

Glasbord®

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This MANU-SPEC® utilizes the Construction Specifications Institute (CSI) *Manual of Practice*, including *MasterFormat™*, *SectionFormat™* and *PageFormat™*. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets []. Delete optional text in final copy of specification. Specifier Notes typically precede specification text. Delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies special wall surfaces, including fiberglass reinforced plastic (FRP) panels, marketed under the Kemply®, Glasbord®, Fire-X Glasbord®, and *Surfaseal®* surface protection trade names, as manufactured by Crane Composites, Inc. Glasbord fiberglass reinforced plastic (FRP) wall and ceiling paneling products are ideal as an interior finish for a wide range of commercial, industrial and institutional applications. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

SECTION 09 77 00
SPECIAL WALL SURFACING
(FIBERGLASS REINFORCED PLASTIC PANELS)

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Special wall surfaces, including fiberglass reinforced plastic panels.

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI *MasterFormat* and specifier's practice.

- B. Related Sections: Section(s) related to this section include:
 1. [Work Title]: Division [#] [Title] Section.

Specifier Note: Article below should be restricted to statements describing design or performance requirements and functional (not dimensional) tolerances of a complete system. Limit descriptions to composite and operational properties to extent necessary to link multiple components of a system and to interface with other systems.

1.02 REFERENCES

- A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation
- B. ASTM International:
 1. ASTM D2583 Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.
 2. ASTM D5420 Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact).
 3. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.

1.03 SYSTEM DESCRIPTION



- A. Performance Requirements: Provide fiberglass reinforced plastic (FRP) panels which have been manufactured and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 01 Submittal Procedures Section.

1.04 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 01 Submittal Procedures Section.
- B. Product Data: Submit product data, including manufacturer's SPEC-DATA® product sheet, for specified products.
- C. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors, patterns and textures. Indicate location and dimension of joints and fastener attachment.
- D. Samples: Submit selection and verification samples for finishes, colors and textures. Submit 2 samples of each type of panel, trim and fastener.
- E. Quality Assurance Submittals: Submit the following:
1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
 2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics, criteria and physical requirements.
 3. Manufacturer's Instructions: Manufacturer's installation instructions. Submit manufacturer's *Installation Guide #6211*.

Specifier Note: Coordinate paragraph below with Part 3 Field Quality Requirements Article herein. Retain or delete as applicable.

4. Manufacturer's Field Reports: Manufacturer's field reports specified herein.
- F. Closeout Submittals: Submit the following:
1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 01 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
 2. Warranty: Warranty documents specified herein.

Specifier Note: Article below should include prerequisites, standards, limitations and criteria that establish an overall level of quality for products and workmanship for this section. Coordinate below article with Division 01 Quality Assurance Section.

1.05 QUALITY ASSURANCE

- A. Qualifications:
1. Installer Qualifications: Installer should be experienced in performing work of this section and should have specialized in installation of work similar to that required for this project.

Specifier Note: Retain paragraph below to suit project requirements; otherwise, delete paragraph below.

- a. Certificate: When requested, submit certificate indicating qualifications.
2. Manufacturer Qualifications: Manufacturer should be capable of providing field service representation during construction and should be capable of approving application method.

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Conditions of the Contract and Division 01 Regulatory Requirements Section. Repetitive statements should be avoided.

- B. Regulatory Requirements: [Specify applicable requirements of regulatory agencies.].
1. Specific Regulatory Requirement:

Specifier Note: Retain paragraph below for erected assemblies (either onsite or offsite) required for review of construction, coordination

of work of several sections, testing, or observation of operation. Mock-ups, when accepted or approved, establish standards by which work will be judged. Coordinate below with Division 01 Quality Control (Mock-Up Requirements) Section.

- C. Mock-Ups: Install at project site a job mock-up using acceptable products and manufacturer approved installation methods. Obtain Owner's and Architect's acceptance of finish color, texture, pattern and workmanship standards. Comply with Division 01 Quality Control (Mock-Up Requirements) Section.

Specifier Note: Edit paragraph below when specifying mock-up size.

