
1 Rim Cylinder	AS-V6552IC/2 (sub assembled)	626	AA
1 Cylinder Ring	K-24-26 D (Keedex)	26D	00
1 Door Pull	RM3312MP 12XHD x Dr Height (-450mm) x Thickness	US32D	RO
1 Concealed Overhead Stop	10_S	US32D	GJ
1 Auto Door Operator	SW200i-OS-51-CL	628	BM
1 Threshold	252x2AFG	627	PE
1 Sweep	29326CNB TKSP8	628	PE
1 Card Reader	BY ACCESS CONTROL SUPPLIER		00
2 Actuator	CM – 7509/4	628	BM
1 Door Position Switch	3287		SA
1 ElectroLynx Harness (In Frame)	QC-C1500P		MK
1 ElectroLynx Harness	QC-C006		MK
1 Wiring Diagrams	POINT TO POINT		00

Notes: Integral weatherstrip by aluminum door supplier.

Division 26 to provide; 120VAC power to frame header, final connection of auto door operator, 120VAC power connection to power supply, all back boxes, and conduit with low-voltage wiring.

Description of operation:
- Entry by access control system schedule or presenting authorized card at card reader or by mechanical key override. Presenting authorized card at card reader allows power to exterior actuator for use of automatic door operator.
- Exit by pushing actuator or by pushing door open. Free egress at all times.
- Latch bolt and request to exit monitoring.

Set: 6.0

Description: New Construction - Ext SGLE Alum without Operator

1 Continuous Hinge	MCK-12HD SER-12 x Dr Height	CL	MK
1 Exit Device (Elect)	31 56 AD8504 Less Cyl	US32D	SA
1 Rim Cylinder	AS-V6552IC/2 (sub assembled)	626	AA
1 Cylinder Ring	K-24-26 D (Keedex)	26D	00
1 Door Pull	RM3312MP 12XHD x Dr Height (-450mm) x Thickness	US32D	RO
1 Concealed Overhead Stop	10_S	US32D	GJ
1 Closer	4041XP REG	689	LC
1 Drop Plate	4040-18G	689	LC
1 Threshold	252x2AFG	627	PE
1 Sweep	29326CNB TKSP8	628	PE
1 Card Reader	BY ACCESS CONTROL SUPPLIER		00
1 Door Position Switch	3287		SA
1 ElectroLynx Harness (In Frame)	QC-C1500P		MK
1 ElectroLynx Harness	QC-C006		MK
1 Wiring Diagrams	POINT TO POINT		00

Notes: Integral weatherstrip by aluminum door supplier.
Division 26 to provide; 120VAC power connection to power supply, all back boxes, and conduit with low-voltage wiring.

Description of operation:
- Entry by access control system schedule or presenting authorized card at card reader or by mechanical key override.
- Exit by pushing door open. Free egress at all times.

- Latch bolt and request to exit monitoring.

Set: 7.0

Description: New Construction - Vest PR Alum with Operator

2 Continuous Hinge	MCK-12HD x Dr Height	CL	MK
2 Dummy Rail	8893	US32D	SA
2 Door Pull	RM3312MP 12XHD x Dr Height (-450mm) x Thickness	US32D	RO
2 Concealed Overhead Stop	10_S	US32D	GJ
1 Closer	4041XP REG ST3179	689	LC
1 Auto Door Operator	SW200i-OS-99-CL	628	BM
2 Sweep	18061CNB TKSP8 WIDTH		PE
2 Actuator	CM – 7509/4	628	BM
1 Wiring Diagrams	POINT TO POINT		00

Notes: Division 26 to provide; 120VAC power to frame header, final connection of auto door operator, all back boxes, and conduit with low-voltage wiring.

Description of operation:
- Entry by pushing actuator or by pulling door open.
- Exit by pushing actuator or by pushing door open. Free egress at all times.

Set: 8.0

Description: New Construction - Vest PR Alum without Operator

2 Continuous Hinge	MCK-12HD x Dr Height	CL	MK
2 Dummy Rail	8893	US32D	SA
2 Door Pull	RM3312MP 12XHD x Dr Height (-450mm) x Thickness	US32D	RO
2 Concealed Overhead Stop	10_S	US32D	GJ
2 Closer	4041XP REG	689	LC
2 Drop Plate	4040-18G	689	LC
2 Sweep	18061CNB TKSP8 WIDTH		PE

Notes:

Set: 9.0

Description: New Construction - Vest SGLE Alum with Operator

1 Continuous Hinge	MCK-12HD x Dr Height	CL	MK
1 Dummy Rail	8893	US32D	SA
1 Door Pull	RM3312MP 12XHD x Dr Height (-450mm) x Thickness	US32D	RO
1 Concealed Overhead Stop	10_S	US32D	GJ
1 Auto Door Operator	SW200i-OS-51-CL	628	BM
1 Sweep	18061CNB TKSP8 WIDTH		PE
2 Actuator	CM – 7509/4	628	BM
1 Wiring Diagrams	POINT TO POINT		00

Notes: Division 26 to provide; 120VAC power to frame header, final connection of auto door operator, all back boxes, and conduit with low-voltage wiring.

Description of operation:
- Entry by pushing actuator or by pulling door open.
- Exit by pushing actuator or by pushing door open. Free egress at all times.

Set: 10.0

Description: New Construction - Vest SGLE Alum without Operator

1 Continuous Hinge	MCK-12HD x Dr Height	CL	MK
1 Dummy Rail	8893	US32D	SA
1 Door Pull	RM3312MP 12XHD x Dr Height (-450mm) x Thickness	US32D	RO
1 Concealed Overhead Stop	10_S	US32D	GJ
1 Closer	4041XP REG	689	LC
1 Drop Plate	4040-18G	689	LC
1 Sweep	18061CNB TKSP8 WIDTH		PE

Notes:

Set: 11.0

Description: New Construction - SGLE Classroom Inswing

3 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK

1 Classroom Lock	8237 LNL LC	US32D	SA
1 Mortise Cylinder	AS-V 6552IC/2 (sub assembled)	626	AA
1 Cylinder Ring	K-24-26 D (Keedex)	26D	00
1 Concealed Overhead Stop	10_S	630	RF
1 Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D	RO
1 Gasketing	S88BL		PE
1 Auto Door Bottom	434ARL (wood door)		PE
1 Auto Door Bottom	420ASL TKSP8 (hollow metal door)		PE

Set: 12.0

Description: New Construction - SGLE Classroom Inswing Card Access

2 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK
1 Hinge (heavy weight)	T4A3786 QC12 Size to Suit	US26D	MK
1 Fail Secure Electric Lock	LX RX 8271-24V LNL LC	US32D	SA
1 Mortise Cylinder	AS-V6552IC/2 (sub assembled)	626	AA
1 Cylinder Ring	K-24-26 D (Keedex)	26D	00
1 Concealed Overhead Stop	10_S	630	RF
1 Closer	4041XP REG	689	LC
1 Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D	RO
1 Gasketing	S88BL		PE
1 Auto Door Bottom	434ARL (wood door)		PE
1 Auto Door Bottom	420ASL TKSP8 (hollow metal door)		PE
1 Door Position Switch	3287		SA
1 Power Supply	BPS-24-1		SU
1 Wiring Diagrams	POINT TO POINT		00

Notes: Division 26 to provide; 120VAC power connection to power supply, all back boxes, and conduit with low-voltage wiring.

