

Part 1 General

1.1 RELATED DOCUMENTS

- .1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY OF WORK

- .1 Work Included: The work of this Section includes the provision of all labour, materials, equipment and services required to fabricate and install all-glass entrances and all-glass partitions, as indicated on the drawings, as specified herein and as required for a complete project.
- .2 Related Sections:
 - .1 Section 05 50 00 - Metal Fabrications.
 - .2 Section 07 92 00 - Joint Sealants.
 - .3 Section 08 71 10 - Door Hardware.
 - .4 Section 08 80 00 - Glazing.
 - .5 Section 08 87 53 - Security Films.
 - .6 Section 09 21 16 - Gypsum Board Assemblies.
 - .7 Section 09 22 16 - Non-Structural Steel Stud Systems.

1.3 REFERENCES

- .1 Aluminum Association (AA):
 - .1 AA-DAF-45-2003(2009), Designation System for Aluminum Finishes.
- .2 American Society for Testing and Materials (ASTM):
 - .1 ASTM A276/A276M-17, Standard Specification for Stainless Steel Bars and Shapes.
 - .2 ASTM A666-15, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - .3 ASTM B221-14, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
 - .4 ASTM C864-05(2015), Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks and Spacers.
 - .5 ASTM C1036-16, Standard Specification for Flat Glass.
 - .6 ASTM C1048-12e1, Standard Specification for Heat-Treated Flat Glass - Kind HS, Kind Uncoated Glass.
 - .7 ASTM C1115-17, Standard Specification for Dense Elastomeric Silicone Rubber Gaskets and Accessories.
 - .8 ASTM C1172-14, Standard Specification for Laminated Architectural Flat Glass.
- .3 Builders Hardware Manufacturers Association (BHMA):
 - .1 ANSI/BHMA A156.1-2016, Butts and Hinges.
 - .2 ANSI/BHMA A156.6-2015, Architectural Door Trim.
- .4 Canadian General Standards Board (CGSB):
 - .1 CAN/CGSB-12.1-M17, Safety Glazing.

- .2 CAN/CGSB-12.20-M89, Structural Design of Glass for Buildings.
- .5 Canadian Standards Association (CSA):
 - .1 CSA-S16-14, Design of Steel Structures.
 - .2 CSA-W47.1-09(R2014), Certification of Companies for Fusion Welding of Steel.
 - .3 CSA-W55.3-08(R2013), Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.
 - .4 CSA-W59-13, Welded Steel Construction (Metal Arc Welding).

1.4 DESIGN / PERFORMANCE REQUIREMENTS

- .1 Design Requirements: Design glass partition system to withstand live loads in accordance with OBC requirements maximum L/120 deflection, calculated in accordance with CAN/CGSB-12.20.
- .2 Regulatory Requirements: Provide tempered or laminated safety glass to CAN/CGSB-12.1 for locations subject to human impact as required by OBC and as recommended by the manufacturer for in-service conditions.
- .3 Comply with requirements of jurisdictional authorities and OBC.
- .4 Where second floor partitions function as a guard, design and install the assembly to withstand the OBC loading requirements for guards.
 - .1 Use laminated glass of the appropriate thickness for these locations.
- .5 Design the system to receive, accommodate and interface with the work of other sections as indicated or required.
- .6 Design connections for the work of this section to the building structure and to adjacent construction to suit site conditions.
- .7 Design tempered glass doors and side lights and their connections to the building structure and adjacent construction to ensure no possibility of weakening loosening or fracturing occurring due to vibrations from any source.
- .8 Do welding work in accordance with CSA-W59 unless specified otherwise.
- .9 Weld structural components in steel, to conform to the requirements of CSA-W59 and by a fabricator fully certified by the Canadian Welding bureau to the conditions of CSA-W47.1 and W55.3 as applicable.
- .10 Design the assembly and its attachments to the structure in accordance with CAN/CSA-S16.

1.5 SUBMITTALS

- .1 General: Submit each item in this Article according to the Conditions of the Contract and the applicable Division 01 Specification Sections.

- .2 Product Data: Manufacturer's data sheets on each product to be used, including:
 - .1 Preparation instructions and recommendations.
 - .2 Storage and handling requirements and recommendations.
 - .3 Installation instructions.
- .3 Shop Drawings:
 - .1 Include plans, elevations, and details showing type and thickness of metal and glass, glazing, anchoring, and joining, hardware, trim, and accessories.
 - .2 All-glass entrance and partition assemblies, including all related connections and fastenings, shall be designed by a structural engineer licensed to practise in the Province of Ontario. Each shop drawing submitted shall bear the stamp and signature of the aforesaid structural engineer.
 - .3 Include structural calculations for second floor partitions functioning as a guard, demonstrating compliance with OBC loading requirements.
- .4 Samples:
 - .1 For each finish product specified, submit a mock-up sample, minimum size 300 mm x 300 mm, constructed from actual components and finishes proposed for use in the assembly and including typical conditions and hardware applicable.
 - .2 Submit a sample of each hardware item.
- .5 Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

- .1 Manufacturer Qualifications: The glass partition manufacturer shall have a minimum of five years documented experience in the fabrication of glass partitions of the type required for this project and be capable of providing field service representation during installation.
- .2 Installer Qualifications: The installer shall have a minimum of 5 years documented experience in glass entrance and partition installations similar to those required for this project and shall be certified by the manufacturer as an approved installer.
- .3 If requested by the Consultant, provide evidence of previously completed projects of a similar nature.
- .4 The manufacturer shall provide field review in accordance with Section 01 45 00.

