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| Version | Date | Description of Revisions |
| 1 | August 30, 2006 | Approved final document. |
| 2 | November 13, 2009 | Modified ‘Related Section’ |
| 3 | June 13, 2012 | Addition of References and Replacement Parts sections on this page |
| 4 | July 9, 2012 | Reformatted to Reduce White Space |
| 5 | April 23, 2015 | General Formatting |
| 6 | September 16, 2015 | First review Phase 1 update (AV) |
| **7** | **December 14, 2015** | **Updated, Finalized Specification – Legal Reference eDOCS #6295421 v4 (AV)** |

NOTE:

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

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**The on-line copy is the current version of the document.**

# GENERAl

## Related Sections

### *[Under "Related Sections", identify other Sections that are related to, and/or dependent on, the work results or information specified elsewhere. The list should be limited to Sections with specific information that the reader might expect to find in this Section, but is specified elsewhere. For example, if hardware for aluminum entrances is specified in the aluminum entrance Section, a cross-reference would be appropriate in the finish hardware Section. The purpose of this cross-referencing is for information only, to aid in finding those other requirements—not to define the scope of the Section.*

### *Cross-referencing here may also be used to coordinate assemblies or systems whose components may span multiple Sections and which must meet certain performance requirements as an assembly or system.*

### *Contractor is responsible for coordination of the Work.*

### *This Section is to be completed/updated during the design development by the Consultant. If it is not applicable to the section for the specific project it may be deleted.]*

### *[List Sections specifying installation of products supplied but not installed under this Section and indicate specific items.]*

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: Execution requirements for ...[item]... specified under this Section.

### [List Sections specifying products installed but not supplied under this Section and indicate specific items.]

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: Product requirements for ...[item]... for installation under this Section.

### [List Sections specifying related requirements.]

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: [Optional short phrase indicating relationship].

#### Section 01300 – Submittals

#### Section 08410 – Aluminum Doors and Frames

#### Section 08520 – Windows

## References

### Comply with the latest edition of the following statutes, codes, standards, and all amendments thereto:

#### American National Standards Institute (ANSI).

##### ANSI/ASTM E330/E330M-14, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

#### American Society for Testing and Materials International, (ASTM).

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

##### ASTM D790-10, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

##### ASTM D1003-13, Standard Test Method for Haze and Luminous Transmittance of Plastics.

##### ASTM D1929-14, Standard Test Method for Determining Ignition Temperature of Plastics.

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

##### ASTM E84-15a, Standard Test Method for Surface Burning Characteristics of Building Materials.

##### ASTM F1233-08(2013), Standard Test Method for Security Glazing Materials and Systems.

#### Canadian General Standards Board (CGSB).

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

##### CAN/CGSB-12.2-M91, Flat, Clear Sheet Glass.

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

##### CAN/CGSB-12.4-M91, Heat Absorbing Glass

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

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

##### CAN/CGSB-12.10-M76, Glass, Light and Heat Reflecting.

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

##### CAN/CGSB-12.12-M90, Plastic Safety Glazing Sheets.

#### Canadian Standards Association (CSA International).

##### CAN/CSA A440.2-14/A440.3-14, Fenestration Energy Performance / User Guide to CSA A440.2-14, Fenestration Energy Performance.

##### CSA Certification Program for Windows and Doors.

#### Flat Glass Manufacturers Association (FGMA).

##### FGMA Glazing Manual.

#### Laminators Safety Glass Association (LSGA).

##### LSGA Laminated Glass Design Guide. *[Consultant to confirm this cross-reference and amend as required]*

## System Description

### Performance Requirements:

#### Provide continuity of building enclosure vapour and air barrier using glass and glazing materials as follows:

##### Utilize inner light of multiple light sealed units for continuity of air and vapour seal.

#### Size glass to withstand wind loads, dead loads and positive and negative live loads [acting normal to plane of glass to a design pressure of [\_\_\_] kPa] [as measured in accordance with ANSI/ASTM E330/E330M-14].

#### Limit glass deflection to [1/200] [flexural limit of glass] with full recovery of glazing materials.

## Submittals

### Product Data:

#### Submit the manufacturer's printed product literature, specifications and data sheet in accordance with Section 01300 - Submittals.