Set: 13.0

Description: New Construction - SGLE Classroom Outswing

3 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK
1 Classroom Lock	8237 LNL LC	US32D	SA
1 Mortise Cylinder	AS-V6552IC/2 (sub assembled)	626	AA
1 Cylinder Ring	K-24-26 D (Keedex)	26D	00
1 Concealed Overhead Stop	10_S	630	RF
1 Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D	RO
1 Gasketing	S88C 1WIDTH x 2HEIGHT		PE
1 Auto Door Bottom	434ARL (wood door)		PE
1 Auto Door Bottom	420ASL TKSP8 (hollow metal door)		PE

Set: 14.0

Description: New Construction - SGLE Classroom Outswing Card Access

2 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK
1 Hinge (heavy weight)	T4A3786 QC12 Size to Suit	US26D	MK
1 Fail Secure Electric Lock	LX RX 8271-24V LNL LC	US32D	SA
1 Mortise Cylinder	AS-V6552IC/2 (sub assembled)	626	AA
1 Cylinder Ring	K-24-26 D (Keedex)	26D	00
1 Closer	4041XP REG	689	LC
1 Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D	RO
1 Gasketing	S88BL		PE
1 Auto Door Bottom	434ARL (wood door)		PE
1 Auto Door Bottom	420ASL TKSP8 (hollow metal door)		PE
1 Door Position Switch	3287		SA
1 Power Supply	BPS-24-1		SU
1 Wiring Diagrams	POINT TO POINT		00

Notes: Division 26 to provide; 120VAC power connection to power supply, all back boxes, and conduit with low-voltage wiring.

Set: 15.0

Description: New Construction - SGLE Interior Storeroom Inswing

3	Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D MK
1	Storeroom Lock	8204 LNL LC	US32D SA
1	Mortise Cylinder	AS-V6552IC/2 (sub assembled)	626 AA
1	Cylinder Ring	K-24-26 D (Keedex)	26D 00
1	Closer	4041XP REG	689 LC
1	Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D RO
1	Wall Stop	402 TORX	US26D RO

Set: 16.0

Description: New Construction - SGLE Interior Storeroom Outswing

3	Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D MK
1	Storeroom Lock	8204 LNL LC	US32D SA
1	Mortise Cylinder	AS-V6552IC/2 (sub assembled)	626 AA
1	Cylinder Ring	K-24-26 D (Keedex)	26D 00
1	Closer	4041XP REG	689 LC
1	Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D RO

Set: 17.0

Description: New Construction - Interior Office

3	Hinge	TA2714 Size to Suit (NRP at Outswinging Doors)	US26D MK
1	Office Lock	8205 LNL LC	US32D SA
1	Mortise Cylinder	AS-V6552IC/2 (sub assembled)	626 AA
1	Cylinder Ring	K-24-26 D (Keedex)	26D 00
1	Floor Stop	441H	US26D RO

Notes: Provide 6-X36 overhead door stop instead of the 441H floor stop at outswing doors.

Set: 18.0

Description: New Construction - SGLE Interior Washroom (not rated)

3 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK
1 Mortise Deadlock	4877 LC	US26D	SA
1 Mortise Cylinder	AS-V6552IC/2 (sub assembled)	626	AA
1 Cylinder Ring	K-24-26 D (Keedex)	26D	00
1 Monitor Strike	LML-1		SU
1 Door Pull	BF152 MOUNT TO SUIT	US32D	RO
1 Push Plate	70C SA	US32D	RO
1 Door Operator	SW200i	689	BM
1 Wall Stop	402 TORX	US26D	RO
2 Actuator	CM – 7509/4	628	BM
1 Wiring Diagrams	POINT TO POINT		00

Notes: Provide 10_S overhead door stop instead of the 402 wall stop at outswing doors.

Division 26 to provide; 120VAC power to frame header, final connection of auto door operator, all back boxes, and conduit with low-voltage wiring.

Description of operation:
- Entry by pushing actuator or by pulling door open.
- Exit by pushing actuator or by pushing door open.
- Deadbolt monitor strike shunts power to operator actuators when door is locked.

Set: 19.0

Description: New Construction - Universal Washroom

3 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK
1 Storeroom Lock	8204 LNL LC	US32D	SA
1 Mortise Cylinder	AS-V6552IC/2 (sub assembled)	626	AA
1 Cylinder Ring	K-24-26 D (Keedex)	26D	00
1 Electric Strike	1006KM-F-LBM	630	HS
1 SMART Pac Bridge Rectifier	2005M3		HS
1 Door Operator	SW200i	689	BM
1 Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D	RO
2 Actuator	CM-7536/4	628	BM

1 Lock Actuator	CM-7536/4		00
1 Occupancy Indicator	CM-AF500 "Occupied When Lit"	630	00
1 Assistance Requested Indicator	CM-AF501SO "Assistance Requested"	630	BM
1 Assistance Required Indicator	CM-140SO	630	00
1 Emergency Instructional Signage	CM-SE21		00
1 Interface Module	CX-EMF-2		BM
1 Relay	RB-4-24		SU
1 Keyswitch	MKSA		SU
1 Mortise Cylinder (Keyswitch)	AS-V6552IC/2 (sub assembled)	626	MC
1 Cylinder Ring	K-24-26 D (Keedex)	26D	00
1 Power Supply	BPS-12/24-1		SU
1 Wiring Diagrams	POINT TO POINT		00

Notes: Division 26 to provide; 120VAC power to frame header, final connection of auto door operator, 120VAC power connection to power supply, all back boxes, and conduit with low-voltage wiring.

Description of operation:
Operator mounted inside washroom. Entry by pushing door or by pressing corridor wall mounted operator button. Upon entry and door closing, pressing of interior illuminated "push to lock" switch, changes color of illuminated ring around switch green to red (indicating locked) and illuminates corridor 'Occupied when Lit' indicator. Egress by using lever trim or by pressing wall mounted operator button. System automatically resets when door opens. Pressing Code Blue emergency button unlocks electric strike and illuminates interior and exterior assistance required indicators and sound local alerts, until help arrives and opens door. When activated, assistance required signal is sent ot local monitoring station. System can be configured to open door upon alarm. For maintenance purposes, corridor side keyswitch secures washroom door and turns corridor side operator actuator off. Relay to be used to latch wall mount momentary Code Blue emergency station to maintain assistance required status. Free egress at all times. Door is unlocked in a power fail condition.

Set: 20.0

Description: New Construction - SGLE Interior Stairwell (non-locking)

3 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK
1 Exit Device	12 8815 ETL	US32D	SA
1 Closer	4041XP REG	689	LC
1 Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D	RO
1 Wall Stop	402 TORX	US26D	RO
1 Gasketing	S88C 1WIDTH x 2HEIGHT		PE

1 Sweep	18061CNB TKSP8 WIDTH		PE

Notes: Provide 10_S overhead door stop instead of the 402 wall stop where required.

Set: 21.0

Description: New Construction - PR Interior Stairwell (non-locking)

6 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK
2 Exit Device	12 NB8715 ETL	US32D	SA
2 Closer	4041XP REG	689	LC
2 Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D	RO
2 Wall Stop	402 TORX	US26D	RO
1 Gasketing	S88C 1WIDTH x 2HEIGHT		PE
2 Sweep	18061CNB TKSP8 WIDTH		PE

Notes: Provide 10_S overhead door stop instead of the 402 wall stop where required.