1. Mock-Up Size: [Specify mock-up size].
2. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.
3. Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.

Specifier Note: Coordinate paragraph below with Division 01 Project Management and Coordination (Project Meetings) Section.

- D. Preinstallation Meetings: Conduct preinstallation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Division 01 Project Management and Coordination (Project Meetings) Section.

Specifier Note: Article below should include special and unique requirements. Coordinate article below with Division 01 Product Requirements Section.

1.06 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 01 Product Requirements Sections.
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Package sheets on skids or pallets for shipment to project site.
- D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer. Store panels indoors in a dry place at the project site.
- E. Handling: Remove foreign matter from face of panel by using a soft bristle brush, avoiding abrasive action.

1.07 PROJECT CONDITIONS

- A. Environmental Requirements:
 1. Installation shall not begin until building is enclosed, permanent heating and cooling equipment is in operation, and residual moisture from plaster, concrete or terrazzo work has dissipated.
 2. During installation, and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.
 3. Provide ventilation to disperse fumes during application of adhesive as recommended by adhesive manufacturer.
- B. Field Measurements: Verify actual measurements/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.

Specifier Note: Coordinate article below with Conditions of the Contract and with Division 01 Closeout Submittals (Warranty) Section.

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 executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

Specifier Note: Coordinate paragraph below with manufacturer's warranty requirements.

1. Warranty Period: [Specify term.] years commencing on Date of Substantial Completion.

Specifier Note: Coordinate article below with Division 01 Closeout Submittals (Maintenance Materials) Section.

1.09 MAINTENANCE

- A. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 01 Closeout Submittals (Maintenance Materials) Section.

Specifier Note: Revise paragraph below specifying size and percentage as required for project.

- 1. Quantity: Furnish quantity of [Identify items.] units equal to [Specify %.] of amount installed.
- 2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials.

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards, and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.01 FIBERGLASS REINFORCED PLASTIC (FRP) PANELS

- A. Manufacturer: Crane Composites, Inc.

Specifier Note: Paragraph below is an addition to CSI *SectionFormat* and a supplement to MANU-SPEC. Retain or delete paragraph below per project requirements and specifier's practice.

- 1. Contact: Joliet Sales Office, PO Box 2429, Joliet, IL 60434; Telephone: (800) 435-0080, (815) 467-8600; Fax: (815) 467-8666; E-mail: salesjol@cranecomposites.com; website: www.glasbord.com.

- B. Proprietary Product(s)/System(s): Kemlite Fiberglass Reinforced Plastic (FRP) Panels.

Specifier Note: Glasbord panels below are available in several formulations (Fire-X, FM, FSI, PIF, PWI, PWS, PSI, CGI, CNSI and CNSM) to meet application-specific requirements, including maintenance needs and sanitation control.

- 1. Glasbord Panels:
 - a. Fire-X (FX), (FM), FSI, PIF, PWI, PWS, PSI, CGI, CNSI or CNSM.
 - b. Color: [Specify color - 85 white, 83 colonial white, 70 soft beige, 48 pearl gray, 66 silver, 84 ivory, 1201 black.] CGI is available in 85 white. Special colors can be custom matched and manufactured provided there is a minimum square footage order of 12,000 ft² (1116 m²). Allow 4 - 6 weeks lead time.
 - c. Size: [Specify size, or as indicated on drawings.] Standard sizes are 4 feet x 8 feet, 4 feet x 9 feet, 4 feet x 10 feet and 4 feet x 12 feet (1.2 x 2.4 m, 1.2 x 2.7 m, 1.2 x 3 m and 1.2 x 3.7 m). Ceiling panels of 23 3/4 inches x 47 3/4 inches and 23 3/4 inches x 23 3/4 inches (0.6 x 1.2 m and 0.6 x 0.6 m). Sanigrig II ceiling panels are 23 3/4 inches x 48 inches and 23 3/4 inches x 23 3/4 inches (0.6 x 1.22 m and 0.6 x 0.6 m).
 - d. Moldings: Provide harmonizing PVC (polyvinyl chloride) moldings. [Specify color - 85 white, 83 colonial white, 70 soft beige, 48 pearl gray, 66 silver, 84 ivory, 1201 black.].
 - e. Rivets: [Specify optional rivets in harmonizing colors (by color name and number) in areas where there are large fluctuations in temperature and/or humidity, where the substrate is unusually uneven, and in all low temperature or cold storage applications. Refer to *Installation Guide #6211* for rivet pattern and installation instructions.].

