SECTION 07 4210.11

COMPOSITE FRAMING SUPPORT SYSTEM

PART 1 GENERAL

1.1 SUMMARY

A. Composite framing support (CFS) system for metal panel rainscreen façade assemblies (WF-1, WF-2) at Lenses and CMU backup wall conditions (WM-1).

B. Related Documents and Sections: Examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Other Documents and Sections that directly relate to work of this Section include, but are not limited to:

1. General provisions of the Contract, including General and Supplementary Conditions, and Division 01 General Requirements Specification Sections.
2. Section 05 4000 - COLD-FORMED METAL FRAMING.
3. Section 06 1000 - ROUGH CARPENTRY.
4. Section 07 2100 - BUILDING INSULATION.
5. Section 07 2700 - AIR BARRIER MEMBRANES
6. Section 07 4213 - FORMED METAL WALL PANELS
7. Section 07 4213.16 - METAL PLATE WALL PANELS
8. Section 07 4243 - COMPOSITE METAL WALL PANELS
9. Section 07 4247 - HIGH PERFORMANCE GFRC WALL PANELS
10. Section 07 9200 - JOINT SEALANTS.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate construction of wall cladding support system over substrate indicated for proper drainage, flashing, trim, back-up support, soffits, and other related Work.

1. Review and finalize construction schedule.
2. Verify availability of materials, installer's personnel, equipment, and facilities needed to maintain schedule.
3. Review means and methods related to installation, including manufacturer's written instructions.
4. Examine support conditions for compliance with requirements, including alignment and attachment to structural support system.
5. Review flashings, wall cladding details, wall penetrations, openings, and condition of other construction that affects this Work.
6. Review temporary protection requirements for during and after installation of this Work.

1.3 SUBMITTALS

A. Product Data: Submit for each type of product indicated; include construction details, material descriptions, dimensions of individual components and profiles, and accessories as necessary for complete fully functioning and assembled system.

1. Continuous insulation support system attachment methods and required fasteners
2. Wall-mounted items including doors, windows, louvers, and lighting fixtures
3. Wall penetrations including pipes, electrical fixtures, and any other utilities

B. Test and Inspection Reports: Submit test and inspection reports on each type of wall cladding/veneer system based on evaluation of comprehensive tests performed by nationally

recognized testing agency.

C. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with at least three years of documented experience.

B. Installer: Company specializing in performing work of this section and the following:

1. Install system in strict compliance with manufacturer’s installation instructions.
2. Have not less than three years of documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in manufacturer’s original unopened containers and packaging with labels clearly identifying product name and manufacturer.

B. Deliver components and other manufactured items or accessories without damage or deformation.

C. Storage: Store materials in clean, dry, and level interior areas or outdoor areas for limited duration in accordance with manufacturer’s written instructions.

D. Protect components and auxiliary accessories during transportation, handling, and installation from moisture, excessive temperatures and other construction operations in accordance with manufacturer’s written instructions.

E. Handle components in strict compliance with manufacturer’s written instructions and recommendations, and in a manner to prevent bending, warping, twisting, and surface, edge or corner damage.

1.6 SITE CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of this Work in accordance with manufacturer's written installation instructions and warranty requirements.

1.7 WARRANTY

A. CFS System Warranty: Provide written warranty by manufacturer agreeing to correct defects in manufacturing within five years after Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Advanced Architectural Products (A2P): SMARTci GreenGirt 1-in-1 System

1. Other products shall be pre-submitted and approved products that meet materials and performance requirements with specified and validated third party testing.

2.2 COMPOSITE FRAMING SUPPORT (CFS) SYSTEM

A. CFS System: Provide CFS system consisting of polyester and vinyl ester bioresin matrix (FRP) with recycled materials, fire retardant additives and integral continuous metal inserts the length of

profile. Reinforce CFS system with glass strand rovings used internally for longitudinal (lengthwise) strength and continuous strand glass mats or stitched reinforcements used internally for transverse (crosswise) strength.

1. Depth of GreenGirts: As indicated.
2. On Center Spacing: As indicated..
3. Provide continuous non-corrosive steel insert for engagement of fasteners, at least 16 gage thick with G90 galvanized coating designation in compliance with ASTM A653.
   a. Fully engage steel insert with adjacent CFS at ends.
   b. Anchor sub-girts and other wall cladding support accessories to steel insert set into and part of CFS.
4. Provide integral compression seal in CFS sections to ensure insulation panel will not dislodge.
5. Provide integral anti-siphon grooves on exterior and interior flanges of CFS.
6. Provide force distribution zones integrally designed into profile of CFS.