Set: 22.0

Description: Existing - SGLE Classroom Inswing

3 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK
1 Classroom Lock	VC-28-11G37OL	US26D	SA
1 Permanent I/C Core	AS-V70600IC (sub assembled)	626	AA
1 Concealed Overhead Stop	10_S	630	RF
1 Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D	RO
1 Gasketing	S88BL		PE
1 Auto Door Bottom	434ARL (wood door)		PE
1 Auto Door Bottom	420ASL TKSP8 (hollow metal door)		PE

Set: 23.0

Description: Existing - SGLE Classroom Outswing

3 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK
1 Classroom Lock	VC-28-11G37OL	US26D	SA
1 Permanent I/C Core	AS-V70600IC (sub assembled)	626	AA
1 Concealed Overhead Stop	10_S	630	RF
1 Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D	RO
1 Gasketing	S88C 1WIDTH x 2HEIGHT		PE
1 Sweep	18061CNB TKSP8 WIDTH		PE
1 Auto Door Bottom	434ARL (wood door)		PE
1 Auto Door Bottom	420ASL TKSP8 (hollow metal door)		PE

Set: 24.0

Description: Existing - SGLE Classroom Inswing with closer

3 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK
1 VC-28-11G37OL	VC-28-11G37OL	US26D	SA
1 Permanent I/C Core	AS-V70600IC (sub assembled)	626	AA
1 Concealed Overhead Stop	10_S	630	RF
1 Closer	4041XP REG	689	LC
1 Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D	RO
1 Gasketing	S88BL		PE
1 Auto Door Bottom	434ARL (wood door)		PE
1 Auto Door Bottom	420ASL TKSP8 (hollow metal door)		PE

Set: 25.0

Description: Existing - SGLE Classroom Outswing with closer

3 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK
1 Classroom Lock	VC-28-11G37OL	US26D	SA
1 Permanent I/C Core	AS-V70600IC (sub assembled)	626	AA

1 Closer	4041XP REG	689	LC
1 Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D	RO
1 Gasketing	S88C 1WIDTH x 2HEIGHT		PE
1 Sweep	18061CNB TKSP8 WIDTH		PE
1 Auto Door Bottom	434ARL (wood door)		PE
1 Auto Door Bottom	420ASL TKSP8 (hollow metal door)		PE

Set: 26.0

Description: Existing - SGLE Interior Storeroom Inswing

3 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK
1 Storeroom Lock	64-11G04 LL	US26D	SA
1 Permanent I/C Core	AS-V70600IC (sub assembled)	626	AA
1 Closer	4041XP REG	689	LC
1 Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D	RO
1 Wall Stop	402 TORX	US26D	RO

Set: 27.0

Description: Existing - SGLE Interior Storeroom Outswing

3 Hinge (heavy weight)	T4A3786 Size to Suit (NRP at Outswinging Doors)	US26D	MK
1 Storeroom Lock	64-11G04 LL	US26D	SA
1 Permanent I/C Core	AS-V70600IC (sub assembled)	626	AA
1 Closer	4041XP REG	689	LC
1 Kick Plate	K1050 8" x WIDTH 4BE CSK	US32D	RO

Set: 28.0

Description: Existing - Interior Office

3 Hinge	TA2714 Size to Suit (NRP at Outswinging Doors)	US26D	MK
1 Office Lock	VC-28-11G37OL	US26D	SA
1 Permanent I/C Core	AS-V70600IC (sub assembled)	626	AA
1 Floor Stop	441H	US26D	RO

Notes: Provide 10_S overhead door stop instead of the 441H floor stop at outswing doors.

END OF SECTION 08 71 00

Hardware Schedule – Additional Hardware Sets
Seneca @ York Campus

Set: 29

Description: Shipping Doors, Seneca @ York Campus

2	35”x 84” 18 Gauge steel stiffened doors with welded seams, fire rated, prep for lockset & 6”x 27” glass side light kits
2	84” Continuous door hinges
2	LC4040HA Heavy duty door closers
1	84” Door astragal
1	AL80-626 ASSA storeroom function lockset
2	36” Door sweeps
1	GJ1632 Locking surface slide bolt

Set: 30

Description: S1STO5 Exit Door

1	36”x84” 18 Gauge steel stiffened door with welded seams, fire rated, prep for hinges
1	SA8888F Sargent stainless heavy duty panic bar
1	ASSA rim lock & pull handle
1	LC4040HA Heavy duty door closer
3	Butt hinges

Set: 31

Description: Exterior Chiller Room Door

1	35” x 84” RH 18 Gauge steel stiffened door with welded seams & 23’ x 34” glass insert
1	SA8888F Sargent stainless heavy duty panic bar
1	84” Continuous hinge
1	LC4040HA Heavy duty door closer
1	ASSA rim lock & pull handle
1	36” Door sweep

Set: 32

Description: Stair 14 Exit Door (immediately adjacent to Exterior Chiller Room Door)

1	39” x 84” RH 18 Gauge Steel stiffened door with welded seams & 26” x 34” glass insert
1	84” Continuous door hinge
1	LC4040HA Heavy duty door closer
1	SA8888F Sargent stainless heavy duty panic bar
1	36” Door sweep

Set: 33

Description: ST.13 Double Exit Doors by main entrance

2	36” x 84” LH 18 Gauge steel stiffened doors with welded seams & 24” x 34” glass insert
2	84” Continuous door hinges
2	SA8888F Sargent stainless heavy duty panic bars
2	LC4040HA Heavy duty door closers
2	36” Door sweeps

Set: 34

Description: Two Exterior doors by Learning Commons

1	39” x 84” RH 18 Gauge Steel stiffened door with welded seams
2	84” Continuous door hinges
2	SA8888F Stainless heavy duty panic bars
2	48” Door sweeps
2	LC4040HA Heavy duty door closers

Set: 35

Description: Two Exterior doors by Learning Commons

1	47” x 84” RH 18 Gauge steel stiffened door with welded seams
2	84” Continuous door hinges
2	SA8888F Stainless heavy duty panic bars
2	48” Door sweeps
2	LC4040HA Heavy duty door closers

1 General

1.1 SUMMARY

.1 Supply and installation of automatic swing door operator, surface mounted onto suitable transom, and complete with accessories required for complete finish, installation and operation.

1.2 RELATED REQUIREMENTS

.1 Section 08 11 13: Steel Doors and Frames

.2 Section 08 41 13: Entrances and Storefronts

.3 Section 08 70 00: Hardware

1.3 REFERENCE STANDARDS

.1 American Association of Automatic Door Manufacturers (AAADM)

.2 American National Standards Institute (ANSI):

.1 ANSI A156.19 – Power Assist and Low Energy Power Operated Doors

.2 ANSI 117.1 – Accessible and Usable Buildings and Facilities

.3 Builders' Hardware Manufacturers Association (BHMA)

.4 Underwriters Laboratory Canada (ULC)

.5 Canadian Standards Association (CSA)

.6 National Fire Protection Association (NFPA)

.7 International Code Council (ICC)

1.4 SYSTEM DESCRIPTION

.1 Performance Requirements:

.1 Design system to operate, hold open and close doors under design wind and suction loads calculated in accordance with applicable code.

.2 Provide for thermal expansion and contraction of door and frame units, transmitted to operating equipment.

.3 Provide for dimensional distortion of components during operation.

.4 Operating Temperature Range: -33 deg. C to 72 deg. C ambient.

.5 Eliminate system performance interference by ambient light and radio frequencies.

.6 Provide for manual open and close operation of door leaves in the event of power failure.

1.5 QUALITY ASSURANCE

.1 Manufacturer's Qualifications: Manufacturer to have at least (5) five years experience in the fabrication of automatic and manual entrance systems.

.2 Subcontractor executing work of this Section shall have had a minimum five (5) years continuous Canadian experience in successful manufacture and installation of work of type and quality shown and specified. Submit proof of experience upon Consultant's request.

