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Product Guide Specification

Specifier Notes: This product guide specification is written in Construction Specifications Institute (CSI) 3-Part Format in accordance with *The CSI Construction Specifications Practice Guide*, including *MasterFormat*, *SectionFormat*, and *PageFormat*.

This section must be carefully reviewed and edited by the Architect to meet the requirements of the Project and local building code. Coordinate this section with Division 01, other specification sections, and the Drawings. Delete all Specifier Notes after editing this section.

Section numbers and titles are based on *MasterFormat 2014 Update*.

SECTION 06 83 16

FIBERGLASS REINFORCED PANELING

Specifier Notes: This section covers Crane Composites, Inc. (formerly Kemlite) "Glasbord" fiberglass reinforced plastic (FRP) Class A and Class C wall and ceiling panels. Consult Crane Composites, Inc. for assistance in editing this section as required by Project.

PART 1 GENERAL

1.1 SECTION INCLUDES

Specifier Notes: Edit the following sentence as required by Project.

- A. Fiberglass reinforced plastic (FRP) [wall] [ceiling] [wall and ceiling] panels.

1.2 RELATED REQUIREMENTS

Specifier Notes: Edit the following list of related sections as required by Project. Limit the list to sections with specific information that the reader might expect to find in this section, but is specified elsewhere.

- A. Section 07 92 00 – Joint Sealants.

1.3 REFERENCE STANDARDS

Specifier Notes: List reference standards used elsewhere in this section, complete with designations and titles.

- A. ASTM International (ASTM) (www.astm.org):
 1. ASTM D 2583 – Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.
 2. ASTM D 5319 – Standard Specification for Glass-Fiber Reinforced Polyester Wall and Ceiling Panels.
 3. ASTM D 5420 – Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact).
 4. ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

Specifier Notes: Include the following paragraph when FM 4880 approval is required.

- B. FM Global (FM) (www.fmglobal.com):
 1. ANSI FM Approval 4880 – Class 1 Fire Rating of Insulated Wall or Wall and Roof/Ceiling Panels, Interior Finish Materials or Coatings, and Exterior; Wall Systems.

Specifier Notes: Include the following paragraph when GREENGUARD certification is required.

- C. UL (www.ul.com):
 1. UL 2818 – GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings.

1.4 PREINSTALLATION MEETINGS

Specifier Notes: Edit preinstallation meetings as required by Project. Delete if not required.

- A. Convene preinstallation meeting [1 week] [2 weeks] before start of Work of this Section.
- B. Require attendance of parties directly affecting Work of this Section, including Contractor, Architect, installer, and manufacturer's representative.
- C. Review the Following:
 1. Materials.

2. Preparation.
3. Installation.

Specifier Notes: Include field quality control if Field Quality Control article is included in Part 3 of this section.

4. Field quality control.
5. Adjusting.
6. Cleaning.
7. Protection.
8. Coordination with other Work.

1.5 ACTION SUBMITTALS

Specifier Notes: Edit Action Submittals as required by Project. Delete Action Submittals not required.

- A. Comply with Division 01.
- B. Product Data: Submit manufacturer's product data for each type of product required.
- C. Samples: Submit manufacturer's selection and verification samples for finish, colors, patterns, and textures.
 1. Submit 2 samples of each type of panel, trim, and fastener.
- D. Certificates: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.
- E. Test and Evaluation Reports: Submit reports showing compliance with specified performance characteristics and physical properties.
- F. Manufacturer's Instructions: Submit manufacturer's installation and storage instructions.

Specifier Notes: Include the following paragraph if compliance with USGBC LEED IEQ 4.1 is required. Crane Composites, Inc. offers its LEED Information Form #6931 for this purpose.

- G. LEED Submittal Documentation:
 1. Product Certificates and Laboratory Test Reports: For LEED Credit IEQ 4.1, for adhesives, sealants, and panels, including printed statement of VOC content.

Specifier Notes: Include the following paragraph when GREENGUARD Certification is required.