Specifier Note: Kemply panels below are fabricated by laminating a Kemlite Glasbord FRP to such substrates as OSB, plywood, gypsum and fluted polypropylene. Kemply panels install directly to steel or wood ceilings or walls using adhesives or noncorrosive nails, screws or nylon drive rivets. One-piece moldings for 0.331 inch (8.4 mm) thick Kemply panels are available as well as 2-piece moldings and heavy duty batten strips and corners for nonstandard thicknesses. Available in Class C and Class A fire-rated surfaces.

- 2. Kemply Panels:
 - a. FRP Face: Fire-X Glasbord FX, PIF, PWI, PWS, FSI or PSI.

- b. Color: [Specify color - 85 white, 83 colonial white, 70 soft beige, 48 pearl gray, 66 silver, 84 ivory, 1201 black.] Special colors can be custom matched and manufactured provided there is a minimum square footage order of 12,000 ft² (1116 m²). Allow 4 - 6 weeks lead time.
- c. Size: [Specify size, or as indicated on drawings.] Standard sizes are 4 feet x 8 feet, 4 feet x 9 feet, 4 feet x 10 feet and 4 feet x 12 feet (1.2 x 2.4 m, 2 x 2.7 m, 1.2 x 3 m and 1.2 x 3.7 m). Ceiling panels are available in 23 3/4 inches x 47 3/4 inches and 23 3/4 inches x 23 3/4 inches (0.6 x 1.2 m and 0.6 x 0.6 m). Sanigrid II Kemply ceiling panel sizes: For 2 foot x 2 foot (0.61 x 0.61 m) grid size, 23 3/4 inches x 23 3/4 inches (0.6 x 0.6 - 1/4 inch, 1/2 inch and 5/8 inch (6.4, 12.7 and 15.9 mm) thicknesses; not recommended for 3/4 inch (19.1 mm) thickness; and 23 5/8 inches x 23 5/8 inches (0.60 x 0.60 m) for thicknesses of 1 inch (25.4 mm) and over. For 2 foot x 4 foot (0.61 x 1.2 m) grid size, 23 3/4 inches x 48 inches (0.6 x 1.2 m) - 1/4 inch, 1/2 inch and 5/8 inch (6.4, 12.7 and 15.9 mm) thicknesses; not recommended for 3/4 inch (19.1 mm) thickness; and 23 3/4 inches x 47 1/2 inches (0.6 x 1.21 m) for thicknesses of 1 inch (25.4 mm) and over.
- d. Moldings: Provide harmonizing PVC (polyvinyl chloride) moldings. [Specify color - 85 white, 83 colonial white, 70 soft beige, 48 pearl gray, 66 silver, 84 ivory.].
- e. Rivets: [Specify optional rivets in harmonizing colors (by color name and number) in areas where there are large changes in temperature and/or humidity, where the substrate is unusually uneven, and in all low temperatures or cold storage applications. Refer to *Installation Guide #6211* for rivet pattern and installation instructions.].

Specifier Note: Edit paragraph below to suit project requirements. Kemply and Glasbord panels feature *Surfaseal*, which offers impact, abrasion and scratch resistance, making it ideal for high traffic areas.

- 3. *Surfaseal* Surface Protection: Provide manufacturer's proprietary *Surfaseal* surface protection for fiberglass reinforced plastic (FRP) panels.
- 4. Division Bars, Corner Trim: Panel manufacturer's standard length extruded vinyl pieces; longest length possible to eliminate end joints.
- 5. Fasteners: Noncorrosive drive rivets.

Specifier Note: Edit article below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 01 Project Requirements (Product Substitutions Procedures) Section.

