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SPECIFICATION
SECTION 08 8810: FIRE RATED GLASS & FRAMING
GPX Curtain Wall Framing

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Fire resistive framing system.
   1. GPX Curtain Wall fire resistive, temperature rise, framing system with decorative cladding for 60-120 minute interior and exterior applications.
   2. Applications of fire rated framing includes:
      a. Interior and exterior curtain wall applications.

B. Related Sections:
   1. Section 01 3323: Shop Drawings, Product Data and Samples.
   2. Section 08 1110: Steel Doors & Frames.
   3. Section 08 5130: Steel Windows.
   4. Section 08 4113: Aluminum-Framed Entrances and Storefronts.
   5. Section 08 4400: Curtain wall and Glazed Assemblies.
   6. Section 08 7100: Finish Hardware.
   7. Section 08 8000: Glazing.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM E119: Methods for Fire Tests of Building Construction and Materials.
   2. ASTM E152: Methods of Fire Tests of Door Assemblies.
   3. ASTM E163: Methods for Fire Tests of Window Assemblies.
   4. ASTM E2074: Standard Test Method for Fire Tests of Door Assemblies, including Positive Pressure Testing of Side-hinged and Pivoted Swinging Door Assemblies.
   5. ASTM E2110-1: Standard Test for Positive Pressure of Fire Tests of Window Assemblies.
   6. ASTM E283-4: Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors.
   7. ASTM E331-00: Standard Test Method for Metal Curtain Walls and Doors by Uniform Static Air Pressure Difference.
   8. ASTM E330-2, Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

B. American Architectural Manufacturer's Association (AAMA):
   1. AAMA 501.1-05, Standard Test Method for Metal Curtain Walls and Doors by Uniform Dynamic Pressure.
   2. AAMA 501.4-09, Recommended Static Test Method for Evaluating Curtain Wall and Storefront Systems Subjects to Seismic and Wind Induced Interstory Drifts.
   3. AAMA 501.5-2005: Test Method for Thermal Cycling of Exterior Walls.
   4. AAMA 1503-1998: Voluntary Test Method for Thermal Transmittance and Condensation Resistance for Windows, Doors and Glazed Wall Sections.

B. National Fire Protection Association (NFPA):
   1. NFPA 80: Fire Doors and Windows.
   2. NFPA 251: Fire Tests of Building Construction and Materials.
   3. NFPA 252: Fire Tests of Door Assemblies.
   4. NFPA 257: Fire Tests of Window Assemblies.

C. Underwriters Laboratories, Inc. (UL):
   1. UL 9: Standard for Safety of Fire Tests of Window Assemblies.
   2. UL 10B: Standard for Safety of Fire Tests of Door Assemblies.
   3. UL 10C: Standard for Safety of Positive Pressure Fire Tests of Door Assemblies.
   4. UL 263: Fire Tests of Building Construction and Materials.

D. Standard Council of Canada (ULC):
   1. ULC Standard CAN4-S101: Fire Tests of Building Construction and Materials.
   2. ULC Standard CAN4-S104: Fire Tests of Door Assemblies.
   3. ULC Standard CAN4-S106: Fire Tests of Window Assemblies.

E. Consumer Product Safety Commission (CPSC):
   1. CPSC 16 CFR 1201: Safety Standard for Architectural Glazing Materials.

F. American National Standards Institute (ANSI):
   1. ANSI Z97.1: Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.

G. Glass Association of North America (GANA)
   1. GANA – Glazing Manual.
   2. FGMA – Sealant Manual.

H. National Fenestration Rating Council (NFRC)
   1. NFRC 100: Procedure for Determining Fenestration Product U-Factors.
   2. NFRC 200: Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.

I. [American Recovery and Reinvestment Act
   1. Section 1605, Title XVI Buy American Provision]

J. [Insert building code used by Authority Having Jurisdiction]

1.03 SYSTEM DESCRIPTION

A. Performance Requirements:
   1. Fire Rating: must meet 60, 90 or 120 minutes as specified.
   2. Fire Resistive Wall Assembly Certifications: must meet 60-120 minute fire resistive wall assemblies tested in accordance with ASTM E119, NFPA 251, UL 263 and ULC-S101.
   3. Air Infiltration: must be tested to ASTM E 283-04 at 6.24 psf. Result: must have no leakage.
   4. Static Pressure: must be tested to ASTM E 331-00 at 20 psf. Result: must have no leakage.