B. Performance Requirements:

1. Surface Burning Characteristics:
   a. Flame Spread Index (FSI): 25 or less, when tested in accordance with ASTM E84.
   b. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
2. Flammability: Comply with ASTM E84.
3. Self-Extinguishing: Comply with ASTM D635.
4. Profile Visual Requirements: Comply with ASTM D4385.
5. Tensile Stress: Provide engineered lengthwise and crosswise tensile stress in compliance with performance loading criteria and specified safety factors, in accordance with ASTM D638.
6. Compressive Stress: Provide engineered lengthwise and crosswise compressive stress in compliance with performance loading criteria and specified safety factors, in accordance with ASTM D695.
7. Flexural Stress: Provide engineered lengthwise and crosswise flexural stress in compliance with performance loading criteria and specified safety factors, in accordance with ASTM D790.
8. Modulus of Elasticity: Engineered to meet performance loading criteria and specified safety factors.
9. Barcol Hardness: 45, in accordance with ASTM D2583.
10. Water Absorption: Less than 0.46 percent by weight, within 24 hours, tested in accordance with ASTM D570.
11. Density: Within range of 0.062 to 0.070 lbs/cubic inch, in accordance with ASTM D792.
12. Lengthwise Coefficient of Thermal Expansion: 7.0 x $10^{-}6$ inch/inch/degrees F, in accordance with ASTM D696.
13. Notched Izod Impact, Lengthwise: 24 ft lbs/inch, in accordance with ASTM D256 within temperature range indicated.
14. Notched Izod Impact, Crosswise: 4 ft lbs/inch, in accordance with ASTM D256 within temperature range indicated.

2.3 INSULATION

A. Refer to Section 07 2100.

2.4 ASSEMBLY

A. Assemble CFS system using manufacturer’s standard procedures and processes identical to tested units and as necessary to comply with performance requirements indicated.

1. Comply with CFS system and dimensional and structural requirements as indicated on drawings.
2. Erect CFS system in established sequence in accordance with manufacturer's standard installation procedures.
3. Provide spray foam sealant on backside of cantilevered fasteners that completely puncture insulation layer.

2.5 ACCESSORIES

A. Provide accessories necessary for complete CFS system.

B. Fasteners: Corrosion-resistant, self-tapping and self-drilling screws, bolts, nuts, and other fasteners as recommended by CFS system manufacturer for project application.

C. Sealants: Refer to Section 07 9200 for sealant information.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas of this work, and project conditions with installer present for compliance with requirements for installation tolerances, substrates, CFS system conditions, and other conditions affecting performance of this Work.

B. Examine structural wall framing to ensure that angles, channels, studs, and other structural support members have been installed within alignment tolerances required by CFS system manufacturer.

C. Examine rough-in for components and systems penetrating CFS system to coordinate actual locations of penetrations relative to CFS systems joint locations prior to installation.

D. Verify that mechanical and electrical services for exterior walls have been installed and tested and, if appropriate, verify that adjacent materials and finishes are dry and ready to receive insulation.

E. Proceed with installation only after wall substrate surfaces have been properly prepared and unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using methods recommended by CFS manufacturer for achieving best result for substrate under project conditions.

C. Prepare sub-framing, base angles, sills, furring, and other CFS system members and provide anchorage in accordance with ASTM C754 for substrate type and wall cladding type in accordance with manufacturer's installation instructions.

3.3 INSTALLATION

A. Install CFS system in accordance with manufacturer's installation instructions.

B. Install system to fill-in exterior spaces without gaps or voids, and do not compress insulation panels.

C. Trim insulation neatly to fit spaces, and insulate miscellaneous gaps and voids.

D. Fit insulation tight in spaces and tight to exterior side of Mechanical/Electrical services within plane of insulation.

E. Exposed insulation must be protected from open flame.

F. Exterior wall insulation is not intended to be left exposed for extended periods of time without adequate protection.

G. Install CFS system in compliance with system orientation, sizes, and locations as indicated on drawings.

3.4 TOLERANCES

A. Shim and align CFS system within installed tolerances of 1/4 inch in 20 feet, non-cumulative, level, plumb, and on location lines as indicated.

3.5 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

B. Ensure that insulation panels are not exposed to moisture.

1. Remove wet insulation panels or allow them to completely dry prior to installation of CFS system. Replace damaged insulation prior to Date of Substantial Completion.

END OF SECTION

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