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SPECIFICATION
SECTION 09 6200: SPECIALTY FLOORING
GPX FireFloor System

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Fire resistive restrained floor assembly.
1. GPX FireFloor fire resistive restrained floor assembly for interior and exterior application up to 1 hour.
- B. Related Sections:
1. Section 05 1200: Structural Steel Framing: Steel attachment members.
 2. Section 07 8400: Firestopping: Firestop at System Junction with Structure.
 3. Section 07 9005: Joint Sealers: Perimeter Sealant and Back-up Materials.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
1. ASTM A1011: 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.
 2. ASTM C509: Specification for Cellular Elastomeric Preformed Gasket and Sealing Material.
 3. ASTM C719: Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle).
 4. ASTM C794: Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
 5. ASTM C864: Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
 6. ASTM C920: Specification for Elastomeric Joint Sealants.
 7. ASTM C1028: Standard Test Method for Determining the Static Coefficient of Friction for Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method.
 8. ASTM C1036: Specification for Flat Glass.
 9. ASTM C1048: Specification for Heat-Treated Flat Glass -Kind HS, Kind FT Coated and Uncoated Glass.
 10. ASTM C1172: Standard Specification for Laminated Architectural Flat Glass.
 11. ASTM D5957: Standard Guide for Flood Testing Horizontal Waterproofing Installations.
 12. ASTM E119: Standard Test Methods for Fire Tests of Building Construction and Materials.
 13. ASTM F1037: Standard Test Method for Visual Rating of appearance of Resilient Floors after in Service Exposure to Foot Traffic.
 14. ASTM 2751: Standard Practice for the Design and Performance of Supported Glass Walkways.

- B. American Architectural Manufacturer's Association (AAMA):
 - 1. AAMA 800: Voluntary Specifications and Test Methods for Sealants.
- C. National Fire Protection Association (NFPA):
 - 1. NFPA 251: Fire Tests of Building Construction and Materials.
- D. Underwriters Laboratories, Inc. (UL):
 - 1. UL 263: Fire Tests of Building Construction and Materials.
 - 2. UL 410: Slip Resistance of Floor Surface Materials.
- E. Standard Council of Canada (ULC):
 - 1. ULC Standard CAN4-S101: Fire Tests of Building Construction and Materials.
- F. American Welding Society (AWS):
 - 1. AWS D1.3: Structural Welding Code – Sheet Steel; 2007.
- G. American National Standards Institute (ANSI):
 - 1. ANSI/NFSI B101.1-2009: Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials.
- H. [American Recovery and Reinvestment Act
 - 1. Section 1605, Title XVI Buy American Provision]
- I. [Insert building code used by Authority Having Jurisdiction]

1.03 SYSTEM DESCRIPTION

- A. Performance Requirements:
 - 1. Fire Rating: 60 minutes as specified. Meets ASTM E119, UL 263, NFPA 251, ULC-S101.
 - 2. Loading: Up to 100 psf.
 - 3. Testing Laboratory: Fire test shall be conducted by a nationally recognized independent testing laboratory.
- B. Listings and Labels:
 - 1. Fire resistive restrained floor 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.

1.04 SUBMITTALS

- A. Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedure Section.
- B. Technical Information.
 - 1. Submit latest edition of manufacturer's product data providing product descriptions, technical data and installation instructions

C. Shop Drawings

1. Provide shop drawings showing materials in place on the building including coordination of related and adjoining work, insert drawings and erection diagrams. Show relative layout for all adjacent walls, beams, columns slabs, ceilings, etc. Drawings shall include, floor plans, sections and details. Details shall be clear, to scale, and fully drawn, not outlined. Professional Engineer preparing structural calculations for submittal shall review and stamp the drawings prior to fabrication.
2. Drawings shall include the following information:
3. Joinery and internal weather seals.
4. Glass, extrusion, and metal panel thicknesses.
5. Glass manufacturer, strength, thickness, tint, coating, opacifier or ceramic frit, safety backing, and rating of insulated units.
6. Fastener manufacturer, material alloy, plating, diameter, length, spacing, embedment and edge distances for perimeter fasteners.
7. Sealants identification by product name and manufacturer, including cleaning and priming requirements.
8. Relative layout of walls, beams, columns and slabs with dimensions noted. Field connections, weld sizes, anchorages, and fasteners, embedment length and edge distances.
9. Dimensioned position of glass edge and all glazing materials (panels, louvers, etc.) relative to daylight opening.
10. Dimension limits of movements for all moving joints and provisions for expansion and contraction.
11. Spotting plans for preset inserts in structure or in adjacent construction.
12. Perimeter sealant joint sizes, including tolerances and minimum/maximum joint sizes required.
13. Seal and signature of professional engineer currently registered in the jurisdiction required by the project location. This shall be same engineer who signs the calculations.

D. Samples

1. Submit samples for finishes, colors and textures.

E. Structural Calculations

1. Provide structural calculations sealed by a licensed professional engineer within the United States. Where specifications and code differ, the more severe requirements shall govern. Calculations shall include the following information:
 - a. Analysis for all applicable loads on framing members.
 - b. Analysis for all applicable loads on anchors, including anchors embedded in concrete.
 - c. Section property computations for framing members.
 - d. Metal alloy and temper.
 - e. Seal and signature of professional engineer on drawings and calculations.