#### Submit [two] copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01300 – Submittals.

#### Indicate VOC's that may be part of the Product in a separate document and submit to the Consultant.

### Shop Drawings:

#### Submit shop drawings in accordance with Section 01300 - Submittals.

### Samples:

#### Submit samples in accordance with Section 01300 - Submittals.

### Manufacturer's Instructions:

#### Submit the manufacturer's installation instructions.

## Quality Assurance

### Certificates: product certificates signed by the manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

## Site Conditions

### Environmental Requirements:

#### Install glazing when ambient temperature is [10] degrees C minimum. Maintain ventilated environment for 24 hours after application.

#### Maintain minimum ambient temperature before, during and [24] hours after installation of glazing compounds.

## Measurement and Payment

*[Choose one of the following payment language provisions that best suits the individual project.*

*If this Section is not specifically referenced by an item in the Bid Form, please use the following language:*

.1 The work of this Section will not be measured separately for payment. All costs associated with the work of this Section shall be included in the Contract Price.

*OR If this Section is specifically referenced in the Bid Form, use the following language and identify the relevant item in the Bid Form:*

.2 All costs associated with the work of this Section shall be included in the price(s) for Item No(s). XXX in the Bid Form.

*If the work of this Section is to be measured and paid for by several different methods, please amend the standard wording given above to reflect the different methods of measurement and payment.]*

# PRODUCTS

## Materials: Flat Glass

### Float glass: to CAN/CGSB-12.3-M91, [Silvering] [Mirror glazing (selected)] [Glazing] quality, [\_\_\_] mm thick.

### Sheet glass: to CAN/CGSB-12.2-M91, [AA-Special selected], [\_\_\_] mm thick.

### Safety glass: to CAN/CGSB-12.1-M90, [transparent] [translucent] [coloured], [\_\_\_] mm thick.

#### Type [1-laminated] [2-tempered].

#### Class [B-float] [\_\_\_].

#### Category [1] [11].

#### [Edge treatment] [\_\_\_].

### Silvered mirror glass: to *[Consultant to obtain alternate standard to replace withdrawn CAN/CGSB 12.5-M86]*, [\_\_\_] mm thick.

#### Type [1A-Float glass for normal use] [1B-Float glass for high humidity use] [2-Sheet glass] [3A-Tempered] [3B-Laminated] [3C- Film reinforced].

### Spandrel glass: to CAN/CGSB-12.9-M91, [\_\_\_] colour, [\_\_\_] mm thick.

#### Type [1-Tempered] [2-Heat strengthened].

#### Class [A-Float] [B-Sheet] [C-Rolled glass with rough surface finish].

#### Style [1-Ceramic] [2-Reflective] [3-Organic] coated.

#### Form [M-Monolithic] [I-Insulating glass unit] [L-Laminated].

### Reflective glass: to CAN/CGSB-12.10-M76, [\_\_\_] colour, [\_\_\_] mm thick.

#### Type [1-monolithic] [2-sealed double glazing unit] [3-laminated].

#### Class [A-annealed] [B-heat strengthened] [C-tempered].

#### Style [1-high] [2-medium] [3-low] light transmittance.

#### Grade [A-low] [B-medium ] [C-high] shading co-efficient.

#### Level [1-low] [2-high] thermal transmittance.

### Wired glass: to CAN/CGSB-12.11-M90, [\_\_\_] mm thick.

#### Wire mesh styles [1-Diamond] [2-Hexagonal] [3-Square] [4-Rectangular].

### Polycarbonate security glazing:

#### [Single [\_\_\_] mm thick] [Laminated, each lamination [\_\_\_] mm thick separated by [plastic film], [\_\_\_] mm overall thickness] polycarbonate sheet, [clear] [prismatic], [\_\_\_] [bronze] [grey] colour.

