



## Amendment of Solicitation

Date of Issuance: 1/7/2026

Solicitation No. 3450035790

Requisition No. 26-FM-0014

Amendment No. 4

Hour and date specified for receipt of offers is changed:  No  Yes, to: \_\_\_\_\_ CST

Pursuant to OAC 260:115-7-30(d), this document shall serve as official notice of amendment to the solicitation identified above. Such notice is being provided to all suppliers to which the original solicitation was sent.

Suppliers submitting bids or quotations shall acknowledge receipt of this solicitation amendment prior to the hour and date specified in the solicitation as follows:

Sign and return a copy of this amendment with the solicitation response being submitted; or,

If the supplier has already submitted a response, this acknowledgement must be signed and returned prior to the solicitation deadline. All amendment acknowledgements submitted separately shall have the solicitation number and bid opening date in the subject line of the email.

**ISSUED FROM:**

Heather Osborne  
Contracting Officer

405-420-2293  
Phone Number

[hosborne@odot.org](mailto:hosborne@odot.org)  
E-Mail Address

**RETURN TO:** [odotbids@odot.ok.gov](mailto:odotbids@odot.ok.gov)

**Description of Amendment:**

a. This is to incorporate the following:

Amendment 4 covers:

Questions & Responses - 2<sup>nd</sup> Round  
Addendum 2 (attached)  
Additional Specs (08 4123 & 08 8000)

Interested Contractors should complete Section b and include this form with their responses.

b. All other terms and conditions remain unchanged.

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Supplier Company Name (PRINT)

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Date

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Authorized Representative Name (PRINT) Title

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Authorized Representative Signature

## QUESTIONS AND ANSWERS

Q 1: There is glass calling for fire-rated on the door window schedule, but no fire-rated storefront specs. Please clarify.

**A 1: See Addendum No. 2 for specification.**

Q 2: There are no glazing specs. Please verify the types of glass required.

**A 2: See Addendum No. 2 for specification.**

Q 3: Regarding the sprinkler system, where in the building do the fire risers need to be located?

**A 3: No sprinkler system is expected at the facility. See the Architectural Code Analysis plans for each building for allowable building size calculations.**

Q 4: Where will the supply line for the sprinkler system be located?

**A 4: See A 3.**

Q 5: Drawing C10.9 indicates the water well will produce 25 gpm at approximately 116 psi. This will not be adequate for the fire sprinkler systems. Is a fire pump and a water storage tank to be provided?

**A 5: See A 3.**

Q 6: The letter from CEC in Addendum #3 provides details about the fire sprinkler systems being required in some of the buildings. Salt Shed is on both lists (buildings with fire sprinkler systems and buildings without fire sprinkler systems). Will a fire sprinkler system be required in the salt shed?

**A 6: See A 3.**

Q 7: Will there be heat in the enclosed portions of the equipment sheds (the shop bay and the wash bay), or will the fire sprinkler system be a dry system? Please note that the fire sprinkler risers must be located in heated areas.

**A 7: See A 3.**

Q 8: Will fire protection specs be issued?

**A 8: See A 3.**

Q 9: Has Whirlwind been approved/submitted as a PEMB manufacturer?

**A 9: Approved manufacturers are listed in the specification. Refer to Specification Section 01 600 Product Requirements for substitution requests.**

Q 10: Is non-Kynar paint acceptable?

**A 10: Non-Kynar paint is not acceptable.**

Q 11: Specifications mention a superstructure on an existing slab with anchors. Do you have any additional information on this? Are there drawings available?

**A 11: This question looks to stem from spec section 13 3419.1.01.I on page 209 of the specs. Omit this paragraph.**

Q 12: Will NETA testing be required? If required, specifically what is needed?

**A 12: Testing per NFPA 110 is required for non- critical facilities. This includes, but is not limited to, start time, load testing, and transfer equipment performance (ref: Specification 26 3213).**



ARCHITECTURE

## Addendum No. 2

**Project:** ODOT Bryan County Site Adapt  
**Location:** DURANT, BRYAN COUNTY, OK  
**Date/Time:** 07 JANUARY, 2026  
**From:** Studio Architecture, P.C.  
816 N. Walker Avenue, Suite 100, Oklahoma City, OK 73102  
**To:** Oklahoma Department of Transportation

**This Addendum is hereby made a part of the Contract Documents dated August 8<sup>th</sup>, 2025 on the subject work as though originally included therein. The following amendments, additions, and/or corrections shall govern this work.**

**This Addendum is in three parts as follows:**

**Part 1 – Pertaining to the Project Manual**

**Part 2 – Pertaining to the Drawings**

**Part 3 – Pertaining to Questions Received and Answers Given**

(Verbal responses are not part of this Addendum or the Contract Documents. If responses given in this Addendum do not match your understanding of responses given verbally, notify Studio Architecture promptly.)