.3 The installation shall be in conformity with laws, by-laws and regulations which govern the design and installation of automatic entrance doors.

.4 Installer's Qualifications: Products specified shall be represented by a factory authorized and trained distributor. Distributor shall be AAADM Certified and maintain a parts inventory and trained service personnel capable of providing service

.5 Pre-installation Conference:

.1 Schedule a pre-installation conference no later than one week prior to commencing work of this Section.

.2 Contact Contractor two weeks prior to proposed meeting to confirm schedule.

.6 All automatic equipment to comply with UL325 and CAN/CSA-C22.2 No 247-92.

.7 All automatic equipment to comply with ANSI A156.19.

1.6 SUBMITTALS

.1 Submit submittals in accordance with the General Conditions and Section 01 33 00.

.2 Action Submittals: Provide the following submittals before starting any work of this Section:

.1 Product Data: Submit product data indicating installation details, material descriptions, dimensions of individual components and profiles, and finishes.

.2 Shop Drawings: Submit shop drawings indicating details of electrified door hardware including, but not limited to, the following:

.1 Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between manufacturer installed and site installed wiring.

.2 Submit complete elevations, details and methods of anchorage to location; installation of hardware; size, shape, joints and connections; and details of joining with other construction.

.3 Templates and Diagrams: As needed shall be furnished to fabricators and installers of related work for coordination of swinging door system with concrete work, electrical work, and other related work.

.4 Samples: Submit to Consultant for approval, before fabrication of the work, samples of materials, components, and finishes to be used in the work.

.5 Maintenance Data and Operating Instructions: On completion of work of this Section, supply three (3) copies of maintenance instructions for insertion into Operating and Maintenance Manual.

1.7 PROJECT CLOSEOUT SUBMISSION

.1 Operation and Maintenance Data: Provide operations and maintenance information in accordance with Section 01 33 00 Submittals - Operations and Maintenance Data.

.2 Spare Parts and Tools: Submit unique parts and tools for maintaining hardware system in accordance with Section 01 33 00 Submittals.

1.8 DELIVERY, HANDLING AND PROTECTION

.1 Pack hardware in suitable wrappings and containers to protect from injury during shipping and storage. Enclose accessories, fastening devices and other loose items with each item. Mark packages for easy identification as indicated on approved delivery schedule. Hand over hardware to designated installer.

1.9 SITE CONDITIONS

.1 Site Survey: Verify site conditions including, but not limited to the following; opening sizes, floor conditions, plumb and level mounting surfaces.

.1 Substrates shall be of proper dimension and material.

.2 Coordinate installation with glass, glazing hardware and electrical to avoid construction delays.

1.10 WARRANTY

.1 Warrant work of this Section against defects in materials and workmanship in accordance with the General Conditions, but for a period of two (2) years and agree to promptly make good defects which become evident during warranty period without cost to the Owner.

.2 Warrant that any unit failing shall be removed and replaced without cost to the Owner.

2 Products

2.1 MANUFACTURERS

.1 Supply all automatic door operators and accessories from one manufacturer to ensure compatibility of system components.

.2 Acceptable Materials Manufacturers: Subject to compliance with requirements specified in this Section, manufacturers offering products that may be incorporated into the Work include; but are not limited to, the following:

.1 Besam Ltd.

.2 Horton Automatics

.3 Gyro Tech Inc

.4 Record-USA

2.2 AUTOMATIC SWING DOOR SYSTEM

.1 Coordinate the work of all trades, including glass and glazing, masonry, and electrical requirements covered in manufacturer's details and appropriate sections of the specifications.

.2 Coordinate with electrical contractor for provision of service to each operator from junction box for multiple operators.

.3 Coordinate with electrical contractor and provide electrical conduit and wiring from specified controls to operators as outlined on manufacturer's drawings.

.4 Finish Hardware Supplier: Provide and install the following automatic door operators and connecting hardware, and power on/off switch and safety sensor.

.1 Overhead Concealed Side Access (Type A): Provide and install overhead concealed swing door operator, for single or double doors, consisting of operator and electronic control, aluminum header.

.1 Basis of Design Material: Besam SW200i-OS by ASSA ABLOY.

.2 Surface Mount Single Push (Type B): High performance, heavy use application, surface mounted operator, complete with aluminum header case and arm link.

.1 Basis of Design Material: Besam SW200i by ASSA ABLOY.

.3 Automatic entrance equipment: comply with ANSI A156.10 or A156.19.

.4 Aluminum header extrusions: minimum nominal 4 mm wall thickness with finish anodized AA-M12-C22-A31 clear.

.5 Equipment must operate between -35 deg. C and +55 deg. C in all climate conditions.

.6 Operator: Electro-mechanical system installed in a header to resist dust, dirt and corrosion; entire operator shall be removable from the header as a unit.

.7 Bearings: Fully lubricated and sealed to minimize wear and friction.

.5 Electrical Control:

.1 Solid-state microprocessor unit, allowing the opening speed, closing speed, back check and latch check speed each to be adjusted separately and independently from each other to meet specific site conditions.

.2 Adjustable opening and closing speeds shall be set in accordance with ANSI A156.19.

.3 Control shall include time delay. All adjustments shall be specific and reproducible.

.6 The door forces and speeds generated during power opening, and manual opening in both directions of swing, and spring closing in both directions of swing shall conform to the requirements of ANSI A156.10 or A156.19.

.7 Verify that no defects or errors are present in completed phases of the work that would result in poor application or installation, or cause latent defects of the automatic door equipment.

.8 Installation and warranty adjustments shall be performed by authorized distributors' factory trained technician.

2.3 ACTIVATING DEVICES

.1 Wall Switches: Round push plate switch, 150mm (6") diameter stainless steel surface, engraved, mounted to pushbutton box, mounted to wall or frame, as indicated on the drawings.

.2 Bollard Post: 100mm x 100mm (4" x 4") square bollard post, tubular steel complete with welded cap, and surface mounted narrow activation switch. Surface mounted, 1066mm (42") high.

3 Execution

3.1 INSTALLATION

.1 Automatic door equipment shall be installed by AAADM Certified, factory-trained installers in compliance with ANSI A156.19, manufacturer's recommendations and approved shop drawings.

3.2 CLEANING AND PROTECTION

.1 After installation, clean framing members as recommended by the manufacturer.

.2 Protect aluminum surfaces in contact with masonry, concrete or steel by use of neoprene gaskets, where indicated, or a coat of bituminous paint to prevent galvanic or corrosive action.

.3 Advise general contractor to protect unit from damage during subsequent construction activities.

3.3 PERFORMANCE

.1 Provide services of certified technician without additional cost to Owner, to inspect and adjust installation of all hardware furnished under this Section to assure compliance with ANSI A156.10.

END OF SECTION

1 General

1.1 SUMMARY

.1 Furnish glazing materials and accessories to complete the fabrication and installation of:

.1 Steel Doors, Frames and Sidelights

.2 Wood Doors

.3 Entrance and Storefronts

1.2 RELATED REQUIREMENTS

.1 Section 07 92 00: Sealants

.2 Section 08 11 13: Steel Doors and Frames

.3 Section 08 41 13: Entrances and Storefronts

1.3 REFERENCE STANDARDS

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

.1 ASTM C542-05(2011), Standard Specification for Lock-Strip Gaskets

.2 ASTM C920-11, Standard Specification for Elastomeric Joint Sealants

.3 ASTM C1172-09e1, Standard Specification for Laminated Architectural Flat Glass

.4 ASTM C1503-08, Standard Specification for Silvered Flat Glass Mirror

.2 Canadian General Standards Board (CGSB):

.1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass

.2 CAN/CGSB-12.3-M91, Flat, Clear Float Glass

.3 CAN/CGSB-12.8-97, Insulating Glass Units

.4 CAN/CGSB-12.9-M91, Spandrel Glass

.5 CAN/CGSB-12.11-M90, Wired Safety Glass

.6 CGSB-12.20-M89, Structural Design of Glass for Buildings

.3 National Fire Protection Association (NFPA):

.1 NFPA 80-2013, Standard For Fire Doors and Other Opening Protectives

1.4 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00.