5. Dynamic Pressure Water Resistance: must be tested to AAMA 501-1.05 at 12 psf. Result: must have no leakage.
6. Thermal Cycling and Condensation Evaluation: must be tested at 170 degrees F to -10 degrees F (exterior), 68 degrees F (interior). Result: must have no damage.
7. Condensation Resistance Factor of Frame: up to 68
8. Condensation Resistance Factor of Glass: up to 71
9. Structural Performance: must be tested to ASTM E-330 between -75 psf to 60 psf. Result: must pass without damage.
10. Ballistic Resistance: Can be customized to meet up to Level 8 (7.62mm Rifle Lead Core Full Metal Copper Jacket Military Ball or .308 Caliber).
11. Blast Resistance: Can be customized to meet the 3-second Design Loading of 50 psf per UFC 4-010-01 Department of Defense (DoD) Minimum Anti-Terrorism Standards for Buildings for Blast Resistance, ASTM E1300 Standard Practice for Determining Load Resistance of Glass in Buildings and ASTM F2248 Standard Practice for Specifying an Equivalent 3-Second Duration Design Loading for Blast Resistant Glazing Fabricated with Laminated Glass.
12. NFRC 100 & 200: must provide a finite element computer thermal modeling and calculations through NFRC CMAST. NFRC CMAST Bid Reports must be submitted at time of bid, time of product submission, and as assemblies are installed per the project documents and actual designed exterior applications for the project. Refer to SAFTI FIRST's NFRC CMAST document for examples of simulations based on available glazing materials in the NFRC CMAST database.
13. Testing Laboratory: Fire test must be conducted by a nationally recognized independent testing laboratory.
14. Glazing: must have fire resistive glazing tested to ASTM E-119/UL263/ULC-S101 up to 2 hours. All glazing in hazardous locations must meet CPSC Cat. I or II impact safety.

B. Listings and Labels:
   1. Fire resistive curtain wall system shall be under current follow-up service by a nationally recognized independent laboratory approved by OSHA and maintain a current listing or certification. Assemblies shall be labeled in accordance with limits of listings.

C. Appearance:
   1. Fire resistive curtain wall assembly shall have a neat finished appearance with minimum joints at decorative cover intersections.

1.04 SUBMITTALS

A. Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedure Section.
   1. Shop Drawings: Submit shop drawings showing layout, profiles and product components.
   2. Samples: Submit samples for finishes, colors and textures.
   3. Technical Information: Submit latest edition of manufacturer's product data providing product descriptions, technical data and installation instructions.

1.05 DELIVERY, STORAGE AND HANDLING

A. General: Comply with Division1 Product Requirements Sections.

B. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

C. Delivery: Deliver materials to specified destinations in manufacturer's or distributor's packaging undamaged, complete with installation instructions.

D. Storage and Protection: Store off ground, under cover, protected from weather and construction activities and at temperature conditions recommended by manufacturer.

1.06 FABRICATION DIMENSIONS

A. Field Measurements: Verify actual measurements for openings by field measurements before fabrication. Show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.07 WARRANTY

A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document. Manufacturer's warranty is not intended to limit other rights that the Owner may have under the Contract Documents.
   1. Warranty Period: 5 years from date of shipping.

PART 2 PRODUCTS

2.01 MANUFACTURERS – FIRE RESISTVE CURTAIN WALL ASSEMBLY

A. Manufacturer of Framing System: GPX Curtain Wall Framing as manufactured and distributed by SAFTI *FIRST*™ Fire Rated Glazing Solutions.
   1. Contact: 100 N Hill Drive, Suite 12, Brisbane, CA 94005; Telephone 888.653.3333; Fax 888.653.4444; email info@safti.com; Web site www.safti.com

B. Manufacturer of Glazing Material: (SuperLite™ II-XL) (SuperLite™ II-XL IGU) as manufactured and distributed by SAFTI *FIRST*™ Fire Rated Glazing Solutions.
   1. Contact: 100 N Hill Drive, Suite 12, Brisbane, CA 94005; Telephone 888.653.3333; Fax 888.653.4444; email info@safti.com; Web site www.safti.com

C. Fire rated glass and framing must be provided by a single-source, US manufacturer. Distributors of fire rated glass and framing are not to be considered as manufacturers. Materials for the project should be shipped together in the same shipment on the same truck.