### **PART 1 – PROJECT MANUAL**

- 1.1. Add the following Specification:
  - A. 08 4123 Fire Rated Aluminum Framed Storefronts
  - B. 08 8000 Glazing

### **PART 2 – DRAWINGS**

- 2.1. Delete the following Sheets:

- A. None.

- 2.2. Add the following Sheets:

- A. None.

- 2.3. Modify the following Sheets:

- A. None

### **PART 3 – QUESTIONS & ANSWERS**

- 3.1. None.

**SECTION 08 4123**  
**FIRE RATED ALUMINUM FRAMED STOREFRONTS**

**PART 1 - GENERAL**

**1.01 REFERENCE STANDARDS**

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.
- B. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2012.
- C. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2015.
- D. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 2013.
- E. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2013.
- F. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test; 2010.
- G. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2010, with 2013 Supplements and Errata.
- H. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.
- I. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2015.
- J. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.
- K. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.
- L. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014 (Reapproved 2019).
- M. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2011).
- N. ASTM C1115 - Standard Specification for Dense Elastomeric Silicone Rubber Gaskets and Accessories; 2017 (Reapproved 2022).
- O. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2015.
- P. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2012.
- Q. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2009).
- R. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors; 2002 (Reapproved 2010).
- S. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2015.
- T. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.
- U. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2022.

- V. NFPA 257 - Standard on Fire Test for Window and Glass Block Assemblies; 2012.
- W. UL 9 - Standard for Fire Tests of Window Assemblies; Current Edition, Including All Revisions.
- X. UL 10B - Standard for Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
- Y. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
- Z. UL 263 - Standard for Fire Tests of Building Construction and Materials; Current Edition, Including All Revisions.
- AA. UL 752 - Standard for Bullet-Resisting Equipment; Current Edition, Including All Revisions.

## 1.02 SUMMARY

- A. Section includes:
  - 1. Fire rated glazing and framing systems for installation as sidelights, and transoms or wall sections in interior openings
- B. Related Sections:
  - 1. Section 05 12 00 "Structural Steel Framing;" Steel attachment members
  - 2. Section 05 50 00 "Metal Fabrications;" Steel attachment members inserts and anchors
  - 3. Section 07 25 00 "Weather Barriers;" Perimeter air, water and vapor seal between the work of this section and adjacent construction
  - 4. Section 07 62 00 "Sheet Metal Flashing and Trim" Flashing between this work and other work
  - 5. Section 07 84 00 "Firestopping;" Firestops between work of this section and other fire resistive assemblies.
  - 6. Section 07 92 00 – "Joint Sealants" for installation of joint sealants installed with steel fire-rated glazed curtain-wall systems and for sealants to the extent not specified in this Section.
  - 7. Section 08 11 00 – "Metal Doors and Frames" for fire-rated doors.
  - 8. Section 08 43 13 – "Aluminum Entrance and Storefronts" for entrance and storefront systems installed with steel fire-rated glazed curtain-wall systems
  - 9. Section 08 71 00 "Door Hardware;" Door hardware other than that provided by the work of this section
  - 10. Section 08 41 23 – "Fire Rated Steel Framed Entrances – Fireframes Heat Barrier Series" for fire-rated doors.
  - 11. Section 08 41 23 – "Fire Rated Glass And Framing Systems – Fireframes Designer Series" for fire-rated doors.

## 1.03 REFERENCES

- A. American Architectural Manufacturers Association (AAMA)
  - 1. AAMA 2603-2002 Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
  - 2. AAMA 2604 -2005 Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
  - 3. AAMA 2605 -2005 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- B. American Society for Testing and Materials (ASTM):
  - 1. Fire safety related:
    - a. ASTM E119: Methods for Fire Tests of Building Construction and Materials.
  - 2. Material related:
    - a. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength, Low Alloy, and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2007.