#### Ballistic performance: to ASTM F1233-08(2013).

#### Flexural strength: to ASTM D790-10.

#### Light transmittance: [\_\_\_] to ASTM D1003-13.

#### Surface burning characteristics for flame and smoke spread: to ASTM E84-15a.

#### Self ignition characteristics: to ASTM D1929-14.

### Low emissivity (LOW E) glass, [\_\_\_] mm thick.

#### Metallic coating: [soft, sputtered] [hard, pyrolitic].

#### Light transmittance: [\_\_\_].

#### Shading co-efficient: [\_\_\_].

#### U-Value: winter [\_\_\_] maximum, summer [\_\_\_] maximum.

## Materials: Sealed Insulating Glass

### Insulating glass units: to CAN/CGSB-12.8, [double] [triple] unit, [\_\_\_] mm overall thickness.

#### Glass: to [CAN/CGSB-12.3-M91] [CAN/CGSB-12.1-M90] [CAN/CGSB-12.2-M91] [CAN/CGSB-12.4-M91] [CAN/CGSB-12.10-M76].

#### Glass thickness: [[\_\_\_] mm each light] [[\_\_\_]mm inner light] [[\_\_\_] mm middle light] [[\_\_\_] mm outer light].

#### Inter-cavity space thickness: [[\_\_\_] mm] [[\_\_\_] mm between inner and middle lights] [[\_\_\_] mm between middle and outer lights] [with low conductivity spacers].

#### Glass coating: surface number [\_\_\_], [reflective] [low "E"] [wet chemical deposition] [MSVD] [pyrolitic deposition] [\_\_\_] colour.

#### Inert gas fill: [argon] [krypton].

## Accessories

### Setting blocks: [Neoprene] [EPDM] [Silicone], [80-90] [\_\_\_] Shore A durometer hardness to ASTM D2240-05(2010), [length of 25 mm for each square meter of glazing] [minimum 100 mm x width of glazing rabbet space minus 1.5 mm x height] [to suit glazing method, glass light weight and area].

### Spacer shims: [Neoprene] [Silicone], [50-60] [\_\_\_] Shore A durometer hardness to ASTM D2240-05(2010), 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.

### Glazing tape:

#### Preformed [butyl] [\_\_\_] compound [with integral resilient tube spacing device], [10-15] Shore A durometer hardness to ASTM D2240; coiled on release paper; [\_\_\_] x [\_\_\_] mm size; black colour.

#### Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume [2] [\_\_\_] %, designed for compression of [25] [\_\_\_] %, to effect an air and vapour seal; [\_\_\_] mm size.

### Glazing splines: resilient [polyvinyl chloride] [silicone], extruded shape to suit glazing channel retaining slot, [\_\_\_] colour [as selected] [\_\_\_].

### Glazing clips: Manufacturer's standard type.

### Lock-strip gaskets: to ASTM C542-05(2011).

### Mirror attachment accessories:

#### Stainless steel clips.

#### Plastic rosettes.

#### Mirror adhesive, chemically compatible with mirror coating and wall substrate.

#### Mirror frames: [\_\_\_].

# EXECUTION

## Manufacturer’s Instructions

### Compliance: Comply with the manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

## Examination

### Verify that openings for glazing are correctly sized and within tolerance.

### Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

## Preparation

### Clean contact surfaces with solvent and wipe dry.

### Seal porous glazing channels or recesses with substrate compatible primer or sealer.

### Prime surfaces scheduled to receive sealant.

## Installation: Exterior - Dry Method (Preformed Glazing)

### Perform work in accordance with [FGMA Glazing Manual] [IGMAC] [and] [Laminators Safety Glass Association - Standards Manual] for [glazing installation methods] [\_\_\_].

### Cut glazing [tape] [spline] to length; install on glazing light. Seal corners by butting [tape] [spline] and sealing junctions with sealant.

### Place setting blocks at [1/4] [1/3] points, with edge block maximum [150] [\_\_\_] mm from corners.

### Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.

### Install removable stops without displacing glazing [tape] [spline]. Exert pressure for full continuous contact.

### Trim protruding tape edge.

## Installation: Exterior Wet/Dry Method (Preformed Tape and Sealant)

### Perform work in accordance with [FGMA Glazing Manual] [IGMAC] [and] [Laminators Safety Glass Association - Standards Manual] for [glazing installation methods] [\_\_\_].

### Cut glazing tape to length and set against permanent stops, [6] [\_\_\_] mm below sight line. Seal corners by butting tape and dabbing with sealant.

### Apply heel bead of sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete continuity of air and vapour seal.

### Place setting blocks at [1/4] [1/3] points, with edge block maximum [150] [\_\_\_] mm from corners.

### Rest glazing on setting blocks and push against tape [and heel head of sealant] [\_\_\_] with sufficient pressure to attain full contact at perimeter of light or glass unit.