1.7 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver products in original unopened packaging with legible manufacturer's identification.
- .2 Apply temporary protective coating to finished surfaces. Do not use coatings that will become hard to remove or leave a residue. Leave the coating in place until after final cleaning of the building.
- .3 Store and handle materials in strict accordance with the manufacturer's recommendations, in the manufacturer's unopened packaging until ready for installation.

- .4 Store products in a clean, dry area, off ground and in a manner that will protect against mechanical damage and/or deformation.
- .5 Protect materials from damage and exposure to moisture.

1.8 SEQUENCING

- .1 Ensure that locating templates and other information required for the installation of products of this section are furnished to the affected trades in time to prevent delay in construction progress.

1.9 PROJECT CONDITIONS

- .1 Maintain environmental conditions (temperature, humidity, and ventilation) within the limits recommended by the manufacturer for optimum results. Do not install products under environmental conditions outside the manufacturer's absolute limits.
- .2 Field Measurements: Verify opening dimensions of all-glass partitions by field measurements before fabrication and indicate the measurements on the shop drawings. Coordinate the fabrication schedule with construction progress to avoid delaying the work.

1.10 COORDINATION

- .1 Coordinate the work with other trades and the installation of adjacent surfaces to avoid damage to installed materials.
- .2 Coordinate the work with adjacent floor, wall, and ceiling construction to accommodate frame anchorage, track, and concealed hardware.
- .3 Coordinate the work with concrete floors and floor finishes for adequate tolerances and clearances between panels and floor finish.

1.11 WASTE MANAGEMENT AND DISPOSAL

- .1 Cooperate with the Construction Manager's Waste Management Coordinator in the implementation of the Waste Management Plan specified in Section 01 74 21 "Waste Management and Disposal".
- .2 Handle and dispose of waste materials generated by the work of this Section, including packaging materials, in accordance with the Waste Management Plan.

1.12 WARRANTY

- .1 For the work of this Section, the 12-months warranty period prescribed in the General Conditions of the Contract is extended to 10 years.

Part 2 Products

2.1 MANUFACTURERS

- .1 This specification is based on all-glass entrances and partitions by C.R.Laurence Co.
- .2 Subject to compliance with the specification requirements, equivalent products by the following manufacturers are acceptable alternatives:
 - .1 Blumcraft of Pittsburgh
 - .2 C.J.Rush
 - .3 Inkan
 - .4 Surface Solution Industries
- .3 Requests for substitutions will be considered in accordance with the provisions of Section 01 25 00 "Substitution Procedures". Acceptance of alternative products is subject to the approval of the Consultant.
- .4 Except for panic hardware, use products from a single manufacturer for all-glass doors and partitions throughout the project.
- .5 Regardless of the door manufacturer, panic hardware shall be manufactured by Blumcraft. Substitutions for panic hardware will be considered only if they meet or exceed properties of the specified Blumcraft product with respect to quality, appearance and performance.

2.2 SIDELIGHTS

- .1 Full height, relocatable, single dry glazed glass partition as follows:
 - .1 Configuration: Straight wall as indicated on the drawings.
 - .2 Single Glazed with 19 mm clear tempered glass.
 - .3 Head and Sill Channels: Extruded aluminum glazing channels, 2 piece frame with brush seals. All exposed metal to be stainless steel-clad.
 - .1 Provide setting blocks as required.
 - .2 Provide end covers or channel end caps as required.
 - .4 Vertical Wall Trim: Stainless steel channel, 25 mm face size, 2 piece frame with brush seals for glazing joints.
 - .5 Vertical Glass Joints: 8 mm gap, clear silicone structural glazing seal.

2.3 GLASS DOORS

- .1 Frameless surface mounted pivoted glass doors with tempered glass of minimum thickness matching glass partition.
- .2 Hardware
 - .1 Tubular Pull: Stainless steel with a brushed finish, 1219 mm long x 8 mm dia.
 - .2 Pivots: Rail type with ANSI A156.4, Grade 1, compact design floor-concealed door pivot and closer with 90° hold-open check.
 - .1 Adjustable spring power to allow the necessary adjustment.