- b. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2006b.
- 3. Exterior-related:
  - a. ASTM E 283-04: Test Method for Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Differences across the Specimen
  - b. ASTM E 330-02: Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference Procedure A
  - c. ASTM E331-04: Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
  - d. ASTM E783-02: Test Method for Field Measurement of Air Leakage through Installed Exterior Windows and Doors
  - e. ASTM E1105-00: Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference
- C. American Welding Society (AWS)
  - 1. AWS D1.3 - Structural Welding Code - Sheet Steel; 2007
- D. Builders Hardware Manufacturers Association, Inc.
  - 1. BHMA A156 - American National Standards for door hardware; 2006 (ANSI/BHMA A156).
- E. Canadian Standards
  - 1. CAN/ULC-S101 Standard Test of Fire Endurance Tests of Building Construction and Materials
  - 2. CAN/ULC-S104 Standard Method of Fire Tests of Door Assemblies
  - 3. CAN/ULC-S106 Standard Method of Fire Tests of Window and Glass Block Assemblies
- F. National Fire Protection Association (NFPA):
  - 1. NFPA 80: Fire Doors and Windows.
  - 2. NFPA 251: Fire Tests of Building Construction & Materials
  - 3. NFPA 252: Fire Tests of Door Assemblies
  - 4. NFPA 257: Fire Test of Window Assemblies
- G. Underwriters Laboratories, Inc. (UL):
  - 1. UL 9: Fire Tests of Window Assemblies.
  - 2. UL 10B: Fire Tests of Door Assemblies
  - 3. UL 10C: Positive Pressure Fire Tests of Window & Door Assemblies
  - 4. UL 263: Fire tests of Building Construction and Materials
  - 5. UL 752 Ratings of Bullet-Resistant Materials
- H. American National Standards Institute (ANSI):
  - 1. ANSI Z97.1: Standard for Safety Glazing Materials Used in Buildings
- I. Consumer Product Safety Commission (CPSC):
  - 1. CPSC 16 CFR 1201: Safety Standard for Architectural Glazing Materials
- J. American Society of Civil Engineers (ASCE)
  - 1. ASCE 7 – Minimum Design Loads for Buildings and Other Structures; 2005

#### 1.04 DEFINITIONS

- A. Manufacturer: A firm that produces primary glass, fabricated glass or framing as defined in referenced glazing publications.

#### 1.05 SUBMITTALS

- A. Submit in accordance with Section Insert Section 08 88 13.

- B. Product Data:
  - 1. Technical Information: Submit latest edition of manufacturer's product data providing product descriptions, technical data, Underwriters Laboratories, Inc. listings and installation instructions.
- C. Shop Drawings:
  - 1. Include plans, elevations and details of product showing component dimensions; framing opening requirements, dimensions, tolerances, and attachment to structure
- D. Sustainable Requirements:
  - 1. Living Building Challenge Compliance: Compliant
    - a. I-13 Red List Declaration
- E. Structural Calculations:
  - 1. Provide structural calculations sealed by a licensed professional engineer in the State in which the project is located; prepared in compliance with referenced documents and these specifications.
- F. Samples. For following products:
  - a. Glass sample-as provided by manufacturer
  - b. Sample of frame
  - c. Verification of sample of selected finish
- G. Glazing Schedule: Use same designations indicated on drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.
- H. Warranties: Submit manufacturer's warranty.
- I. Certificates of compliance from glass and glazing materials manufacturers attesting that glass and glazing materials furnished for project comply with requirements.
  - 1. Separate certification will not be required for glazing materials bearing manufacturer's permanent label designating type and thickness of glass, provided labels represent a quality control program involving a recognized certification agency or independent testing laboratory acceptable to authority having jurisdiction

## 1.06 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualifications according to
  - 1. International Accreditation Service for a Type A Third-Party Inspection Body (Field Services ICC-ES Third-Party Inspections Standard Operating Procedures, 00-BL-S0400 and S0401)
  - 2. International Accreditation Service for Testing Body-Building Materials and Systems
    - 1) Fire Testing
      - (a) ASTM Standards E 119
      - (b) CPSC Standards 16 CFR 1201
      - (c) NFPA Standards 251, 252, 257
      - (d) UL Standards 9, 10B, 10C, 1784, UL Subject 63
      - (e) BS 476; Part 22: 1987
      - (f) EN 1634-1
      - (g) CAN/ULC Standards S101, S104, S106
  - B. Fire-Rated Window Assemblies: Assemblies complying with NFPA 80 that are classified and labeled by UL, for fire ratings indicated, based on testing according to NFPA 257 and UL 9. For 45-minute assemblies only.
  - C. Fire-Rated Wall Assemblies: Assemblies complying with ASTM E119 that are classified and labeled by UL, for fire ratings indicated, based on testing in accordance with UL 263, ASTM E119.