2.02 PRODUCT SUBSTITUTIONS

- A. Substitutions: No substitutions permitted.

2.03 MANUFACTURED UNITS

- A. Kemlite Fire-X Glasbord Fiberglass Panels with *Surfaseal* Surface Protection:

- 1. Rating:
 - a. Fire-X Glasbord Underwriters Laboratories, Inc. (UL) classified, Class I (A) Interior Finish Material.
 - b. Fire-X Glasbord FM Class I (A) Interior Finish Material, Factory Mutual approved per Standard 4880, Test Report 2B2A2.AM.
- 2. Wall Panels: Finish, thickness and color shall be:

Specifier Note: Edit paragraphs below to suit project requirements. 1201 black does not have a *Surfaseal* finish. Choose from the 4 following paragraphs.

- a. Embossed 0.09 inch (2.3 mm) Fire-X Glasbord with *Surfaseal* Color: 85 white, 83 colonial white, 70 soft beige, 48 pearl gray, 66 silver, 84 ivory, 1201 black.
- b. Embossed 0.09 inch (2.3 mm), Fire-X Glasbord FM with *Surfaseal* Color: 85 white, 83 colonial white, 70 soft beige, 48 pearl gray, 66 silver, 84 ivory, 1201 black. Factory Mutual approval must be specified if required.
- c. Embossed 0.12 inch (3.05 mm) Fire-X Glasbord with *Surfaseal* Color: 85 white.
- d. Smooth 0.075 inch (1.9 mm) Glasbord-FSI with *Surfaseal* Color: 85 white.
- 3. Lay-In Ceiling Panels: Finish, thickness and color to be:

Specifier Note: Edit paragraphs below to suit project requirements. Choose from the 3 following paragraphs.

- a. Embossed 0.10 inch (2.5 mm) Fire-X Glasbord with *Surfaseal* color: 85 white.
 - b. Embossed 0.09 inch (2.3 mm) Fire-X Glasbord FM with *Surfaseal* color: 85 white.
 - c. Embossed 0.12 inch (3.05 mm) Fire-X Glasbord with *Surfaseal* color: 85 white.
4. Performance Properties: Provide products with the following properties:

Specifier Note: Numerical flamespread and smoke development ratings are not intended to reflect hazards presented by Crane Composites, Inc., products or any other material under actual fire conditions. These ratings are determined by small scale tests conducted by independent testing facilities using the ASTM E84 test standard (commonly referred to as the "Tunnel Test"). Crane Composites, Inc., provides these ratings for material comparison purposes only. Like other organic building materials (e.g., wood), panels made of fiberglass reinforced plastic will burn. When ignited, FRP may produce dense smoke very rapidly. All smoke is toxic. Fire safety requires proper design of facilities and fire suppression systems, as well as precautions during construction and occupancy. Local codes, insurance requirements and any special needs of the product user will determine the correct fire-rated interior finish and fire suppression system necessary for a specific installation.

- a. Underwriters Laboratories, Inc. (UL), Classified - Embossed standard Fire-X Glasbord 0.09 inch (2.3 mm) only.
- b. Class A flamespread of less than 25, smoke developed less than 450 per ASTM E84 latest version.
- c. Barcol Hardness (scratch resistance) of 55 as per ASTM D2583.
- d. Panels will exhibit no more than a 0.038% weight loss after a 25 cycle Taber Abrasion Test using CS-17 abrasive wheels with 1000 g weight.
- e. Gardner Impact Strength of 40 in-lb (4.5 J) showing no visible damage on front side per ASTM D5420.
- f. FMRC (Factory Mutual Research Corporation) approved Fire-X Glasbord FM.
- g. Meets USDA/FSIS requirements.
- h. Complies with ICBO Report Number 4583.
- i. A means of frontside identification and confirmation of meeting Class I (A) interior finish requirements after installation and while in service (without labels), embossed FXI only.