- .2 Controlled closing with two independent valves.
- .3 Non-handed.
- .4 Brushed stainless steel finish.
- .3 Lock: Top rail lock, thumb turn operation on inside, cylinder on outside (cylinders supplied by Section 08710 "Door Hardware"), solid brass body with steel pin in round bolt with 13 mm vertical throw, brushed stainless steel finish.

2.4 MATERIALS

- .1 Stainless steel:
 - .1 Bars and shapes: To ASTM A276, Type 316.
 - .2 Sheet, strip, plate and flat bar: ASTM A666, Type 304.
- .2 Aluminum Extrusions: To ASTM B221, 6063-T6 alloy and temper.
- .3 Glass: Clear tempered glass: ASTM C 1048, Type 1 transparent flat, Class 1 clear, Quality q3 glazing select, Kind FT fully tempered, low-iron, thickness specified.
- .4 Glazing Gaskets: ASTM C864, neoprene or EPDM, or ASTM C 1115, silicone or thermoplastic polyolefin rubber, moulded or extruded shape to fit glazing channel retaining slot.
- .5 Fasteners: Stainless steel, type and size as recommended by the manufacturer for each specific application.

2.5 FINISHES

- .1 Stainless steel surfaces: No.4 brushed finish.

2.6 FABRICATION

- .1 Verify dimensions on site prior to fabrication.
- .2 Accurately fit and secure joints and intersections.
- .3 Make joints flush and hairline.
- .4 Prepare components to receive anchor devices and hardware, Fabricate anchorage items.
- .5 Arrange fasteners, attachments, and jointing to ensure concealment from view.
- .6 Fabrication tolerances: Achieve the following maximum allowable tolerances for all framing:
 - .1 ± 1.5 mm on length on mullion
 - .2 ± 1.0 mm on length on transoms
 - .3 ± 1.5 mm on straightness of mullions
 - .4 ± 1.0 mm on straightness of transoms
 - .5 $\pm 2^\circ$ accuracy on angles between mullions and transoms
 - .6 ± 1 mm on sides and ± 2 mm on diagonals on vision panel opening

Part 3 Execution

3.1 EXAMINATION

- .1 Examine areas and conditions under which work is to be performed and notify the Consultant in writing of conditions detrimental to the proper and timely completion of the work.
- .2 Take field measurements to verify or supplement dimensions before fabrication. Field so the entrance and partition work will be accurately designed, fabricated and fitted to adjacent construction. Indicate measurements on shop drawings. Coordinate the fabrication schedule with construction progress to avoid delaying the Work.
- .3 Verify wall openings are ready to receive work of this section.
- .4 Verify concealed overhead structural supports are sized and located properly.
- .5 Do not proceed with the work until unsatisfactory conditions have been corrected to the satisfaction of the installer.
- .6 Commencement of the installation will be construed as acceptance of the site conditions and, thereafter, the Trade Contractor shall be fully responsible for satisfactory work as specified herein.

3.2 PREPARATION

- .1 Clean surfaces thoroughly prior to installation.
- .2 Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- .1 Install in accordance with manufacturer's instructions and reviewed and accepted shop drawings.
- .2 Use anchorage devices to securely attach assembly to structure.
- .3 Install components plumb and level, in proper plane, free from warp and twist.
- .4 Install glass and accessories in accordance with GANA Glazing Manual.
- .5 Installation Tolerances: Fabricate and install the entrances and partitions to accommodate dimensional tolerances of the building and surrounding construction while providing following installed tolerances:
 - .1 Maximum variation from plumb or level: 3 mm in 300 mm or 6 mm in any 3 m in any overall run, whichever is less.
 - .2 Maximum misalignment of members abutting end to end: 1.5 mm.
 - .3 Maximum variation from maximum warp, twist, buckling or telegraphing: 3 mm within a single glass light enclosure.

- .4 Alignment of abutted, but visually separated surfaces: 3.2 mm.
- .5 Alignment of other abutted surfaces: 1.6 mm.
- .6 Perimeter joint width:
 - .1 -0"; +3.2 mm in 3.05 m
 - .2 -0"; +12.8 mm in 12.2 m.
- .7 Joint width variation: 1.6 mm in 3.05 m; uniformly distributed.
- .8 Visible offset at splices and joinery: 0.8 mm.
- .9 Visible misalignment of two straight elements at splices and joinery: 0.1° per every 1 m of longest adjacent straight element, not more than 0.25° total.

3.4 ADJUSTING

- .1 Adjust doors for smooth operation throughout full operating range.

3.5 PROTECTION

- .1 Protect installed products until completion of project.
- .2 Touch-up, repair or replace damaged products to the satisfaction of the Consultant before Substantial Performance.

3.6 CLEANING

- .1 After installation and adjusting, clean metal and glass surfaces to remove dust, loose fibres, fingerprints, adhesives, and other foreign materials.
- .2 Remove from the premises all surplus material, dirt and debris caused by the work of this section and leave the installation clean.
- .3 Make good any damage caused by the work of this Section.

END OF SECTION