### [Install removable stops with spacer strips inserted between glazing and applied stops [6] [\_\_\_] mm below sight line]. [Place glazing tape on glazing light or unit with tape [flush with] [16] [\_\_\_] mm below] sight line.

### Fill gap between glazing and stop with sealant to depth equal to bite of frame on glazing, maximum [9] [\_\_\_] mm below sight line.

### Apply cap head of sealant along void between stop and glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

## Installation: Exterior Wet Method (Sealant and Sealant)

### Perform work in accordance with [FGMA Glazing Manual] [IGMAC] [and] [Laminators Safety Glass Association - Standards Manual] for [glazing installation methods] [\_\_\_].

### Place setting blocks at [1/4] [1/3] points and install glazing light or unit.

### Install removable stops with glazing centred in space by inserting spacer shims both sides at [600] [\_\_\_] mm intervals, [6] [\_\_\_] mm below sight line.

### Fill gaps between glazing and stops with sealant to depth of bite on glazing, maximum [9] [\_\_\_] mm below sight line to ensure full contact with glazing and continue air and vapour seal.

### Apply sealant to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

## Installation: Interior Dry Method (Tape and Tape)

### Perform work in accordance with [FGMA Glazing Manual] [IGMAC] [and] [Laminators Safety Glass Association - Standards Manual] for [glazing installation methods] [\_\_\_].

### Cut glazing tape to length and set against permanent stops, projecting 1.6 mm above sight line.

### Place setting blocks at [1/4] [1/3] points, with edge block maximum [150] [\_\_\_] mm from corners.

### Rest glazing on setting blocks and push against tape for full contact at perimeter of light or unit.

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

### Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.

### Knife trim protruding tape.

## Installation: Interior Wet/Dry Method (Tape and Sealant)

### Perform work in accordance with [FGMA Glazing Manual] [IGMAC] [and] [Laminators Safety Glass Association - Standards Manual] for [glazing installation methods] [\_\_\_].

### Cut glazing tape to length and install against permanent stops, projecting 1.6 mm above sight line.

### Place setting blocks at [1/4] [1/3] points, with edge block maximum [150] [\_\_\_] mm from corners.

### Rest glazing on setting blocks and push against tape to ensure full contact at perimeter of light or unit.

### Install removable stops, with spacer shims inserted between glazing and applied stops at [600] [\_\_\_] mm intervals, [6] [\_\_\_] mm below sight line.

### Fill gaps between light and applied stop with sealant to depth equal to bite on glazing, to uniform and level line.

### Trim protruding tape edge.

## Installation: Interior - Wet Method (Compound and Compound)

### Perform work in accordance with [FGMA Glazing Manual] [IGMAC] [and] [Laminators Safety Glass Association - Standards Manual] for [glazing installation methods] [\_\_\_].

### Install glazing resting on setting blocks. Install applied stop and centre light by use of spacer shims at [600] [\_\_\_] mm centres, [6] [\_\_\_] mm below sight line.

### Locate and secure glazing light using [spring wire clips] [glazers' clips].

### Fill gaps between glazing and stops with glazing compound until flush with sight line. Tool surface to straight line.

## Installation: Mirrors

### Set mirrors with adhesive, applied in accordance with adhesive manufacturer's instructions.

### Set mirrors with [clips] [rosettes]. Anchor rigidly to wall construction.

### Set in frame.

### Place plumb and level.

## Installation: Plastic Film

### Install plastic film with adhesive, applied in accordance with the film manufacturer's instructions.

### Place without air bubbles, creases or visible distortion.

### Fit tight to glass perimeter with razor cut edge.

## Cleaning

### Perform cleaning after installation to remove construction and accumulated environmental dirt.

### Remove traces of primer, caulking.

### Remove glazing materials from finish surfaces.

### Remove labels after work is complete.

### Clean glass [and mirrors] [\_\_\_] using approved non-abrasive cleaner in accordance with the manufacturer's instructions.

### Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

## Protection of Finished Work

### After installation, mark light with an "X" by using removable plastic tape or paste. [Do not mark heat absorbing or reflective glass units] [\_\_\_].

## Schedule

### [\_\_\_].

**END OF SECTION**