- H. Environmental Certifications: Submit certificates for GREENGUARD Indoor Air Quality and Children & Schools Certification.
- I. Manufacturer's Project References: Submit manufacturer's list of successfully completed FRP panel projects, including project name and location, name of architect, and type and quantity of FRP panels furnished.

- J. Installer's Project References: Submit installer's list of successfully completed FRP panel projects, including project name and location, name of architect, and type and quantity of FRP panels installed.

1.6 CLOSEOUT SUBMITTALS

Specifier Notes: Edit Closeout Submittals as required by Project. Delete Closeout Submittals not required.

- A. Comply with Division 01.
- B. Care and Maintenance Instructions: Submit manufacturer's care and maintenance instructions, including cleaning and repairing instructions.
- C. Warranty Documentation: Submit manufacturer's standard warranty.

1.7 MAINTENANCE MATERIAL SUBMITTALS

Specifier Notes: Edit Maintenance Material Submittals as required by Project. Delete Maintenance Material Submittals not required.

- A. Comply with Division 01.
- B. Extra Stock Materials:
 - 1. Deliver to Owner extra stock materials from same production run as products installed.

Specifier Notes: Specify percent of FRP panels to be furnished as extra stock materials.

- 2. Quantity: Furnish quantity of FRP panels equal to _____ percent of amount installed.
- 3. Delivery, Storage, and Protection:
 - a. Comply with Owner's requirements for delivery, storage, and protection of extra stock materials.
 - b. Package extra stock materials with protective covering and include labels clearly identifying product name and manufacturer.

1.8 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Manufacturer regularly engaged, for a minimum of 10 years, in the manufacturing of FRP panels of similar type to that specified.
- B. Installer's Qualifications:
 - 1. Installer regularly engaged, for a minimum of 5 years, in installation of FRP panels of similar type to that specified.
 - 2. Employ persons trained for installation of FRP panels.

Specifier Notes: Edit the following paragraph as required by Project. Delete if not required.

- C. Surface-Burning Characteristics: Determined by testing identical products according to ASTM E 84 by a testing agency acceptable to authorities having jurisdiction.
1. Flame-Spread Index: [25 (Class A)] [200 (Class C)] [_____], equal to or less.
 2. Smoke-Developed Index: [450] [_____], equal to or less.

Specifier Notes: Include the following paragraph when FM approval and Crane Composites Class A "Glasbord FX" are required.

- D. FM Approved: Crane Composites "Glasbord FXE".

Specifier Notes: Include the following paragraph when USDA approval is required.

- E. Meets USDA/FSIS requirements.

Specifier Notes: Crane Composites, Inc. FRP panels have earned GREENGUARD Certification. Include the following paragraph when GREENGUARD certification is required.

- F. Environmental Certification: GREENGUARD Certification UL 2818.

Specifier Notes: Specify mock-ups as required by Project. Delete if not required.

- G. Mock-ups:
1. Install at Project site a mock-up using acceptable products and manufacturer-approved installation methods.
 2. Construct mock-up at location determined by Architect.
 3. Obtain Architect approval and acceptance of finish, color, texture, pattern, trim, fasteners, and quality of installation.

Specifier Notes: Specify mock-up size.

4. Mock-Up Size: _____.
5. Maintain mock-up during construction for quality comparison.
6. Remove mock-up when no longer required.
7. Mock-up may be incorporated into final construction upon Architect approval.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Delivery Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage and Handling Requirements:
1. Store and handle materials in accordance with manufacturer's instructions.

2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
3. Store materials in clean, dry area indoors at temperature and humidity conditions in accordance with manufacturer's instructions.
4. Store materials on flat, level surface, raised above floor, with adequate support to prevent sagging.
5. Store materials out of direct sunlight.
6. Protect materials and finish during storage, handling, and installation to prevent damage.

1.10 AMBIENT CONDITIONS

- A. Do Not Begin Installation Until:
 1. Building is enclosed.
 2. Permanent heating and cooling equipment is in operation.
 3. Residual moisture from plaster, concrete, or terrazzo has dissipated.
- B. During installation and within 48 hours before installation, maintain ambient temperature and relative humidity within limits required by type of FRP panel adhesive used and adhesive manufacturer's instructions.