B. Kemlite Glasbord-P Fiberglass Panels with *Surfaseal* Surface Protection:

Specifier Note: Numerical flamespread and smoke development ratings are not intended to reflect hazards presented by Crane Composites, Inc., products or any other material under actual fire conditions. These ratings are determined by small scale tests conducted by independent testing facilities using the ASTM E84 test standard (commonly referred to as the "Tunnel Test"). Crane Composites, Inc., provides these ratings for material comparison purposes only. Like other organic building materials (e.g., wood), panels made of fiberglass reinforced plastic will burn. When ignited, fiberglass reinforced panel may produce dense smoke very rapidly. All smoke is toxic. Fire safety requires proper design of facilities and fire suppression systems, as well as precautions during construction and occupancy. Local codes, insurance requirements and any special needs of the product user will determine the correct fire-rated interior finish and fire suppression system necessary for a specific installation.

1. Rating: Class III (C) Interior Finish.
2. Wall Panels: Finish, thickness and color shall be:

Specifier Note: Edit paragraphs below to suit project requirements. 1201 black does not have a *Surfaseal* finish. Choose from the 3 following paragraphs.

- a. Embossed 0.09 inch (2.3 mm) Glasbord-P with *Surfaseal* Color: 85 white, 83 colonial white, 70 soft beige, 48 pearl gray, 66 silver, 84 ivory, 1201 black.
 - b. Embossed 0.12 inch (3.05 mm) Glasbord-PWI with *Surfaseal* Color: 85 white.
 - c. Smooth 0.075 inch (1.9 mm) Glasbord-PSI with *Surfaseal* Color: 85 white.
3. Lay-In Ceiling Panels: Finish, thickness and color shall be:

Specifier Note: Edit paragraphs below to suit project requirements. Choose from the 2 following paragraphs.

- a. Embossed 0.10 inch (2.5 mm) Glasbord-CGI with *Surfaseal* Color: 85 white.
- b. Embossed 0.12 inch (3.05 mm) Glasbord-PWI with *Surfaseal* Color: 85 white.

4. Performance Properties: Provide products with the following properties:
 - a. Class C flamespread of 200 or less, smoke developed of 450 or lower per ASTM E84 latest version.
 - b. Barcol Hardness (scratch resistance) per ASTM D2583 of:
 - 1) 35 for embossed 0.09 inch (2.3 mm) Glasbord-P.
 - 2) 55 for embossed 0.12 inch (3.05 mm) Glasbord-PWI.
 - 3) 55 for smooth 0.075 inch (1.9 mm) Glasbord-PSI.
 - 4) 60 for embossed 0.10 inch (2.5 mm) Glasbord-CGI.
 - c. Panels shall exhibit no more than a 0.038% weight loss after a 25 cycle Taber Abrasion Test using CS-17 abrasive wheels with 1000 g weight.
 - d. Meets USDA/FSIS requirements.
 - e. Complies with ICBO Report Number 4583.
 - f. A means of frontside identification and confirmation of meeting Class III (C) the interior finish requirement after installation and while in service (without labels) embossed panels only.

C. Kemlite Kemply Fiberglass Laminated Wall Panel with *Surfaseal* Surface Protection:

1. Wall Panel: Manufacturer's standard factory laminated panel with specified substrate and specified skin (single or double sided as indicated); size shall be [4 feet x 8 feet (1.2 x 2.4 m)] or [4 feet x 10 feet (1.2 x 3 m)].
2. Wall Panel Substrate:

Specifier Note: Edit paragraphs below to suit project requirements. Choose from the following substrate paragraphs. Standard Kemply panel is 9/32 inch (7.1 mm) OSB with 0.05 inch (1.3 mm) Glasbord-PWI skin single sided. All other Kemply products are made to order and are noncancelable.

- a. Gypsum Substrate: [Specify 1/2 inch (12.7 mm) Regular or 5/8 inch (15.9 mm) Firecode-X].
- b. Plywood Substrate: [Specify: 3/8 inch (9.5 mm) BCX-Fir, or 1/2 inch (12.7 mm) BCX-Fir, or 5/8 inch (15.9 mm) BCX-Fir.].
- c. Oriented Strand Board (OSB) Substrate: [Specify: 1/4 inch (6.4 mm) OSB, or 3/8 inch (9.5 mm) OSB, or 1/2 inch (12.7 mm) OSB.].

