

## SECTION 07430

### COMPOSITE PANELS

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Exterior application of \_\_\_\_\_-surfaced composite panels.
- B. Interior application of \_\_\_\_\_-surfaced composite panels.
- C. Panel edging.
- D. Concealed connection and anchorage hardware.
- E. Structural adhesives and sealants.

##### 1.2 RELATED SECTIONS

- A. Section 05400 - Cold Formed Metal Framing: Structural support for exterior composite panels.
- B. Section 07620 - Sheet Metal Flashing and Trim: Flashing for exterior composite panels.
- C. Section 07900 - Joint Sealers: Sealant at panel joints and edges.
- D. Section 09260 - Gypsum Board Assemblies: Substrate for interior composite panels.

##### 1.3 REFERENCES

- A. AAMA 501.1 - Standard Test Method for Metal Curtain Walls for Water Penetration Using Dynamic Pressure; American Architectural Manufacturers Association.
- B. ASTM C 365 - Standard Test Method for Flatwise Compressive Strength of Sandwich Cores.
- C. ASTM C 384 - Standard Test Method for Impedance and Absorption of Acoustical Materials by the Impedance Tube Method.
- D. ASTM C 393 - Standard Test Method for Flexural Properties of Flat Sandwich Constructions.

- E. ASTM C 518 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- F. ASTM D 570 - Standard Test Method for Water Absorption of Plastics.
- G. ASTM D 790 - Standard Test Methods for Flexural Properties of Plastics and Electrical Insulating Materials.
- H. D 3029 - Standard Test Method for Impact Resistance of Flat Rigid Plastic Specimens by Means of a Tup (Falling Weight).
- I. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- J. ASTM E 283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- K. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors By Uniform Static Air Pressure Difference
- L. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors By Uniform Static Air Pressure Difference
- M. UL 94 - Tests for Flammability of Plastic Materials for Parts in Devices and Appliances

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Structural: Tested per ASTM E 330 at a design pressure of \_\_\_\_\_ psf, with maximum deflection of L/180 and certified to be without permanent deformation or structural failures.
- B. Air Infiltration: Not more than 0.06 cfm per square foot of wall area, when tested at 1.57 psf per ASTM E 283.
- C. Water Infiltration: No uncontrolled water penetration under static pressure when tested per ASTM E 331 at 6.24 psf minimum for fifteen minutes.

- D. Dynamic Water Penetration: No uncontrolled water penetration when tested at \_\_\_ mph per AAMA 501.1.
- E. Fire: Flame spread 10 maximum; smoke developed 195 maximum; per ASTM E 84.
- F. Toxicity Evaluation: No more toxic than Douglas fir, per University of Pittsburgh Test Method.
- G. Multi-Story Fire Evaluation: Meet acceptance criteria of UBC 17-6.

#### 1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Specifications, installation instructions, and manufacturer's recommendations for protection and cleaning of completed installation.
- C. Shop Drawings: Show overall layout of panel system, indicating joint locations and sizes. Include complete details of support and attachment systems, in addition to details for corners, panel meeting conditions, and edges.
- D. Selection Samples: Color charts or actual samples illustrating full range of available surface finishing materials.
- E. Verification Samples: 12 x 12 inch sample panels in thickness and finish specified, including clips, anchors, and other accessories to illustrate finished appearance of composite panels.
- F. Test Data: Submit summary of independent testing laboratory report on results of performance tests, indicating compliance with specified performance levels.
- G. References: Submit references specified under Quality Assurance.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company with a minimum of five years of demonstrated capacity to produce composite

reinforced panels of the type specified in this section and meeting the performance requirements included.

1. Company shall have completed independent laboratory tests illustrating manufacturer's ability to provide panels of performance levels specified herein.
2. References from five or more projects of similar size and scope completed within the past three years.

B. Installer Qualifications: Experienced installers trained by manufacturer of composite panels.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

A. Protection: Protect finish of panels in accordance with instructions of panel manufacturer.

B. Delivery and Handling: Package composite panels for protection against transportation damage. Exercise care in unloading and storing panels to prevent bending, warping, and surface damage.

C. Storage: Store flat under cover until project installation begins.

#### 1.8 WARRANTY

A. Provide manufacturer's standard warranty against defects in the panel or delamination of panel components.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

A. The design is based on NorCore(R) composite panels as manufactured by Norfield Corporation; 356 Kenosia Avenue; Danbury, CT 06810. Telephone: 203-792-5110 for general information and technical support; 203-797-0390.

