

Fire Rated Glazed Framing and Door System

Section revised and reissued by Addendum 03

## PART 1 - GENERAL

### 1.1 Summary

- .1 Section includes:
  - .1 Fire rated glazed framing and door system.

### 1.2 Administrative Requirements

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

### 1.3 Submittals

- .1 Submit required submittals in accordance with Section 01 33 00.
- .2 *Product* data sheets:
  - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this section.
- .3 Shop drawings:
  - .1 Indicate seismic design, connections and restraint.
  - .2 Include details of each door and frame type, finish hardware types and locations, frame profiles, door and frame elevations, mitre details, glazing preparation details and anchor details, and locations.
  - .3 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and in door schedule.
  - .4 Indicate impact-safety ratings for each glass type for design and performance requirements.
- .4 Samples:
  - .1 Glass samples:
    - .1 Submit samples of each type of glass and glazing, fully assembled, 305 mm x 305 mm (12" x 12") in size, indicative in respects of required characteristics for each type of glazing system required in the *Work*.
  - .2 Samples:
    - .1 Submit 305 mm (12") square samples of aluminum having specified finish.
- .5 Test and evaluation reports:
  - .1 Submit certificates of compliance from glass and glazing materials manufacturers attesting that glass and glazing materials to be provided in the *Work* comply with the design and performance requirements given in the *Contract Documents*.
  - .2 Certificate shall include verification of testing by an independent testing laboratory acceptable to authorities having jurisdiction.

Fire Rated Glazed Framing and Door System

Section revised and reissued by Addendum 03

- .3 At the discretion of the *Consultant* and authorities having jurisdiction, separate certification may not be required for glazing materials bearing manufacturer's permanent label designating type and thickness of glass, provided such labels represent that the manufacturer has in place a quality control program involving a recognized certification agency or independent testing laboratory acceptable to authorities having jurisdiction.

#### 1.4 Closeout Submittals

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

#### 1.5 Quality Assurance

- .1 Manufacturers:
  - .1 Company specializing in performing the work of this section with minimum 10 years documented experience including successful completion of work of similar size and character.
- .2 Installer / applicators / erectors:
  - .1 Company authorized by the manufacturer for the installation of their systems. Submit a letter signed by representative of fire rated glazed steel doors and frames system manufacturer with company's authorization stating that installer is acceptable and qualified to install system.
  - .2 Foreperson experience: Minimum 10 years experience as glazing mechanic.
  - .3 Typical glazing mechanic experience: Minimum 3 years experience as glazers.

#### 1.6 Delivery, Storage, and Handling

- .1 Store parts in a dry place and permit natural ventilation over their finished surfaces.
- .2 Store materials in locations protected from damage by other trades.
- .3 Under conditions of high humidity or cold temperatures, supply heating or forced air ventilation to prevent accumulation of surface moisture.
- .4 Mark components to show location on building and on drawings.
- .5 Protect finishes with strippable coating that will not mar, nor deface finish on removal, or a similar method designed to afford an equivalent amount of protection. Leave protected coating intact until damage risk is past or immediately prior to final cleaning.
- .6 Stacking should be done to prevent bending pressure or abrasion of finished surfaces.

#### 1.7 Extended Warranty

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

Fire Rated Glazed Framing and Door System

Section revised and reissued by Addendum 03

- .1 Labour, materials, and workmanship for work of this section.
- .2 The warranty is a total system warranty, and includes hardware, sealants, hanging and fitting, and finishing.
- .3 Duration: 2 years.

## PART 2 - PRODUCTS

### 2.1 Manufacturer

- .1 Manufacturers shall develop materials and *Products* of this and related sections to achieve design intent as indicated and specified. The *Contract Documents* are based on the following systems:
  - .1 Frame and door system: Safti-First 'GPX Architectural Series'.