Specifier Note: Edit paragraph below to suit project requirements. In areas of high temperature (over 100 degrees F (38 degrees C)), Kemply polypropylene panels must be laminated on both sides with Glasbord FRP skins to avoid warping. Lay-in ceiling panels should be laminated on both sides for all installations. Laminated panels that use fluted polypropylene as a substrate are designed to line the walls or ceilings of applications such as car washes and agricultural buildings. The local building code official must approve the installation of these panels prior to ordering. Crane Composites, Inc., cannot ensure code compliance in all situations.

- d. Fluted Polypropylene Substrate: [Specify: 0.32 inch (8.1 mm) black, 0.32 inch (8.1 mm) white, 0.40 inch (10.2 mm) black or 0.40 inch (10.2 mm) white.].

3. Wall Panel Skin:

- a. Class C Skin: [Specify: 0.05 inch (1.3 mm) embossed Glasbord-PWI, or 0.09 inch (2.3 mm) embossed Glasbord-PIF, or 0.075 inch (1.9 mm) smooth Glasbord-PSI.].
- b. Class A Skin: [Specify: 0.09 inch (2.3 mm) embossed Fire-X Glasbord, or 0.075 inch (1.9 mm) smooth Glasbord-FSI.].

D. Kemlite Kemply Fiberglass Laminated Lay-In Ceiling Panel with *Surfaseal* Surface Protection:

1. Lay-In Ceiling Panels: Manufacturer's standard factory laminated panel with specified substrate and specified skin; size shall be [23 3/4 inches x 23 3/4 inches (0.6 x 0.6 m)] or [23 3/4 inches x 47 3/4 inches (0.6 x 1.21 m)]. Panels shall meet USDA/FSIS requirements.

Specifier Note: The 3/32 inch (2.4 mm) OSB with 0.05 inch (1.3 mm) Glasbord-PWI skin single side has been tested to comply with Class C requirements. With variations in substrates, the other Kemply panels above are not tested for physical properties or fire resistance. Glasbord finishes have been tested for surface burning characteristics (see Kemlite Technical Bulletins 65024, 6229 and 6283). Physical properties and fire resistance data on the substrate are available from the specific substrate manufacturer. Crane Composites, Inc., makes no representation or warranty as to the composite panel fitness for any specific application, overall physical

properties, fire resistance or burning characteristics.

2. Lay-In Ceiling Panel Substrate:

Specifier Note: Edit paragraphs below to suit project requirements. Choose from the following substrate paragraphs. Single sided gypsum substrate is available only with 0.05 inch (1.3 mm) skin. Double sided is available with 0.09 inch (2.3 mm) PIF, 0.05 inch (1.3 mm) PWI, 0.075 inch (1.9 mm) PSI, 0.09 inch (2.3 mm) FX, 0.075 inch (1.9 mm) FSI.

- a. Gypsum Substrate: [Specify: 1/2 inch (12.7 mm) Regular or 5/8 inch (15.6 mm) Firecode-X.].

Specifier Note: Edit paragraph below to suit project requirements. Below is available with 0.05 inch (1.3 mm) double sided skin only.

Specifier Note: Laminated panels that use fluted polypropylene as a substrate are designed to line the walls or ceilings of applications such as car washes and agricultural buildings. The local building code official must approve the installation of these panels prior to ordering. Crane Composites, Inc., cannot ensure code compliance in all situations.

- b. Fluted Polypropylene Substrate: [Specify: 0.32 inch (8.1 mm) black, or 0.32 inch (8.1 mm) white, or 0.40 inch (10.2 mm) black, or 0.40 inch (10.2 mm) white.].