Specifier Notes: Coordinate Warranty article with Conditions of the Contract and Division 01.

1.11 WARRANTY

- A. Warranty Period: 1 year from date of purchase.
- B. Limited Warranty Period: Prorated years 2 to 10 from date of purchase.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Crane Composites, Inc. (formerly Kemlite) 23525 West Eames Street, Channahon, Illinois 60410. Toll Free 800-435-0080. Phone 815-467-8600. Fax 815-467-8666. Website www.cranecomposites.com. Email salesbp@cranecomposites.com.

Specifier Notes: Specify if substitutions will be permitted.

- B. Substitutions: [Not permitted] [Comply with Division 01].
- C. Single Source: Provide FRP panels and accessories from single manufacturer.

2.2 FRP PANELS

Specifier Notes: Specify "Glasbord" FRP panels as required by Project. Delete panels not required.

- A. Fiberglass Reinforced Plastic (FRP) Panels: Crane Composites FM Approved "Glasbord FXE".
 - 1. Class A.
 - 2. Use: Walls and ceilings.
 - 3. Surface Finish: Pebbled embossed texture.
 - 4. Scratch Resistance, ASTM D 2583, Barcol Hardness: 55.
 - 5. Abrasion Resistance, Taber Abrasion Test, CS-17 abrasive wheels with 1,000 g weight: Weight loss after 25 cycles of no more than 0.038 percent.
 - 6. Impact Strength, ASTM D 5420: 11.0 in-lbs (0.58 J), showing no visible damage on finish side.

- B. Fiberglass Reinforced Plastic (FRP) Panels: Crane Composites "Glasbord FX".
 - 1. Class A.
 - 2. Use: Walls and ceilings.
 - 3. Surface Finish: Pebbled embossed texture.
 - 4. Scratch Resistance, ASTM D 2583, Barcol Hardness: 40.
 - 5. Abrasion Resistance, Taber Abrasion Test, CS-17 abrasive wheels with 1,000 g weight: Weight loss after 25 cycles of no more than 0.038 percent.
 - 6. Impact Strength, ASTM D 5420: 45 in-lbs (5.1 J), showing no visible damage on finish side.

- C. Fiberglass Reinforced Plastic (FRP) Panels: Crane Composites FM Approved "Glasbord Smooth Finish FSFM".
 - 1. Class A.
 - 2. Use: Walls.
 - 3. Surface Finish: Smooth.
 - 4. Scratch Resistance, ASTM D 2583, Barcol Hardness: 55.
 - 5. Abrasion Resistance, Taber Abrasion Test, CS-17 abrasive wheels with 1,000 g weight: Weight loss after 25 cycles of no more than 0.038 percent.
 - 6. Impact Strength, ASTM D 5420: 11.0 in-lbs (0.58 J), showing no visible damage on finish side.

- D. Fiberglass Reinforced Plastic (FRP) Panels: Crane Composites "Glasbord FSI".
 - 1. Class A.
 - 2. Use: Walls and ceilings.
 - 3. Surface Finish: Smooth.
 - 4. Scratch Resistance, ASTM D 2583, Barcol Hardness: 50.
 - 5. Abrasion Resistance, Taber Abrasion Test, CS-17 abrasive wheels with 1,000 g weight: Weight loss after 25 cycles of no more than 0.038 percent.
 - 6. Impact Strength, ASTM D 5420: 11 in-lbs (0.59 J), showing no visible damage on finish side.

- E. Fiberglass Reinforced Plastic (FRP) Panels: Crane Composites "Glasbord PIF".
 - 1. Class C.
 - 2. Use: Walls.
 - 3. Surface Finish: Pebbled embossed texture.