### 2.2 Performance/Design Requirements

- .1 Fire resistance rated frames: tested to CAN/ULC S101-14 and listed by a nationally recognized agency having a factory inspection service and shall be constructed as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.
- .2 Fire resistance rated framing assemblies:
  - .1 Assemblies shall comply with NFPA 80-2013 and be listed and labelled for fire rating indicated, based on testing in accordance with NFPA 257-2012.
  - .2 Assemblies shall be factory-welded or come complete with factory-installed mechanical joints and shall not require fabrication at the *Place of the Work*.
- .3 Fire resistance rating:
  - .1 Design fire rated steel framed glazing system to provide fire resistance ratings of:
    - .1 60 minutes.
    - .2 90 minutes.
    - .3 120 minutes.
- .4 Regulatory requirements:
  - .1 Fire rated glass:
    - .1 Each lite shall bear permanent, non-removable label by accredited and recognized independent testing agency certifying it for use in tested and rated fire protective assemblies.

### 2.3 Materials

- .1 Framing:
  - .1 Framing system with aluminum cladding and internal steel tube framing.
  - .2 Internal tube steel framing to ASTM A501/A501M-14.
  - .3 Profile: as indicated.

Fire Rated Glazed Framing and Door System

Section revised and reissued by Addendum 03

.2 Glass:

.1 Fire rated, impact safety resistant, heat barrier glass (non-wired) (~~RGL1~~, and ~~RGL2~~, and RL3):

.1 Glass with intumescent interlayer:

.2 Fire-rated and impact safety-rated, clear, high visible light transmission glass laminated with an intumescent interlayer, and listed for use in doors, sidelites, transoms, borrowed lites, and wall applications in both interior and exterior applications, and functioning as a barrier to both radiant and conductive heat.

.3 Impact Safety Resistance: ANSI Z97.1-2010 and CPSC 16 CFR 1201.

.4 Acceptable *Products*:

.1 ~~RGL1~~: Safti First 'SuperLite II-XL ~~90~~120'.

.2 ~~RGL2~~: Safti First 'SuperLite II-XL ~~120~~90'.

.3 RL3: Safti First 'SuperLite II-XL 60'.

~~.3,4~~ Substitutions: in accordance with Section 01 25 00.

.3 Glazing accessories:

.1 Glazing tape:

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

.2 Silicone Sealant: One-part neutral curing silicone, medium modulus sealant, to ASTM C920-14, Type S; Grade NS; Class 25 with additional movement capability of 50 percent in both extension and compression (total 100 percent); Use (Exposure) NT; Uses (Substrates) G, A, and O as applicable, gray colour.  
Acceptable *Products*:

.1 Dow Corning 795 - Dow Corning Corp.

.2 Silglaze-II 2800 - GE Silicones.

.3 Spectrem 2 - Tremco Inc.

.3 Setting blocks: hardwood or calcium silicate setting blocks.

.4 Cleaners, primers, and sealers: Type recommended by manufacturer of glass and gaskets.

.4 Door hardware: Manufacturer's standard recommended and approved hardware groups in accordance with Section 08 71 00.

## 2.4 Finishes

.1 Frames and doors:

.1 Apply manufacturer's standard powder coating finish system applied to factory assembled frames prior to shipping, complying with manufacturer's requirements for surface preparation including pre-treatment, application, and minimum dry film thickness.

.2 Colour: to later selection by *Consultant* from manufacturer's full range.

Fire Rated Glazed Framing and Door System

Section revised and reissued by Addendum 03

- .2 Finish steel clips and reinforcing steel with 380 g/m<sup>2</sup> zinc coating to CAN/CSA G164-M92.

## 2.5 Fabrication

- .1 Fabricate frames and doors to the design and dimensions indicated. Take field measurements where coordination with adjoining work is necessary.
- .2 Fabricate to be rigid, neat in appearance and free from defects, warp, wave or buckle with all corners square unless otherwise indicated.
- .3 Countersink exposed fasteners unless otherwise shown. Use flat or oval head screws.
- .4 Allow for anticipated expansion and contraction of frames and supports.
- .5 Fit elements at intersections and joints accurately together, in true planes, and plumb and level.
- .6 Touch up finish damaged during fabrication.
- .7 Attach labels to frames to suit required fire-protection and temperature rise ratings.