.2 Action Submittals: Provide the following submittals before starting any work of this Section:

.1 Product Data: Submit manufacturer's product data for each type of product specified. Data shall indicate compliance with specification and installation recommendations of manufacturer of products being used.

.2 Samples: Submit samples of materials if required by Consultant before commencing work of this section. Samples shall be clearly labeled with manufacturer's name and type.

.3 Shop Drawings: Submit shop drawings, to the Consultant for review prior to fabrication.

.4 Samples for Initial Selection: Submit samples for initial selection by Consultant:

.1 Submit samples of spandrel glass coatings, and etched glass for review and acceptance by Consultant prior to ordering.

.5 Samples for Verification: Submit samples for verification including sample sets showing the full range of variations expected where products involve normal colour variations.

.6 Maintenance Data: Upon completion of installation, supply instructions covering re-glazing, adjustments and other relevant maintenance data.

1.5 QUALITY ASSURANCE

.1 Conform to the requirements of the Flat Glass Marketing Association Glazing Manual, latest Edition.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Delivery and Acceptance Requirements: Deliver packaged materials in their original containers with manufacturer's labels and seals intact.

.2 Storage and Handling Requirements: Store vertically, blocked off the floor in a weatherproof enclosure in original containers with manufacturers labels and seals intact until read for installation, and as follows:

.1 Install glass as soon as possible after delivery to site.

.2 Handle glass carefully to its place of installation.

.3 Prevent damage to glass, adjacent materials and surfaces.

1.7 SITE CONDITIONS

.1 Ambient Conditions: Maintain temperature, humidity and solar exposure conditions of Glass Glazing materials during shipping, storage and site installation as required by manufacturer to maintain warranty and performance of installed products.

1.8 WARRANTY

.1 Provide manufacturer’s warranty for the following types of glass listed, against defects in materials and workmanship for the period indicated, commencing from the date of Substantial Performance of Work:

.1 Seal Failure: Failure of hermetic seal under normal use that is attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning insulating glass contrary to manufacturer's written instructions.

.2 Evidence of Failure: Obstruction of vision by dust, moisture, or film on interior surfaces of glass.

.3 Allowable Specific Exclusions: Breakage resulting from thermal stress will be accepted as a limitation to the warranty in accordance with CAN/CGSB 12.20.

.4 Warranty Period: Ten (10) Years.

2 Products

2.1 MATERIALS

.1 Float Glass: In accordance with CAN/CGSB-12.3, glazing quality and as follows:

.1 Clear Glass: No tint

.2 Acid-Etched Glass: CAN/CGSB-12.1, laminated float glass with acid etched surface, 6mm thick.

.1 Basis of Design Materials: Matelux Stopsol Supersilver by AGC Flat Glass.

.2 Tempered Glass:

.1 Minimum 1/4" thick, clear, conforming to CAN/CGSB-12.1, Type 2, Class 'B'. Tempering shall be performed using horizontal tong free method. Provide 1/2" where indicated on drawings.

.1 Provide Category "I" Heat Strengthened tempered glass for spandrel panel applications.

.3 Laminated Safety Glass: In accordance with CAN/CGSB-12.1 and ASTM C1172 as follows:

.1 Glass: Clear, tempered glass.

.2 Type: 1 - Laminated.

.3 Class: B - Float Glass.

.4 Category: II - Fully Tempered.

.4 Mirrors, Silvered: to ASTM C1503 and as follows:

.1 Type: 1B - Float glass for high humidity use.

.2 Tint: Clear

.3 Edges: Pencil polished edge. Seal edges to prevent chemical or atmospheric penetration of backing.

.4 Mirror Clips: – C26 (polished chrome) finished steel, or stainless steel edge clips, with fastening concealed behind mirror.

.5 Fire Rated, Ceramic Fire-Rated Glass: Material used in door and screen applications with fire rating requirements of 60 minutes with hose stream test.

.1 Fire Rated Glass: Two-ply of glass ceramic, laminated with Teflon or PVB interlayer and as follows:

.1 Thickness: 8mm

.2 Fire Rating: 60 minutes.

.3 Labelled: Permanent logo listing name of product, manufacturer, testing laboratory, fire rating period and safety requirements

.4 Basis-of-Design Materials:

.1 Technical Glass Products, FireLite Plus

.2 VetroTech, Keralite Select L

.3 SAFTI: Pyran Platinum L

.6 Gaskets:

.1 Neoprene/EPDM thermoplastic rubber type gaskets of sufficient thickness to be compressed 25% when installed, having 2,000 psi tensile strength, with 50 durometer shore A hardness plus/minus 5, maximum 30% resistance to permanent set, resistance to ozone without cracking, minimum elongation at break of 300% and conforming to ASTM C542.

.2 Colour - "Black".

.7 Sealant:

.1 One component, silicone base, solvent curing sealant conforming to ASTM C920. Colour as selected Later by Consultant.

.8 Glazing Compound:

.1 Non-hardening modified oil type glazing compound.

.9 Setting Blocks:

.1 Neoprene/EPDM rubber type, 4" long, with 40 to 50 durometer shore A hardness plus/minus 5; resistant to sunlight, weathering, oxidation and permanent deformation under load and wide enough to extend from fixed stop to opposite face of glass of thickness suitable to glazing condition to provide adequate glazing "bite".

.10 Spacer Shims:

.1 Neoprene/EPDM rubber type, with 40 to 50 durometer shore A hardness plus/minus 5; resistant to sunlight, weathering, oxidation and permanent deformation under load and of adequate thickness to provide correct glass to face clearance at least 1/8".

.11 Glazing Tape:

.1 Macro-polyisobutylene preformed glazing tape, 'Polyshim' or 'Vision Strip' by Tremco Ltd., division of RPM Company, or approved equal.

2.2 INSULATING GLASS

.1 Insulating Glass Units: Provide sealed insulating glass units in accordance with CAN/CGSB-12.8 in configurations indicated, and as specified herein.

.2 Manufacture sealed insulating glass units without edge channels or tape, that is, with bare glass edges.

.3 Use two stage seal method of manufacture, as follows:

.1 Primary Seal: polyisobutylene sealing compound between glass and metal spacer/separator.

.2 Secondary Seal: polyurethane, silicone or polysulphide base sealant, filling gap between the two lites of glass at the edge up to the spacer/separator and primary seal.

.4 Install stainless steel capillary breather tubes to equalize pressure differentials between insulating glass fabricating location and insulating glass installation location; crimp tube immediately prior to installation in accordance with glass fabricators written instructions.

.5 Insulating Glass Units:

.1 Unit Composition – West Elevation:

.1 Low-E coating on second surface.

.2 Basis of Design Materials:

.1 EnergySelect 36 by AGC Flat Glass

.2 Cardinal LoE-272 by Cardinal Glass Industries

.3 SN 68 by Guardian Industries

.2 Unit Composition – North, South and East Elevations:

.1 Low-E coating on second surface.