F. Glazing Schedule

1. Use same designations indicated on drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.

1.05 DELIVERY, STORAGE AND HANDLING

- A. General: Comply with Division 1 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 PROJECT CONDITIONS

- A. Coordinate the work of this sections with others effected including but not limited to: other interior and /or exterior envelope components.

1.08 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 – 60 MINUTE FIRE RESISTIVE RESTRAINED FLOOR ASSEMBLY

- A. Manufacturer: GPX FireFloor 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. Fire resistive restrained floor assembly must be provided by a single-source, US manufacturer. Distributors of fire rated glass and framing are not to be considered as manufacturers.
- C. Substitutions: No substitutions allowed.

2.02 MATERIALS – STEEL FRAMING SYSTEM

- A. Manufacturer's standard steel framing members of thickness required and reinforced as required to support imposed loads.

Construction: Structural Steel members permanently joined with mechanical or welded connections.

1. Structural Shapes, Plates, and Bars: ASTM A36/A 36M.
2. Cold-Rolled Sheet and Strip: ASTM A611.
3. Hot-Rolled Sheet and Strip: ASTM A570/A570M.

- B. Brackets and Reinforcements: to match requirements above.

- C. Fasteners and Accessories

1. Material: Stainless steel
2. Where fasteners are subject to loosening or turn out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
3. Reinforce members as required to receive fastener threads.
4. Use exposed fasteners with countersunk Phillips screw heads.
5. Finish exposed portions to match framing system.
6. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.

- D. Sealants: Manufacturer's standard sealants.

2.03 MATERIALS – GLASS

- A. Single glass unit glazed with fire resistive custom SuperLite™ II-XL combined with a tempered laminated walking surface. Designed with no airspace between the fire rated glass and walkable surface to eliminate condensation issues.

- B. Properties:

1. Walking surface glazing assembly:
 - a. Laminated structural glass
 - b. Low iron tempered glass
 - c. Tinted tempered glass
 - d. Other
2. Individual glass panel maximum size: 82-3/8" x 85-3/16" fully supported and 67-7/8" x 70-3/16" butt-glazed.

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

2.04. ACCESSORIES

- A. Gaskets:

1. Setting strip: Silicone
2. Seal between weight bearing glass units: Silicone
3. Setting blocks, and shims or spacers.

2.05. PERFORMANCE REQUIREMENTS

A. System Description

1. Fabricated steel tube and fire-rated glazed flooring system, consisting of factory cut and finished structural steel tubing, a laminated glass load bearing floor surface and a fire glazed pressure plate, ceiling below.
2. Provide the system with a multi laminate walking surface glass with a non-slip frit applied to the number one surface.
3. Span Width: [10 feet] [20 feet]
4. Face Width: 3-1/8-inch wide.

B. Structural Performance

1. Structural Loads:
 - a. Live Load: [As indicated on Drawings] <Insert specific loads>.
 - b. Dead Load: [As indicated on Drawings] <Insert specific loads>.
 - c. Seismic Loads: [As indicated on Drawings] <Insert specific loads>.
2. Thermal Movements: Provide steel fire-rated floor systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures.
 - a. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
3. Walking surface Coefficient of Friction (CoF)
 - a. General: There is no national standard for slip resistance. Use the following as guides for providing this work. Provide data that states the type of test apparatus, method of test and result. As machines and test methods vary so will results the numbers listed below are to be used as a guide.
 - 1) For ADA accessible areas: ADAAG recommends a CoF of 0.06 flat and 0.08 for ramps when measured with a NBS-Brungraber machine using a silastic sensor shoe on dry surfaces.
 - 2) For dry flat surfaces for other than ADA accessibility a CoF of 0.05 is referenced in the literature.
4. Dimensional tolerances of building frame and other adjacent construction.
5. Failure includes the following:
 - a. Deflection exceeding specified limits.
 - b. Thermal stresses transferred to building structure.
 - c. Glass breakage
 - d. Loosening or weakening of fasteners, attachments, and other components.
 - e. Sealant failure.

2.06 FABRICATION

- A. 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. Appearance of Finished Work: Minor variations in appearance of abutting or adjacent pieces are acceptable. Noticeable variations in the same piece are not acceptable.

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. General: Install floor systems plumb, level, and true to line, without warp or rack of frames with manufacturer's prescribed tolerances and installation instructions. Provide support and anchor in place.

1. Comply with manufacturers written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure non-movement joints.
5. Seal joints watertight unless otherwise indicated.

B. Fire resistive restrained floor assembly shall be installed by a licensed contractor and in strict accordance with the approved shop drawings.

C. Obtain glazing accessories from one source for each product and installation method indicated.

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.

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

- E. General contractor shall assure that adequate protection is provided after installation so other trades do not damage floor surface.
- F. Remove construction debris from project site and legally dispose of debris.

END OF SECTION

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