D. Listings and Labels - Fire Rated Assemblies: Under current follow-up service by Underwriters Laboratories® maintaining a current listing or certification. Label assemblies accordance with limits of manufacturer's listing.

## 1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle under provisions specified by manufacturer.

## 1.08 PROJECT CONDITIONS

A. Obtain field measurements prior to fabrication of frame units. If field measurements will not be available in a timely manner coordinate planned measurements with the work of other sections.  
1. Note whether field or planned dimensions were used in the creation of the shop drawings.

B. Coordinate the work of this section with others effected including but not limited to: other interior and/or exterior envelope components and door hardware beyond that provided by this section.

## 1.09 WARRANTY

A. Provide the Pilkington Pyrostop® and Fireframes® standard five-year manufacturer warranty.

## PART 2 – PRODUCTS

### 2.01 MANUFACTURERS - (ACCEPTABLE MANUFACTURERS/PRODUCTS)

A. Manufacturer Glazing Material: "Pilkington Pyrostop®" fire-rated glazing as manufactured by the Pilkington Group and distributed by Technical Glass Products, 8107 Bracken Place SE, Snoqualmie, WA 98065 phone (800.426.0279) e-mail [tgp.sales@allegion.com](mailto:tgp.sales@allegion.com), web site <http://www.fireglass.com>

B. Frame System: "Fireframes® Aluminum Series" fire-rated frame system as manufactured and supplied by Technical Glass Products, 8107 Bracken Place SE, Snoqualmie, WA 98065 phone (800.426.0279) e-mail [tgp.sales@allegion.com](mailto:tgp.sales@allegion.com), web site <http://www.fireglass.com>

C. Substitutions: Substitutions for Glazing Material and Frame System not permitted.

### 2.02 PERFORMANCE REQUIREMENTS

A. System Description:

1. Steel fire-rated glazed wall and/or window system, dual aluminum cover cap format
  - a. Face widths available:
    - 1) 2"
    - 2) Custom extruded aluminum cover caps
    - 3) Custom stainless steel cover caps
  - b. Duration – Windows Capable of providing a fire rating for 120 minutes.
  - c. Duration – Walls: Capable of providing a fire rating for 120 minutes.

B. Structural Performance

  1. Design and size the system to withstand structural forces placed upon it without damage or permanent set when tested in accordance with ASTM E330 using load 1.5 times the design wind loads and of 10 seconds in duration.
  2. Member deflection: Limit deflection of the edge of the glass normal to the plane of the glass to flexure limit of glass of any framing member
  3. Accommodate movement between storefront and adjoining systems

### 2.03 MATERIALS - GLASS

A. Fire Rated Glazing: Composed of multiple sheets of Pilkington Optiwhite™ high visible light transmission glass laminated with an intumescent interlayer.

B. Impact Safety Resistance: ANSI Z97.1 and CPSC 16 CFR 1201(Cat. I and II).

C. Properties Interior Glazing

Fire-Rating	45 minute	60 minute			120 minute
Manufacturer's designation	45-200	60-101	60-201		120-106
Glazing type	single	single	single		IGU
Nominal Thickness	3/4" (19mm)	7/8" (23mm)	1-1/16" (27mm)		2-1/4" (57mm)
Weight in lbs/sf	9.2	10.85	12.5		22.9
Daylight Transmission	86	87%	86%		75%
Sound Transmission Coefficient	40dB	41dB	44dB		46dB

- D. Logo: Each piece of fire-rated glazing shall be labeled with a permanent logo including name of product, manufacture, testing laboratory (UL), fire rating period, safety glazing standards, and date of manufacture.
- E. Glazing Accessories: Manufacturer's standard compression gaskets, standoff, spacers, setting blocks and other accessories necessary for a complete installation.