.2 Basis of Design Materials:

.1 EnergySelect 63 by AGC Flat Glass, or approved equal by Cardinal Glass Industries, or Guardian Industries.

.6 Spandrel Insulating Glass Units: In accordance with CAN/CGSB-12.9 and as follows:

.1 Unit Composition:

.1 Exterior Lite: Type: 2 - Heat Strengthened complete with applied silicone elastomeric coating, minimum thickness 1/64". Colour: As selected by the Consultant from the manufacturer's standard product line.

.1 Basis of Design Materials:

.1 Opaci-Coat 300

.2 Span-Kote

.2 Insulation: Rigid glass fibre insulation held in place with manufacturer's standard fixing system to back face of back pan.

.3 Back Pan – Concealed: Galvanized metal sheet, 1/16" thickness, formed into a pan shape to fit into glazing throat with back of pan flush with inside face of back section. If back pan is exposed to view, attach aluminum sheet to galvanized metal back pan by adhesive, finished to match mullions.

2.3 FABRICATION AND MANUFACTURE

.1 Label each light of glass with the registered name of the product and the weight and quality of the glass.

.2 Check dimensions on site before cutting materials.

.3 Minimum bite or lap of glass on stops and rabbets as recommended by glass manufacturer. Finish surfaces shall be free of tong marks.

.4 Cut glass true to dimensions, square, plumb and level. Verify all dimensions prior to fabrication.

.5 Distortion, pock marking or defects detrimental to appearance and/or performance, as determined by the Consultant, will be rejected.

.6 Fabricate mirrors to fit measurements of finished spaces, made at the site. Use one piece for mirrors 4' or less in width. Make no horizontal joints except where indicated.

2.4 GLAZING COMPOUND FOR FIRE RATED GLAZING MATERIALS

.1 Glazing Tape: Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2%, designed for compression of 25% to effect an air and vapour seal.

.2 Silicone Sealant: One-part neutral curing silicone, medium modulus sealant, Type S; Grade NS; Class 25 with additional movement capability of 50% in both extension and compression (total 100%); Use (Exposure) NT; Uses (Substrates) G, A, and O as applicable.

.1 Acceptable materials:

.1 Dow Corning Corp., Dow Corning 795

.2 General Electric Co., Silglaze-II 2800

.3 Tremco Inc., Spectrum 2

.3 Setting Blocks: Hardwood, glass width by 4"x ¼" thick.

.4 Spacers: Neoprene or other resilient blocks of 40 to 50 Shore A durometer hardness, adhesive-backed on one face only, tested for compatibility with specified glazing compound.

.5 Cleaners, Primers, and Sealers: Type recommended by manufacturer of glass and gaskets.

2.5 FABRICATION: FIRE RATED GLASS

.1 Fabricate glass and other glazing products in sizes required to glaze openings indicated for project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing standards as required to comply with system performance requirements.

3 Execution

3.1 EXAMINATION

.1 Examine areas of work affecting the work of this section. Report in writing all defects, errors and discrepancies immediately to the Consultant.

.2 Commencement of work implies acceptance of surfaces and conditions.

3.2 PREPARATION

.1 Openings shall be free from moisture, frost, rust, dirt and foreign matter.

.2 Clean surface to receive sealant with a clean cloth dampened with xylol or a 50-50 mixture of acetone and xylol. Wipe dry with a clean, dry cloth.

3.3 INSTALLATION

.1 Conform to the recommendation of the glazing manual, Flat Glass Marketing Association, latest edition and as specified herein.

.2 Unless otherwise indicated on drawings otherwise, provide tempered glass at all doors, transoms, sidelights and vision lites within 2'-6" of grade and/or finished floor.

.3 Glaze doors scheduled to be glazed.

.4 Set sheet glass with draw lines horizontal.

.5 Glaze interior openings using compound or glazing tapes or gaskets.

.6 Install removable stops. Insert spacer shims between glass and stops at 24" O.C. and not less than 1/4" below "sight lines". Fill remaining voids with sealant or glazing compound to "sight lines" and trim sealant/glazing compound to produce clean, sharp, straight lines without voids or depressions.

.7 Replace loose stops in their original positions, tighten all screws.

.8 Refer to drawings and door and frame schedule for locations of each type of glass.

3.4 INSTALLATION – MIRRORS

.1 Secure mirrors with a minimum of 4 clips per piece. Provide pads to prevent direct metal-to-glass contact of clips or screws.

.2 Align mirrors (in multiple application) to a parallel and true plane surface to produce a true reflection across all sections.

.3 Place plumb and level.

3.5 FIRE RATED GLASS

.1 Comply with GANA standards and instructions of manufacturers of glass, glazing sealants, and glazing compounds.

.2 Protect glass from edge damage during handling and installation. Inspect glass during installation and discard pieces with edge damage that could affect glass performance.

.3 Place hardwood setting blocks located at quarter points of glass with edge block no more than 150mm (6") from corners.

.4 Glaze vertically into labelled fire rated metal frames or partition walls with same fire rating as glass and push against tape for full contact at perimeter of pane or unit.

.5 Place glazing tape on free perimeter of glazing in same manner described above.

.6 Do not remove protective edge tape.

.7 Install removable stop and secure without displacement of tape.

.8 Do not pressure glaze. Knife trim protruding tape.

.9 Provide minimum ¼" edge clearance.

.10 Install vision panels in fire rated doors to requirements of NFPA 80.

.11 Install so that appropriate fire rating labels and markings remain permanently visible.

3.6 CLEANING

.1 Repair all defects caused by the work of this section. Remove as work progresses, all excess or foreign materials or droppings which would set or become difficult to remove from surfaces at time of final cleaning.

.2 Immediately prior to acceptance of work of this section by Consultant, remove temporary protection, clean and polish exposed surfaces of all work of this section. Use proper cleaning materials and methods to prevent damage to surfaces, finishes, sealer or work of other trades. Make good such damage to Consultant's satisfaction.

.3 Do not use steel wool, wire brushes or steel scrapers on any finished surfaces.

.4 Replace or make good to Consultant's satisfaction, upon completion of work of this section, all defective, scratched or damaged work, at no extra cost to the Owner.

END OF SECTION

1 General

1.1 SUMMARY

.1 Provide labour, materials, tools and other equipment, services and supervision required to complete interior and exterior painting work.

.2 Surface preparation for this section will be limited to priming and back-priming, and specific pre-treatments noted in this section or as specified in the Master Painters Institute (MPI) Painting Specification Manual.

1.2 RELATED REQUIREMENTS

.1 Other sections of the specification requiring painting refer to this section. Coordinate requirements of referencing sections.

1.3 REFERENCE STANDARDS

.1 Environmental Choice Paints and Surface Coatings, Low VOC Product Listings Program (ECP):

.1 Paints and Surface Coatings, Low VOC Product Listings

.2 The Master Painters Institute (MPI):

.1 New Surfaces: Architectural Painting Specification Manual.

.3 The Society for Protective Coatings (SSPC):

.1 Coating Materials Guidelines

.2 Surface Preparation Guidelines

.3 Application, Inspection and Quality Control Guidelines

1.4 DEFINITIONS

.1 Gloss Levels: Standard coating terms defined by MPI Manual apply to products of this Section as follows:

.1 G1: Matte of Flat: Lustreless or matte finish with a gloss range below 10 when measured at 85° to meter and 0 to 5 when measured at 60°.

.2 G2: Velvet: Matte to low sheen finish with a gloss range of 10 to 35 when measured at 85° to meter and 0 to 10 when measured at 60°.