4. Scratch Resistance, ASTM D 2583, Barcol Hardness: 35.
 5. Abrasion Resistance, Taber Abrasion Test, CS-17 abrasive wheels with 1,000 g weight: Weight loss after 25 cycles of no more than 0.038 percent.
 6. Impact Strength, ASTM D 5420: 6.0 in-lbs (0.32 J), showing no visible damage on finish side.
- F. Fiberglass Reinforced Plastic (FRP) Panels: Crane Composites “Glasbord FTSTF”.
1. Class C.
 2. Use: Walls.
 3. Surface Finish: Pebbled embossed texture.
 4. Scratch Resistance, ASTM D 2583, Barcol Hardness: 30.
 5. Abrasion Resistance, Taber Abrasion Test, CS-17 abrasive wheels with 1,000 g weight: Weight loss after 25 cycles of no more than 0.038 percent.
 6. Impact Strength, ASTM D 5420: 3.3 in-lbs (0.18 J), showing no visible damage on finish side.
- G. Fiberglass Reinforced Plastic (FRP) Panels: Crane Composites “Glasbord Smooth PSIF”.
1. Class C.
 2. Use: Walls and ceilings.
 3. Surface Finish: Smooth.
 4. Scratch Resistance, ASTM D 2583, Barcol Hardness: 45.
 5. Abrasion Resistance, Taber Abrasion Test, CS-17 abrasive wheels with 1,000 g weight: Weight loss after 25 cycles of no more than 0.038 percent.
 6. Impact Strength, ASTM D 5420: 4.0 in-lbs (0.21 J), showing no visible damage on finish side.
- H. Fiberglass Reinforced Plastic (FRP) Panels: Crane Composites “Glasbord CGI”.
1. Class C.
 2. Use: Ceilings.
 3. Surface Finish: Pebbled embossed texture.
 4. Scratch Resistance, ASTM D 2583, Barcol Hardness: 60.
 5. Abrasion Resistance, Taber Abrasion Test, CS-17 abrasive wheels with 1,000-g weight: Weight loss after 25 cycles of no more than 0.038 percent.
 6. Impact Strength, ASTM D 5420: 6.3 in-lbs (0.34 J), showing no visible damage on finish side.
- I. Panel Compliance: ASTM D 5319.

Specifier Notes: Include the following paragraph when low-emitting materials are required.

- J. Panel Low-Emitting Materials: Comply with testing and product requirements of California Department of Health Services standards for Volatile Organic Emissions.
- K. Panel Surface Protection: “Surfaseal” molecularly-bonded surface protection film for impact, abrasion, and scratch resistance.

Specifier Notes: Specify panel color. Consult Crane Composites, Inc. for availability of custom colors. "Glasbord CGI" is only available in 85 White. 1201 Black is only available with "Glasbord Class C FTSTF".

- L. Panel Color: [85 White] [84 Ivory] [83 Colonial White] [70 Soft Beige] [66 Silver] [48 Pearl Gray] [15 Stone] [1201 Black] [As selected by Architect from manufacturer's full range] [_____].
- M. Panel Dimensions:

Specifier Notes: Specify panel nominal thickness.

- 1. Nominal Thickness: [0.075 inch (1.9 mm)] [0.09 inch (2.3 mm)] [0.10 inch (2.5 mm)] [0.12 inch (3.0 mm)].

Specifier Notes: Specify wall panel size.

- 2. Wall Panel Size: [4 feet by 8 feet (1.2 m by 2.4 m)] [4 feet by 9 feet (1.2 m by 2.7 m)] [4 feet by 10 feet (1.2 m by 3 m)] [4 feet by 12 feet (1.2 m by 3.7 m)] [As indicated on the Drawings].

Specifier Notes: Specify ceiling panel size.

- 3. Ceiling Panel Size: [23-3/4 inches by 47-3/4 inches (0.6 m by 1.2 m)] [23-3/4 inches by 23-3/4 inches (0.6 m by 0.6 m)] [As indicated on the Drawings].

Specifier Notes: Specify ceiling panel size when using Crane Composites, Inc. "Sanigrid II" fiberglass ceiling grid system. Consult Crane Composites, Inc. for more information.

- 4. Ceiling Panel Size for Use with Grid System: [23-3/4 inches by 48 inches (0.6 m by 1.22 m)] [23-3/4 inches by 23-3/4 inches (0.6 m by 0.6 m)] [As indicated on the Drawings].

2.3 ACCESSORIES

Specifier Notes: Delete accessories not required by Project.