## 2.04 MATERIALS –ALUMINUM FRAMES

- A. Aluminum Framing System 120 min.
  - 1. Steel Frame — The steel framing members are made of two halves, nom. 1.9 inch. wide (1.9 inch) with a nom. minimum depth of 1.38 inch. (1.38 inch) with lengths cut according to glazing size.
  - 2. Aluminum Trim — Supplied with the steel framing members. Nom. 2 inch. (2 inch) wide with a nom. depth of 1.54 inch. (1.54 inch) with lengths cut according to glazing size.
  - 3. Stainless Steel Standoffs — Supplied with the steel framing members. Nom 5/16 inch. (0.31 inch) diameter with a nom. minimum depth of 1 1/8 inch. (28 mm) with depth adjusted to match Pilkington Pyrostop® Panel thickness.
  - 4. Stainless Steel Moment and Connecting Braces: — Supplied with the steel framing members. Nom 3/8 inch. (0.39 inch) thick with a nom. minimum depth of 1 1/8 inch. (1.1 inch) with depth adjusted to match Pilkington Pyrostop® Panel thickness.
  - 5. Framing Member Fasteners — Supplied with the steel framing members. Screws are M6 x16mm Button Head Socket Cap Screws for frame assembly and #6 x 1" Pan Head Sheet Metal Screws for door installation.
  - 6. Glazing Gasket —
    - a. Interior Gasketing—Supplied with the steel framing members. Nom. 3/4 inch. (0.75 inch) x 3/16 (0.18 inch) black applied to the steel framing members to cushion and seal the glazing material when installed.
- B. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
  - 1. Extruded Bars, Rods, Shapes, and Tubes: ASTM B221 ((ASTM B221M)).
- C. Steel Reinforcement: With manufacturer's standard corrosion-resistant primer complying with SSPC-PS Guide No. 12.00 applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.
  - 1. Structural Shapes, Plates, and Bars: ASTM A36/A36M Standard Specification for Carbon Structural Steel

2. Cold-Rolled Sheet and Strip: ASTM A1008/A1008M Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable
3. Hot-Rolled Sheet and Strip: ASTM A1011/A1011M Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
- D. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
  1. Where fasteners are subject to loosening or turn out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
  2. Reinforce members as required to receive fastener threads.

## 2.05 ACCESSORIES

- A. Fasteners: Use fasteners fabricated from Type 304 or Type 316 stainless steel.
- B. Glazing Gaskets:
  1. Glazing gaskets for interior or exterior applications: ASTM C864 (extruded EPDM rubber that provides for silicone adhesion) or ASTM C1115 Standard Specification for Dense Elastomeric Silicone Rubber Gaskets and Accessories (extruded silicone).
- C. Intumescent Tape: As supplied by frame manufacturer.
- D. Setting Blocks:  $\frac{1}{4}$ " Calcium silicate.
- E. Perimeter Anchors: Steel.
- F. Flashings: As recommended by manufacturer; same material and finish as cover caps.
- G. Silicone Sealant: One-Part Low Modulus, neutral cure High Movement-Capable Sealant: Type S; Grade NS; Class 25 with additional movement capability of 100 percent in extension and 50 percent in compression (total 150 percent); Use (Exposure) NT; Uses (Substrates) M, G, A, and O as applicable. (Use-O joint substrates include: Metal factory-coated with a high-performance coating; galvanized steel; ceramic tile.)
  1. Available Products:
    - a. Dow Corning 790, 795 - Dow Corning Corp.
    - b. Momentive
    - c. Tremco
- H. Intumescent Caulk: Single component, latex-based, intumescent caulk designed to stop passage of fire, smoke, and fumes through fire-rated separations; permanently flexible after cure; will not support mold growth; flame spread/smoke developed 10/10.
  1. Available Products:
    - a. 3M CP 25WB+

## 2.06 SLAG-WOOL-FIBER/ROCK-WOOL-FIBER INSULATION

- A. Available Manufacturers:
  1. Fibrex Insulations Inc.
  2. Owens Corning
  3. Thermafiber.
  4. Rockwool
  5. Unfaced, Slag-Wool-Fiber/Rock-Wool-Fiber Board Insulation: ASTM C612, maximum flame-spread and smoke-developed indexes of 15 and 0, respectively; passing ASTM E136 for combustion characteristics; and of the following nominal density and thermal resistivity:
  6. Nominal density of 4 lb/cu. ft. (64 kg/cu. m), Types IA and IB, thermal resistivity of 4 deg F x h x sq. ft./Btu x in. at 75 deg F (27.7 K x m/W at 24 deg C).
  7. Fiber Color: Regular color, unless otherwise indicated.