B. Substitutions: Comply with requirements of Section 01600.

C. Substitutions are not permitted.

#### 2.2 MATERIALS

A. Core Material: Honeycomb thermoplastic material engineered by manufacturer to meet performance requirements when laminated with specified face material.

- B. Core Material: \_\_\_\_\_ sheet expanded to form smooth-faced honeycomb panel \_\_\_\_\_ inches thick, conforming to the following:
1. Weight: \_\_\_\_\_ pounds per square foot, nominal.
  2. Flexural strength, in accordance with ASTM C 393 and ASTM D 790: \_\_\_\_\_ pounds per square inch.
  3. Flexural modulus, in accordance with ASTM C 393 and ASTM D 790: \_\_\_\_\_ pounds per square inch.
  4. Compressive strength, in accordance with ASTM C 365: \_\_\_\_\_ pounds per square inch.
  5. Water absorption, in accordance with ASTM D 570: \_\_\_\_\_ percent by weight.
  6. Thermal resistance, in accordance with ASTM C 518: \_\_\_\_\_ pounds per square inch.
  7. Sound transmission loss, in accordance with ASTM C 384: \_\_\_\_\_ decibels.
  8. Impact resistance and deflection, in accordance with ASTM D 3029: \_\_\_\_\_ inch.
  9. Fire resistance, in accordance with ASTM E 84 and UL 94: \_\_\_\_\_.
  10. Wind load capacity: \_\_\_\_\_ pounds per square foot.
- C. Panel Facing: Stone veneer; \_\_\_\_\_ natural stone, \_\_\_\_\_ color, \_\_\_\_\_ inch thick +/- \_\_\_\_\_ inch, with \_\_\_\_\_ finish.
- D. Panel Facing: \_\_\_\_\_, \_\_\_\_\_ inch thickness, in finish to match Architect's sample.
- E. Panel Facing: \_\_\_\_\_, \_\_\_\_\_ inch thickness, \_\_\_\_\_ finish.
- F. Panel Edging Material: \_\_\_\_\_, \_\_\_\_\_ inch thick.
- G. Panel Edging Material: Same material, thickness, and finish as face material.

### 2.3 ACCESSORIES

- A. Connection and Anchorage Hardware: Provide all hardware for connecting composite panels to substrate, including kerf clips, z-clips, angle clips, and threaded inserts, as detailed in approved shop drawings.
1. Provide hardware of sufficient size, thickness, and strength to support panels securely against applied loads.

- 2. Conceal all fasteners.
- B. Structural Silicone: Provide structural silicone for support of composite panels as specified in Section 07900.
- C. Joint Sealers: Provide joint sealers for panel to panel joints and edge conditions as specified in Section 07900.
- D. Adhesives: Types recommended by manufacturer for project conditions.

## 2.4 FABRICATION

- A. Shop fabricate composite panels by laminating face materials to structural plastic core, producing composite panels with performance characteristics not less than those specified.
- B. Properties of Finished Panels:
  - 1. Overall thickness: As required to achieve structural properties.
  - 2. Overall thickness: \_\_\_\_\_ inches.
  - 3. Panel size: 4 by 8 feet.
  - 4. Panel size: 4 by 10 feet.
  - 5. Panel size: 5 by 10 feet.
  - 6. Panel size: As indicated on the drawings.
  - 7. Dimensional tolerance: Plus or minus 1/16 inch in all directions, including diagonally.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that conditions are acceptable for installation of composite panels before beginning the work; do not proceed until unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install composite panels in accordance with the instructions and recommendations of the panel manufacturer, except where more stringent requirements are set forth in the drawings and specifications.

- B. Install composite panels plumb, level, and true to line, in accordance with approved shop drawings and with all fasteners concealed.
- C. Installation Tolerances: Maximum deviation from line or plane: 1/8 inch in 10 feet, non-cumulative.
- D. Joint Sealers: Install joint sealers in accordance with approved shop drawing details and to comply with requirements of Section 07900.

### 3.3 ADJUSTING AND CLEANING

- A. Cleaning: Clean all dirt, adhesives, and joint sealer from panels and adjacent surfaces, using detergents or solvents as appropriate to surfaces and as approved by the composite panel manufacturer.
- B. Adjusting: Touch up minor mars and chipped surfaces to match adjacent undamaged areas, to the approval of the Architect. Replace damaged panels that cannot be touched up to achieve a satisfactory appearance.

END OF SECTION