D. Substitutions: No substitutions allowed.

2.02 MATERIALS – FRAMING

A. Fire resistive curtain wall system rated for 60 to 120 minutes.

Properties:

1. Frame thickness: 3" Standard. 2-1/2", 4-1/8" and 5" also available.
2. Internal framing: Internal tube steel framing shall conform to ASTM A501. Formed steel retainers shall be galvanized conforming to ASTM A527.
3. Insulation: The framing system shall insulate against the effects of fire, smoke and heat transfer from either side. The perimeter of the framing system to the rough opening shall be firmly packed with mineral wool fire stop insulation or appropriately rated intumescent sealant.
4. Fasteners: Type recommended by manufacturer. No exposed fasteners allowed.
5. Glazing accessories: The glazing material perimeter shall be separated from the perimeter framing system with approved glazing tape. The SuperLite™ glazing panel may be caulked continuously around the edge to the tube steel frame utilizing neutral cure silicone. Silicone setting blocks recommended.
6. 60-90 minute Temperature Rise Doors: GPX Architectural Series Doors and GPX Builders Series Temperature Rise Doors by SAFTI FIRST can be used with this system.
7. SAFTI FIRST listing allows for doors by others.

2.03 MATERIALS – GLASS

A. Assemblies shall be glazed with SuperLite™ glazing products. If assembly is required to meet ASTM E 119, SuperLite™ II-XL will be used.

B. Properties:

1. Individual Lites shall be permanently identified with a listing mark.
2. Glazing material installed in "Hazardous Locations" (subject to human impact) shall be certified to meet the applicable requirements for fire rated assemblies referenced in ANSI Z97.1 Standard for Safety Glazing Materials Used In Buildings and/or CPSC 16 CFR 1201 Safety Standard for Architectural Glazing Materials.
3. Temperature rise on the unexposed side of glazing material shall be limited to 250 degrees Fahrenheit when required.
4. Visible daylight transmission: Varies by glazing type. Must meet:

SuperLite II-XL 45	0.851
SuperLite II-XL 45 Starphire	0.905
SuperLite II-XL 60	0.856
SuperLite II-XL 60 Starphire	0.898
SuperLite II-XL 90	0.853
SuperLite II-XL 90 Starphire	0.895
SuperLite II-XL 120	0.853
SuperLite II-XL 120 Starphire	0.895

5. STC/OITC: Varies by glazing type. Must meet:

Product	STC	OITC
SuperLite II-XL 45	40	37
SuperLite II-XL 60	42	39
SuperLite II-XL 90	44	40

SuperLite II-XL 120	44	40

6. Pressure glazing is acceptable.

C. Logo: Each piece of fire rated glazing shall be labeled with a permanent logo.

2.03 FABRICATION

A. Assemblies shall be furnished [knocked down for field assembly and will be glazed in the field] [assembled (should configurations and job site conditions allow)] [unitized (should configurations and job site conditions allow)] .

B. Door assemblies shall be factory prepared for field mounting of hardware.

C. Fabrication Dimensions: Fabricate to approved dimensions. The general contractor shall guarantee dimensions within required tolerance. Obtain approved shop drawings prior to fabrication.

2.04 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designing finishes.

B. Covers shall be chemically cleaned and pretreated; then, finished with (choose one):
1. High Performance Coraflon Fluoropolymer Finish by PPG. Solid color to be selected from SAFTI's Standard Color Chart. Mica, XL & Exotics are available at an additional charge.
2. Clear or Bronze Anodized.
3. Decoral® (specify color).
4. Ornamental metal (specify finish).
5. Wood veneer (natural finish standard).
6. Acrylic urethane custom color.
7. Other

C. Protect finishes on exposed surfaces from damage by applying strippable, temporary protective covering before shipping.

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data including product technical bulletins and installation instructions.

3.02 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions, have been previously installed under other sections, and are acceptable for product installation in accordance with manufacturer's instructions. Openings shall be plumb, square and within allowable

tolerances. The Architect/Engineer shall be notified of any conditions that jeopardize the integrity of the proposed fire wall/door framing system. Do not proceed until such conditions are corrected.

3.03 INSTALLATION

A. Fire wall/door installation shall be by a licensed contractor and in strict accordance with the approved shop drawings.

3.04 CLEANING AND PROTECTION

A. Protect glass from contact with contaminating substances resulting from construction operations. Remove such substances by method approved by manufacturer.

B. Wash glass on both faces not more than four days prior to date schedule for inspections intended to establish date of Substantial Completion. Wash glass by method recommended by glass manufacturer.

C. Remove temporary coverings and protection of adjacent work areas.

D. Remove construction debris from project site and legally dispose of debris.

END OF SECTION

In the interest of continuous improvement of its product line, SAFTI*FIRST*™ reserves the right to modify its products' composition, colors, textures, sizes, and other physical and performance attributes and these guide specifications at any time. SAFTI*FIRST*™ makes no expressed or implied warranties regarding content, errors, or omissions in the information presented. Specifications modified or rewritten not in conformance with manufacturer's standard processes, products, and procedures may void warranties and related remedies.