## 2.07 FABRICATION

- A. Obtain reviewed shop drawings prior to fabrication.
- B. Fabrication Dimensions: Fabricate fire-rated assembly to field dimensions.
- C. Factory prepared, fire-rated steel door assemblies by TGP to be prehung, prefinished with hardware preinstalled for field mounting.
- D. Field glaze door and frame assemblies.

## 2.08 2.8 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish frames after assembly.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable. Noticeable variations in the same piece are not acceptable.

## 2.09 POWDERCOAT FINISHES

- A. Finish after fabrication.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable. Noticeable variations in the same piece are not acceptable.
- C. Steel or Aluminum Finishes
  - 1. Powder-Coat Finish: Polyester Super Durable powder coating which meets AAMA 2604 for chalking and fading. Apply manufacturer's standard powder coating finish system applied to factory-assembled frames before shipping, complying with manufacturer's recommended instructions for surface preparation including pretreatment, application, and minimum dry film thickness.
  - 2. Color and Gloss: As indicated by manufacturer's designations.
  - 3. Acceptable Manufacturers:
    - a. Tiger Drylac
    - b. Additional manufacturers as approved by TGP
- D. Aluminum Finishes
  - 1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
  - 2. Class II, Clear Anodic Finish: AA-M12C22A31 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0 inch or thicker) complying with AAMA 611.
  - 3. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0 inch or thicker) complying with AAMA 611.
  - 4. Class II, Color Anodic Finish: AA-M12C22A32/A34 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, integrally colored or electrolytically deposited color coating 0 inch or thicker) complying with AAMA 611.
  - 5. Class I, Color Anodic Finish: AA-M12C22A42/A44 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0 inch or thicker) complying with AAMA 611.
  - 6. Color: Light bronze.
  - 7. Color: Match Architect's sample.
  - 8. High-Performance Organic Finish (2-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coating; Organic Coating: manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70

percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2604 and with coating and resin manufacturers' written instructions.

9. High-Performance Organic Finish (3-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coating; Organic Coating: manufacturer's standard 3-coat, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturers' written instructions.
10. Color and Gloss: As indicated by manufacturer's designations.

### **PART 3 - EXECUTION**

#### **3.01 EXAMINATION**

- A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive curtain wall system and sill plate is level in accordance with manufacturer's acceptable tolerances.
- B. Notify Architect of any conditions which jeopardize the integrity of the proposed fire wall / door system.
- C. Do not proceed until such conditions are corrected.

#### **3.02 INSTALLATION**

- A. See Fireframes Aluminum Series Installation Manual

#### **3.03 REPAIR AND TOUCH UP**

- A. Anodized Finishes
  1. Protect the anodized finish from harsh chemicals such as concrete/mortar or muriatic acid/brick wash. If reasonable care is taken during handling and high and low pH chemicals can be avoided, repair and/or touch-up of an anodize finish will not be needed.
  2. Some rub marks on an anodized surface can be removed with a mild abrasive pad such as a Scotch-Brite pad prior to touch up painting.
  3. Touch-up paint should be used even more sparingly over anodize. Only the visible raw aluminum in the scratch or gouge should be touched up with a matching paint.
- B. Powder Coated Finishes
  1. Limited to minor repair of small scratches. Use only manufacturer's recommended products.
  2. Such repairs shall match original finish for quality or material and view.
  3. Repairs and touch-up not visible from a distance of 5 feet Owner and Architect to approve.
- C. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged.

#### **3.04 PROTECTION AND CLEANING**

- A. Protect glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.
  1. Do not clean with astringent cleaners. Use a clean "grit free" cloth and a small amount of mild soap and water or mild detergent.
  2. Do not use any of the following:
    - a. Steam jets
    - b. Abrasives
    - c. Strong acidic or alkaline detergents, or surface-reactive agents
    - d. Detergents not recommended in writing by the manufacturer
    - e. Do not use any detergent above 77 degrees Fahrenheit

- f. Organic solvents including but not limited to those containing ester, ketones, alcohols, aromatic compounds, glycol ether, or halogenated hydrocarbons.
- g. Metal or hard parts of cleaning equipment must not touch the glass surface
- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.
- C. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

**END OF SECTION**

## SECTION 08 8000 GLAZING

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

- A. Glass.
- B. Glazing compounds and accessories.