.3 G3: Eggshell: Low sheen finish with a gloss range of 10 to 35 when measured at 85° to meter and 10 to 25 when measured at 60°.

.4 G4: Satin: Low to medium sheen with a gloss range of minimum 35 when measured at 85° to meter and 20 to 35 when measured at 60°.

.5 G5: Semi-Gloss: Medium sheen finish with a gloss range of 35 to 70 when measured at 60° to meter.

.6 G6: Gloss: High sheen finish with a gloss range of 70 to 85 when measured at 60° to meter.

.7 G7: High Gloss: Reflective sheen having a gloss range in excess of 85 when measured at 60° to meter.

.2 Gloss Values: Generally, provide paints and coatings having the following sheens when installed on the following substrates:

.1 Walls: Eggshell (G3) or Satin (G4) as selected by Consultant at a later date.

.2 Trim and Doors: Semi-gloss (G5).

.3 Ceilings: Flat (G1).

1.5 SUBMITTALS

.1 Provide required information in accordance with Section 01 33 00.

.2 Action Submittals: Provide the following submittals before starting any work of this Section:

.1 Product Data: Submit list of all painting materials used for the Work to the Consultant for review prior to ordering materials for each paint system indicated, including block fillers and primers.

.1 Material List: An inclusive list of required coating materials indicating each material and cross reference specific coating, finish system, and application; identify each material by manufacturer's catalogue number and general classification.

.2 Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.

.2 Samples: Provide stepped samples, defining each separate coat, including block fillers and primers using representative colours required for the project; label each sample for location and application, and as follows:

.1 Drawdown Samples: Provide three (3) drawdown sample charts (cards) for each type, texture and colour of finish specified for verification purposes before ordering paint materials.

.3 Informational Submittals: Provide the following submittals when requested by the Consultant:

.1 Certification: Submit certification reports for paint products indicating that they meet or exceed low VOC and coloured base requirements listed in this Section.

1.6 PROJECT CLOSEOUT SUBMISSIONS

.1 Operation and Maintenance Data: Submit copies of paint manufacturer’s written maintenance information for inclusion in the operations manual in accordance with Section 01 33 00, including specific warning of any maintenance practice or materials that may damage or disfigure the finished Work.

.2 Maintenance Materials: Deliver maintenance materials to Owner in quantities indicated and in accordance with Section 01 33 00, that match products installed; packaged with protective covering for storage, and identified with labels describing contents and building location and as follows:

.1 Paints and Coatings: Minimum of 4-4L containers of field colours and 4-1 L containers of each accent colour, and all remnants.

1.7 QUALITY ASSURANCE

.1 Conform to the standards contained in the MPI Manual.

.2 Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in service performance, and as follows:

.1 Have a minimum of five (5) years proven satisfactory experience and shall show proof before commencement of work that he will maintain a qualified crew of painters throughout the duration of the work.

.2 When requested provide a list of the last three comparable jobs including, name and location, specifying authority, start and completion dates and cost amount of the painting work.

.3 Apprentices may be employed provided they work under the direct supervision of a qualified journeyman in accordance with trade regulations.

.3 Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats and as follows:

.1 Use only paint manufacturers and products as listed under the Approved Products section of the MPI Manual Architectural Painting Specification Manual.

1.8 ENVIRONMENTAL REQUIREMENTS

.1 Conform to MPI Manual and manufacturers requirements.

.2 Perform no painting or decorating work when the ambient air and substrate temperatures, relative humidity and dew point and substrate moisture content is below or above requirements for both interior and exterior work.

.3 Apply paint only to dry, clean, properly cured and adequately prepared surfaces in areas where dust is no longer generated by construction activities such that airborne particles will not affect the quality of finished surfaces.

.4 Ensure adequate continuous ventilation and sufficient heating and lighting is in place.

.5 Paint, stain and wood preservative finishes and related materials (thinners, solvents, caulking, empty paint cans, cleaning rags, etc.) shall be regarded as hazardous products. Recycle and dispose of same subject to regulations of applicable authorities having jurisdiction.

.6 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground retain cleaning water and filter out and properly dispose of sediments.

.7 Set aside and protect surplus and uncontaminated finish materials not required by the Owner and deliver or arrange collection for verifiable re-use or re-manufacturing.

2 Products

2.1 MANUFACTURERS

.1 Subject to compliance with requirements, manufacturers that have attained the prerequisites for ecologically sustainable labelling mark on their products and may be incorporated into the Work include; but are not limited to, the following:

.1 Sherwin-Williams LLC

.2 Benjamin Moore and Co. Limited

.3 ICI Paints (Canada) Inc.

.4 Para Paints

.5 PPG Canada Inc.- Architectural Finishes

.6 SICO Inc.

2.2 MATERIALS

.1 Primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, and other painting materials shall be in accordance with the MPI Manual “Approved Product” listing and shall be from a single manufacturer for each system used.

.2 Materials such as linseed oil, shellac, and other accessory materials shall be the highest quality product of an approved manufacturer listed in the MPI Manual and shall be compatible with other coating materials.

.3 All materials and paints shall be lead and mercury free and shall have low VOC content where possible.

.4 Paint Colour and Manufacturer (PT): As indicated in the Finish Schedule on Drawing A104.

3 Execution

3.1 PREPARATION OF SURFACES:

.1 Prepare surfaces in accordance with MPI Manual requirements. Refer to the Manual for specific surface preparation requirements for each substrate material.

3.2 APPLICATION

.1 Paint when substrates and environmental conditions (heating, ventilation, lighting and completion of other work) are acceptable for applications of products specified in this Section.

.2 Paint and stain surfaces requiring paint or stain finish to Premium MPI Manual finish requirements with application methods in accordance with best trade practices for type and application of materials used.

.3 Continue paint finishes through behind wall mounted items.

.4 Painting coats specified are intended to cover surfaces satisfactorily when applied at proper consistency and in accordance with manufacturer's recommendations.

.5 Apply a minimum of four coats of paint where deep or bright colours are used to achieve satisfactory results.

3.3 EXTERIOR SURFACES

.1 Paint exterior surfaces in accordance with the MPI Manual painting systems listed in this section.

.2 Galvanized Metal (doors, frames, railings, misc. steel, pipes, overhead decking, ducts, gutters, flashing, etcetera):

.1 EXT 5.3D: Wash primer/2 component aliphatic polyurethane G5 finish.

.3 Dimension Lumber (columns, beams, exposed joists, underside of decking, siding, fencing, etcetera)

.1 EXT 6.2E: Varnish (over stain) finish.

3.4 INTERIOR SURFACES

.1 Paint interior surfaces in accordance with the MPI Manual painting systems listed in this section.

.2 Concrete Vertical Surfaces (including walls):

.1 INT 3.1A: Latex G3 finish.

.3 Concrete Masonry Units (smooth and split face block and brick):

.1 INT 4.2A: Latex G3 finish.

.4 Structural Steel and Metal Fabrications:

.1 INT 5.1C: Waterborne dry fall finish.

.5 Galvanized Metal (doors, frames, railings, misc. steel, pipes, overhead decking, ducts, etcetera):

.1 INT 5.3J: Waterborne Primer / Latex G5 finish.

.6 Dressed Lumber (including doors, door and window frames, casings, mouldings, etcetera):

.1 INT 6.3D: Semi-transparent stain / alkyd varnish G5 finish.

.7 Plaster and Gypsum Board (gypsum board, drywall, and other sheet gypsum materials):

.1 INT 9.2A: Latex (over latex sealer) G3 finish.