3. Lay-In Ceiling Panel Skin:

Specifier Note: Numerical flamespread and smoke development ratings are not intended to reflect hazards presented by Crane Composites, Inc., products or any other material under actual fire conditions. These ratings are determined by small scale tests conducted by independent testing facilities using the ASTM E84 test standard (commonly referred to as the "Tunnel Test"). Crane Composites, Inc., provides these ratings for material comparison purposes only. Like other organic building materials (e.g., wood), panels made of fiberglass reinforced plastic will burn. When ignited, FRP may produce dense smoke very rapidly. All smoke is toxic. Fire safety requires proper design of facilities and fire suppression systems, as well as precautions during construction and occupancy. Local codes, insurance requirements and any special needs of the product user will determine the correct fire-rated interior finish and fire suppression system necessary for a specific installation.

- a. Class C Skin: [Specify: 0.05 inch (1.3 mm) embossed Glasbord-PWI, or 0.09 inch (2.3 mm) embossed Glasbord-PIF, or 0.075 inch (1.9 mm) smooth Glasbord-PSI.].
- b. Class A Skin: [Specify: 0.09 inch (2.3 mm) embossed Fire-X Glasbord or 0.075 inch (1.9 mm) smooth Glasbord-FSI.].

2.04 ACCESSORIES

- A. Adhesive: Provide panel adhesive as recommended by panel manufacturer.

2.05 RELATED MATERIALS

- A. Related Materials: Refer to other sections listed in Related Sections paragraph herein for related materials.

2.06 SOURCE QUALITY

- A. Source Quality: Obtain fiberglass reinforced plastic (FRP) panels from a single manufacturer. Provide panels and molding only from manufacturer specified to ensure warranty and color harmonization of accessories.

PART 3 EXECUTION

Specifier Note: Article below is an addition to the CSI *SectionFormat* and a supplement to MANU-SPEC. Revise article below to suit project requirements and specifier's practice.

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.02 EXAMINATION

- A. Site Verification of Conditions: Verify that substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
 - 1. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails are countersunk and joints and cracks are filled flush and smooth with the adjoining

surface.

2. Do not begin installation until backup surfaces are in satisfactory condition.

3.03 PREPARATION

- A. Surface Preparation: [Specify applicable product preparation requirements.].

Specifier Note: Coordinate article below with manufacturer's recommended installation details and requirements.

3.04 INSTALLATION

- A. Fiberglass Reinforced Panel (FRP) Installation:
 1. Cut and drill panels with carbide tipped saw blades or drill bits, or cut with snips.
 2. Install panels with manufacturer's recommended gap for panel field and corner joints.
 3. Predrill fastener holes in panels with 1/8 inch (3.2 mm) oversize.
 4. For trowel type and application of adhesive, follow adhesive manufacturer's recommendations.
 5. Use products acceptable to panel manufacturer and install FRP system in accordance with panel manufacturer's printed instructions. Comply with panel manufacturer's *Installation Guide #6211*.
- B. Site Tolerances: [Specify applicable site tolerances for specified product(s) installation.].
- C. Finish Color/Patterns: [Specify installation finishes coordinated with finishes specified in Part 2 Products.].
- D. Related Products Installation: Refer to other sections listed in Related Sections paragraph herein for related materials installation.

Specifier Note: Coordinate article below with Division 01 Quality Assurance and Quality Control Sections.

3.05 FIELD QUALITY REQUIREMENTS

Specifier Note: Edit paragraph below. Establish number and duration of periodic site visits with Owner and manufacturer and specify below. Consult with manufacturer for services required. Coordinate paragraph below with Division 01 Quality Assurance Section and Part 1 Quality Assurance Submittals herein. Delete if manufacturer's field service is not required.

- A. Manufacturer's Field Services: Upon Owner's request, 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: [Specify number and duration of periodic site visits.].

Specifier Note: Coordinate article below with Division 01 Execution Requirements (Cleaning) Section.

3.06 CLEANING

- A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace products that have been installed and are damaged. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.
 1. Remove any adhesive or excessive sealant from panel face using solvent or cleaner recommended by panel manufacturer.

Specifier Note: Coordinate article below with Division 01 Execution Requirements Section.

3.07 PROTECTION

- A. Protection: Protect installed product and finish surfaces from damage during construction.

END OF SECTION