#### 1.02 RELATED REQUIREMENTS

- A. Section 07 92 00 - Joint Sealants
- B. Section 08 3613 - Sectional Doors: Glazed lites in doors.
- C. Section 08 4313 - Aluminum-Framed Storefronts: Glazing furnished by storefront manufacturer.

#### 1.03 REFERENCE STANDARDS

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.
- B. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2011).
- C. ASTM C1036 - Standard Specification for Flat Glass; 2011.
- D. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.
- E. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass; 2014.
- F. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.
- G. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2012a.
- H. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2010.
- I. GANA (GM) - GANA Glazing Manual; 2009.
- J. GANA (SM) - GANA Sealant Manual; 2008.
- K. ICC (IBC) - International Building Code; 2015.

#### 1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
- C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.
- D. Samples: Submit two samples \_12\_ by \_12\_ inch in size of glass and plastic units, showing coloration and design.
- E. Certificates: Certify that products meet or exceed specified requirements.

#### 1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods. Maintain one copy on site.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

## 1.06 FIELD CONDITIONS

- A. Do not install glazing when ambient temperature is less than 50 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

## 1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Sealed Insulating Glass Units: Provide a five (5) year warranty to include coverage for seal failure, interpane dusting or misting, including replacement of failed units.
- C. Laminated Glass: Provide a five (5) year warranty to include coverage for delamination, including replacement of failed units.

# PART 2 PRODUCTS

## 2.01 INSULATING GLASS UNITS

- A. Type IG1E - Sealed Insulating Glass Units: Vision glass, double glazed.
  - 1. Application: All exterior glazing unless otherwise indicated.
  - 2. Outboard Lite: Annealed float glass, 1/4 inch thick, minimum.
    - a. Tint: Clear.
    - b. Coating: Low-E (passive type), on #2 surface.
  - 3. Inboard Lite: Annealed float glass, 1/4 inch thick, minimum.
    - a. Tint: Clear.
  - 4. Total Thickness: 1 inch.
  - 5. Total Visible Light Transmittance: 70 percent, nominal.
  - 6. Total Solar Heat Gain Coefficient: .39, nominal.
  - 7. Glazing Method: Gasket glazing.
- B. Type IG1 - Sealed Insulating Glass Units: Vision glass, glazed.
  - 1. Application: Exterior glazing as indicated on drawings.
  - 2. Outboard Lite: Annealed float glass, 1/4 inch thick, minimum.
    - a. Tint: Clear.
    - b. Coating: Low-E (passive type), on #2 surface.
  - 3. Middle Lite: Fully tempered float glass, 1/4 inch thick, minimum.
  - 4. Inboard Lite: Fully tempered float glass, 1/4 inch thick, minimum.
    - a. Tint: Clear.
  - 5. Total Thickness: 1 inch.
  - 6. Total Visible Light Transmittance: 70 percent, nominal.
  - 7. Total Solar Heat Gain Coefficient: \_\_\_\_\_ percent, nominal.
  - 8. Glazing Method: Gasket glazing.

## 2.02 GLAZING UNITS

- A. MG1 - Single Exterior Vision Glazing:
  - 1. Type: Fully tempered float glass.
  - 2. Tint: Clear.
  - 3. Thickness: 1/4 inch.
  - 4. Light Transmittance: 70 percent, nominal.
  - 5. Solar Heat Gain Coefficient: .39, nominal.
  - 6. Glazing Method: Gasket glazing.

## 2.03 EXTERIOR GLAZING ASSEMBLIES

- A. Performance Criteria: Select type and thickness of glass to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of glass.
  - 1. Glass thicknesses listed are minimum.