## PART 3 - EXECUTION

### 3.1 Examination

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

### 3.2 Installation

- .1 Provide frames plumb, square, aligned, without twist at correct elevation, and in accordance with NFPA 80-2013.
- .2 Frame product installation tolerances:
  - .1 Plumbness tolerance, measured through a line from the intersecting corner of vertical members and the head to the floor, shall be  $\pm 1.6 \text{ mm}$  ( $\pm 0.063$ ").
  - .2 Squareness tolerance, measured through a line 90° from one jamb at the upper corner of the product, to the opposite jamb, shall be  $\pm 1.6 \text{ mm}$  ( $\pm 0.063$ ").
  - .3 Alignment tolerance, measured on jambs, through a horizontal line parallel to the plane of the wall, shall be  $\pm 1.6 \text{ mm}$  ( $\pm 0.063$ ").
  - .4 Twist tolerance, measured at face corners of jambs, on parallel lines perpendicular to the plane of the wall, shall be  $\pm 1.6 \text{ mm}$  ( $\pm 0.063$ ").
- .3 Brace frame product rigidly in position while building-in. Remove temporary steel shipping jamb spreaders. Install wood spreaders at mid-point of frame rabbet height to maintain frame widths.
- .4 Provide vertical support at center of head for openings exceeding 1250 mm (48") in width.
- .5 Remove wood spreaders after product has been built-in.
- .6 Secure anchorages and connections to adjacent construction.

Fire Rated Glazed Framing and Door System

Section revised and reissued by Addendum 03

- .7 Frame product in unit masonry shall be fully grouted in place.
- .8 Install finishing hardware in accordance with ANSI A115.1G-1994, manufacturers' templates and instructions, and Section 08 71 00.
  - .1 Coordinate installation of doors and frames with installation of hardware specified in Section 08 71 00.
  - .2 Adjust operable parts for correct clearances and function.
- .9 Install door silencers.
- .10 Surfaces shall be kept free of grout, tar or other bonding materials or sealers.
- .11 Remove grout or other bonding material from products immediately following installation.
- .12 Provide appropriate anchorage for floor and wall construction.
- .13 Install glazing materials.
- .14 Touch-up exposed field welds shall be finished to present a smooth uniform surface and with a rust inhibitive primer.
- .15 Touch-up exposed surfaces that have been scratched or otherwise marred during shipment, installation, and handling shall be with a rust inhibitive primer.
- .16 Adequately fasten units and secure in place with concealed fixings wherever possible. Include grounds and furring where required.
- .17 Make allowance for deflection to ensure structural loads are not transmitted to frames.

**3.3 Glass and Glazing**

- .1 Install fire rated glazing in accordance with fire rated glazing material manufacturer's specifications.
- .2 Install glass for work of this section to requirements herein and in accordance with Section 08 80 00, and assume total responsibility for sizing, design and other aspects of glass work and accessories.

**3.4 Installation - Sealant**

- .1 Provide sealants associated with this section, following the requirements of Section 07 92 00.

**3.5 Finishing Hardware - Installation**

- .1 Install finishing hardware in accordance with Section 08 71 00.

**3.6 Adjusting and Cleaning**

- .1 Adjust doors to swing freely, smoothly, and easily, to remain stationary at any point, to close evenly and tightly against stops without binding, and to latch positively when doors are closed with moderate force.
- .2 Adjust hardware so that latches and locks operate smoothly and without binding, and closers act positively with the least possible resistance in use. Lubricate hardware if required by *Supplier's* requirements.

Fire Rated Glazed Framing and Door System

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Section revised and reissued by Addendum 03

- .3 Adjust doors equipped with closers to close doors firmly against anticipated wind and building air pressure, and to enable doors to be readily opened as suitable for function, location, and traffic.
- .4 Clean hardware after installation in accordance with *Supplier's* requirements.

**END OF SECTION**