.8 Canvas and Cotton Coverings:

.1 INT 10.1A: Latex G1 finish.

3.5 MECHANICAL AND ELECTRICAL EQUIPMENT

.1 Paint “unfinished” conduits, piping, hangers, ductwork and other mechanical and electrical equipment with colour and texture to match adjacent surfaces, in the following areas:

.1 In exposed-to-view exterior and interior areas.

.2 In interior high humidity interior areas.

.3 In boiler room, mechanical and electrical rooms.

.2 Leave conduits, piping, hangers, ductwork and other mechanical and electrical equipment in original finish and touch up scratches and marks in unfinished areas.

.3 Paint inside of ductwork where visible behind louvers, grilles and diffusers beyond sight line with primer and one coat of matt black (non-reflecting) paint.

.4 Paint the inside of light valances gloss white.

.5 Refer to Mechanical and Electrical specifications for painting, banding, stencilling of other surfaces/equipment, and generally as follows:

.1 Paint gas piping gas standard yellow where visible in service spaces.

.2 Paint both sides and all edges of plywood backboards for equipment before installation.

.3 Leave equipment in original finish except for touch-up as required, and paint conduits, mounting accessories and other unfinished items.

.4 Do not paint over nameplates.

3.6 SITE QUALITY CONTROL

.1 Painted surfaces will be considered to lack uniformity and soundness if any of the following defects are apparent at time of field review when viewed from a distance of 4’ from the painted surface:

.1 Runs, sags, hiding or shadowing by inefficient application methods

.2 Evidence of poor coverage at rivet heads, plate edges, lap joints, crevices, pockets, corners and re-entrant angles

.2 Painted surfaces will be considered as deficient if any of the following defects are apparent at time of field review, regardless of viewing distance.

.1 Damage due to touching before paint is sufficiently dry or any other contributory cause.

.2 Damage due to application on moist surfaces or caused by inadequate protection from the weather.

.3 Damage or contamination of paint due to windblown contaminants (dust, sand blast materials, salt spray, etcetera)

.3 Painted surfaces found as unacceptable shall be replaced or repaired at no cost to the Owner or Consultant:

.1 Small affected areas may be touched up

.2 Large affected areas or areas without sufficient dry film thickness of paint shall be repainted.

.3 Runs, sags or damaged paint shall be removed by scraper or by sanding before application of new paint coats.

3.7 PROTECTION

.1 Protect newly painted exterior surfaces from rain and snow, condensation, contamination, dust, salt spray and freezing temperatures until paint coatings are completely dry.

.2 Curing periods shall exceed the manufacturers recommended minimum time requirements.

.3 Erect barriers or screens and post signs to warn of or limit or direct traffic away or around work area as required.

3.8 CLEANUP

.1 Remove all paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.

.2 Keep work area free from an unnecessary accumulation of tools, equipment, surplus materials and debris.

.3 Remove combustible rubbish materials and empty paint cans each day and safely dispose of it in accordance with requirements of authorities having jurisdiction.

.4 Clean equipment and dispose of wash water or solvents, and other cleaning and protective materials (rags, drop cloths, masking papers, etcetera), paints, thinners, paint removers and strippers in accordance with the safety requirements of authorities having jurisdiction.

END OF SECTION

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies door/door frame protectors.

1.2 RELATED DOCUMENTS

.1 Related documents, drawings, and general provisions of contract, including General and Supplementary Conditions and Division 1 specification sections apply to this section.

1.3 RELATED SECTIONS

.1 Section 08 71 00, DOOR HARDWARE: Armor plates and kick plates not specified in this section.

.2 Refer to drawings for colour and texture of aluminum and resilient material.

1.4 QUALITY ASSURANCE

.1 Manufacturer’s Qualifications: Manufacturer with a minimum of three (3) years’ experience in providing items of type specified.

.2 Obtain wall and door protection from single manufacturer.

.3 Installer’s Qualifications: Installers are to have a minimum of three (3) years’ experience in the installation of units required for this project.

1.5 SUBMITTALS

.1 Submit in accordance with Division 1, General Requirements.

.2 Shop Drawings: show design and installation details.

.3 Manufacturer's Literature and Data:

1. Door/Door Frame Protectors.

.4 Test Report: Showing that resilient material complies with specified fire and safety code requirements.

.5 Manufacturer’s qualifications.

.6 Installer’s qualifications.

.7 Manufacturer’s warranty.

1.6 DELIVERY AND STORAGE

.1 Deliver materials to the site in original sealed packages or containers marked with the name and brand, or trademark of the manufacturer.

.2 Protect from damage from handling and construction operations before, during and after installation.

.3 Store in a dry environment of approximately 21 degrees C (70 degrees F) for at least 48 hours prior to installation.

1.7 WARRANTY

.1 All items, except as noted below, shall be warranted in writing by the manufacturer against failure due to defective materials and workmanship for a minimum period of one (1) year commencing on the date of final completion and acceptance. In the event of product failure, promptly repair or replace item with no additional cost to the owner.

1. Door/Door Frame Protectors – Five (5) years

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Resilient Material:

.1 Provide resilient material consisting of high impact resistant extruded acrylic vinyl, polyvinyl chloride, or injection molded thermal plastic conforming to the following:

.1 Minimum impact resistance of 960.8 N-m/m (18 feet-pounds/square inch) when tested in accordance with ASTM D256 (Izod impact, feet-pounds per inch notched).

.2 Class 1 fire rating when tested in accordance with ASTM E84, having a maximum flame spread of 25 and a smoke developed rating of 450 or less.

.3 Rated self-extinguishing when tested in accordance with ASTM D635.

.4 Provide material labeled and tested by Underwriters Laboratories or other approved independent testing laboratory.

.5 Provide resilient material for protection on fire rated doors and frames assemblies that is listed by the testing laboratory performing the tests.

.6 Provide resilient material installed on fire rated wood/steel door and frame assemblies that have been tested on similar type assemblies. Test results of material tested on any other combination of door and frame assembly are not acceptable.

.7 Provide integral color with colored components matched in accordance with SAE J 1545 to within plus or minus 1.0 on the CIE-LCH scales.

2.2 DOOR AND DOOR FRAME PROTECTION

.1 Fabricate door and door frame protection items from vinyl acrylic or polyvinyl chloride resilient material, minimum 19 mm thick, for doors or as otherwise required to maintain the necessary minimum clear width. Panel configuration to match existing. Submit shop drawings showing proposed configuration.
.2 Provide adhesive or mechanical fasteners as recommended by resilient material manufacturer.

2.3 FASTENERS AND ANCHORS

.1 Provide fasteners and anchors as required for each specific type of installation.
.2 Where type, size, spacing or method of fastening is not shown or specified in construction documents, submit shop drawings showing proposed installation details.

2.4 FINISH

.1 Resilient Material: Embossed textures and color in accordance with SAE J1545.

PART 3 - INSTALLATION

3.1 DOOR, DOOR FRAME PROTECTION AND HIGH IMPACT WALL COVERING

.1 Surfaces to receive protection to be clean, smooth and free of obstructions.
.2 Install protectors after frames are in place but preceding installation of doors in accordance with approved shop drawings and manufacturer’s specific instructions.
.3 Apply with adhesive in controlled environment according to manufacturer’s recommendations.
.4 Protection installed on fire rated doors and frames to be installed according to NFPA 80 and installation procedures listed in ULC Building Materials Directory; or, equal listing by other approved independent testing laboratory establishing the procedures.

END OF SECTION