## 2.04 GLASS MATERIALS

- A. Float Glass Manufacturers:
  - 1. Zeledyne: [www.versaluxglass.com](http://www.versaluxglass.com).
  - 2. AGC Flat Glass North America, Inc: [www.na.agc-flatglass.com](http://www.na.agc-flatglass.com).
  - 3. Guardian Industries Corp: [www.sunguardglass.com/#sle](http://www.sunguardglass.com/#sle).
  - 4. Pilkington North America Inc: [www.pilkington.com/na](http://www.pilkington.com/na).
  - 5. PPG Industries, Inc: [www.ppgideascapes.com/#sle](http://www.ppgideascapes.com/#sle).
  - 6. Substitutions: Refer to Section 01 6000 - Product Requirements.
- B. Float Glass: Provide float glass based glazing unless noted otherwise.
  - 1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality-Q3.
  - 2. Heat-Strengthened and Fully Tempered Types: ASTM C1048, Kind HS and Kind FT.
  - 3. Tinted Types: ASTM C1036, Class 2 - Tinted, color and performance characteristics as indicated.
  - 4. Thicknesses: As indicated; for exterior glazing comply with requirements indicated for wind load design regardless of thickness indicated.
- C. Fire Resistance-Rated Glazing: Type, thickness, and configuration as required to achieve indicated ratings.
  - 1. IBC Fire Resistance Rating: W-60, minimum.
  - 2. Provide products listed by Underwriters Laboratories or Intertek Warnock Hersey.
  - 3. Safety Certification: 16 CFR 1201 Category II.
  - 4. Products:
    - a. Technical Glass Products; Pilkington Pyrostop: [www.fireglass.com/#sle](http://www.fireglass.com/#sle).
    - b. SAFTI FIRST, a division of O'Keeffe's Inc; SuperLite II-XL: [www.safti.com/#sle](http://www.safti.com/#sle).
    - c. Substitutions: Refer to Section 01 6000 - Product Requirements.

## 2.05 SEALED INSULATING GLASS UNITS

- A. Manufacturers:
  - 1. Any of the manufacturers specified for float glass.
  - 2. Substitutions: Refer to Section 01 6000 - Product Requirements.
- B. Sealed Insulating Glass Units: Types as indicated.
  - 1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
  - 2. Edge Spacers: Aluminum, bent and soldered corners.
  - 3. Edge Seal: Glass to elastomer with supplementary silicone sealant.
  - 4. Purge interpane space with dry hermetic air.

## 2.06 GLAZING COMPOUNDS

- A. Manufacturers:
  - 1. Bostik Inc: [www.bostik-us.com/#sle](http://www.bostik-us.com/#sle).
  - 2. Momentive Performance Materials, Inc (formerly GE Silicones): [www.momentive.com/#sle](http://www.momentive.com/#sle).
  - 3. Pecora Corporation: [www.pecora.com/#sle](http://www.pecora.com/#sle).
  - 4. BASF Construction Chemicals-Building Systems: [www.buildingsystems.bASF.com/#sle](http://www.buildingsystems.bASF.com/#sle).
  - 5. Substitutions: Refer to Section 01 6000 - Product Requirements.

## 2.07 GLAZING ACCESSORIES

- A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.
- B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch long x one half the height of the glazing stop x thickness to suit application, self adhesive on one face.

- C. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; hardness range of 5 to 30 cured Shore A durometer; coiled on release paper; black color.
  - 1. Manufacturers:
    - a. Pecora Corporation: [www.pecora.com/#sle](http://www.pecora.com/#sle).
    - b. Tremco Global Sealants: [www.tremcosealants.com/#sle](http://www.tremcosealants.com/#sle).
    - c. Substitutions: Refer to Section 01 6000 - Product Requirements.
- D. Glazing Gaskets: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; selected from manuf. standard range of color.
- E. Glazing Clips: Manufacturer's standard type.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that openings for glazing are correctly sized and within tolerance.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

#### **3.02 PREPARATION**

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant.
- D. Install sealants in accordance with ASTM C1193 and GANA Sealant Manual.
- E. Install sealants in accordance with manufacturer's instructions.

#### **3.03 INSTALLATION - EXTERIOR/INTERIOR DRY METHOD (GASKET GLAZING)**

- A. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- B. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.
- C. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

#### **3.04 CLEANING**

- A. Remove glazing materials from finish surfaces.
- B. Remove labels after Work is complete.
- C. Clean glass and adjacent surfaces.

#### **3.05 PROTECTION**

- A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

#### **END OF SECTION**