- A. Moldings, Trim, and Caps: 1-piece extruded polypropylene or PVC, configured to cover panel edges and corners.

Specifier Notes: Coordinate color selection for moldings, trim, and caps with color of required FRP panels.

1. Color: [85 White] [84 Ivory] [83 Colonial White] [70 Soft Beige] [66 Silver] [48 Pearl Gray] [15 Stone] [1201 Black] [Match FRP panels] [As selected by Architect from manufacturer's full product range].
- B. Panel Adhesive: As recommended by FRP panel manufacturer for required substrates.

Specifier Notes: Specify maximum VOC content of panel adhesive.

1. VOC Content: Maximum [50 g/L] [_____ g/L].
- C. Panel Seam Sealant: Bright white, 2-part urethane sealant, as recommended by FRP panel manufacturer.
 1. VOC Content: 0.0 g/L.

Specifier Notes: Specify rivet fasteners for applications with large fluctuations in temperature or humidity, where the substrate is uneven, and in all low temperature or cold storage applications. Consult Crane Composites, Inc. for more information.

- D. Rivets:

Specifier Notes: Specify rivet color.

1. Color: [White] [Beige] [Cream] [Gray] [Silver] [Match FRP panels].

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive FRP panels.
- B. Examine Substrate Surfaces to Determine:
 1. Corners: Plumb and straight.
 2. Surfaces: Smooth, sound, and uniform.
 3. Nails or Screw Fasteners: Countersunk.
 4. Joints and Cracks: Filled flush and smooth with adjoining surfaces.
- C. Notify Architect of conditions that would adversely affect installation or subsequent use.
- D. Do not begin preparation or installation until unacceptable conditions are corrected.

3.2 PREPARATION

- A. Clean substrates to remove substances that could impair bond of adhesive, including oil, grease, dirt, dust, or other contaminants.
- B. Acclimate FRP panels by unpacking and placing in installation space a minimum of 24 hours before installation.
- C. Lay out FRP panels before beginning installation.
 - 1. Locate panel joints to provide equal panel widths at ends of walls.
 - 2. Locate panel joints to provide trimmed panels at corners a minimum of 12 inches (300 mm) wide.

3.3 INSTALLATION

- A. Install FRP panels in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Install FRP panels plumb, level, square, flat, and in proper alignment.
- C. Install FRP panels to be water resistant and washable.
- D. Install FRP panels with manufacturer's recommended gap for panel field and corner joints.
- E. Fasteners:
 - 1. Use fasteners in accordance with manufacturer's instructions to install FRP panels securely to supports.
 - 2. Pre-drill fastener holes in FRP panels, 1/8 inch (3.2 mm) greater in diameter than fasteners.
- F. Adhesive:
 - 1. Install FRP panels in full spread of adhesive.
 - 2. Follow adhesive manufacturer's instructions for application of adhesive.
- G. Install trim accessories with adhesive and nails or staples.
 - 1. Do not fasten through FRP panels.
- H. Sealant:
 - 1. Fill grooves in trim accessories with sealant before installing FRP panels.
 - 2. Bed inside corner trim in bead of sealant.
 - 3. Remove excess sealant and smears as FRP panels are installed.
 - 4. Clean in accordance with sealant manufacturer's instructions.
- I. Tolerances: Install FRP panels within manufacturer's installation tolerances.

Specifier Notes: Describe Field Quality Control as required by Project. Delete if not required. Consult with Crane Composites, Inc. for services required, and establish number and duration of periodic site visits with Owner and manufacturer. Coordinate with Division 01.

3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: If requested by Owner, provide manufacturer's field service consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
 - 1. Site Visits: _____.

3.5 ADJUSTING

- A. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.
- B. Remove and replace with new material, damaged components that cannot be successfully repaired, as determined by Architect.

3.6 CLEANING

- A. Clean FRP panels promptly after installation in accordance with manufacturer's instructions.
- B. Do not use harsh cleaning materials or methods that could damage finish.

3.7 PROTECTION

- A. Protect installed FRP panels and finish surfaces from damage during construction.

END OF SECTION