



SECTION 074646  
FIBER CEMENT SIDING

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Fiber cement panels of the following types:
  - a. AFC Carbon (Stone<sup>+</sup>, Groove<sup>+</sup>, Lines<sup>+</sup>, Reflect<sup>+</sup>)
  - b. AFC Lines<sup>+</sup>
  - c. AFC Sky
  - d. AFC Nature
- B. Cladding attachment system.

1.2 RELATED SECTIONS

- A. Section 05400 - Cold-Formed Metal Framing.
- B. Section 06100 - Rough Carpentry.
- C. Section 07210 - Building Insulation.
- D. Section 07250 - Air Barriers.
- E. Section 07280 – Water-resistive Barriers

1.3 REFERENCES

References are product specific. See specific product in Part 2 to see which testing applies.

- A. ASTM - ASTM International:
  - 1. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750-degree C. Determination of Non-Combustibility.
- B. CEN - European Committee for Standardization:
  - 1. EN 12467 - Fiber Cement Flat Sheets-Product Specifications and Test Methods.
  - 2. EN 13501 - Fire Test to Building Material.
- C. ULC - National Standard of Canada
  - 1. CAN/ULC S114 - Standard Method of Test for Determination of Non-Combustibility in Building Materials

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300 - Administrative Requirements.

- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
- C. Shop Drawings: Provide detailed drawings of non-standard applications of fiber cement materials which are outside the scope of the standard details and specifications provided by the manufacturer.
- D. Attachment System Engineered Drawings:
  - 1. Provide engineered design for attachment and back-up framing to support exterior cladding.
  - 2. Provide static calculations verifying sizing of members, attachment devices and fasteners to support the exterior cladding with a safety factor required by Authority Having Jurisdiction (AHJ).
  - 3. Provide Installation drawings and details.
- E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- F. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum of 2 years experience with installation of similar products.
- B. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Architect.
  - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
  - 3. Remodel mock-up area as required to produce acceptable work.

#### 1.6 FABRICATION, DELIVERY, STORAGE, AND HANDLING

- A. All cladding materials to be finished and fabricated in the United States with backup inventory in residence in the United States to support job in-progress.
- B. Store products in manufacturer's unopened packaging until ready for installation in accordance with manufacturer's recommended guidelines.
- C. All cladding materials to be fabricated to end use panel sizes with holes drilled in manufacturer's fabrication facility. Shop drawings are to determine panel sizes. Shop drawings through the manufacturer are recommended. If outsourced, manufacturer must be consulted.

#### 1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

#### 1.8 WARRANTY

- A. Warranty: Manufacturer warrants that its products are manufactured in accordance with its applicable material specifications and are free from defects in materials and workmanship.
  - 1. Only products that are installed and used in accordance with applicable

- manufacturer's instructions and specifications are warranted.
2. The warranty is applicable only to claims made in writing and received by the manufacturer within thirty days after the defect was covered and within ten years after the date of the shipment of the product by the manufacturer.

## PART 2 PRODUCTS

### 2.1 MANUFACTURER/SUPPLIER

- A. Basis of Design: AFC Fiber Cement Siding by American Fiber Cement Corp.; 6901 S. Pierce St. Suite 180, Littleton, CO 80128. ASD. Tel: (303) 972-5107. Email: house@afccladding.com. Web: <http://www.americanfibercement.com>.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600 - Product Requirements.

### 2.2 FIBER CEMENT PRODUCTS:

1. Product: AFC Carbon<sup>Stone+</sup> as manufactured/supplied by American Fiber Cement Corp.
  - a. Finish: Black, through-colored, muted, matte finish with a sanding grain and unique weather-proof and UV resistant surface treatment.
  - b. Thickness:
    - 1) 8 mm (5/16")
    - 2) 10mm (3/8")
  - c. Untrimmed Width: 1250 mm (49.2")
  - d. Untrimmed Lengths: 2510 mm (98.8"), 3050 mm (120.1")
  - e. Trimmed Width: 1219.2 mm (48")
  - f. Trimmed Lengths: 2438 mm (96"), 3045 mm (119.875")
  - g. Color: 031 Carbon
  - h. Physical Characteristics: EN 12467 'Fiber-cement flat sheets'.
    - 1) Durability classification: Category A.
    - 2) Strength classification: Class 5.
    - 3) Freeze thaw test: RL ≥ 0.75
  - i. Fire Testing:
    - 1) ASTM E136.
    - 2) CAN/ULC S114.
    - 3) EN 13501-1: A2-s1-d0.
  - j. UV Testing:
    - 1) UNI EN ISO 4892-3, 1500 hr, DE\* = 0.61
  - k. For additional test data, see product datasheet.
2. Product: AFC Carbon<sup>Groove+</sup> as manufactured/supplied by American Fiber Cement Corp.
  - a. Finish: Black, through-colored, muted, matte finish with a sanding grain, linear grooved pattern, and unique weather-proof and UV resistant surface treatment.
  - b. Thickness:
    - 1) 10mm (3/8")
  - c. Untrimmed Width: 1250 mm (49.2")
  - d. Untrimmed Lengths: 2510 mm (98.8"), 3050 mm (120.1")
  - e. Trimmed Width: 1219.2 mm (48")
  - f. Trimmed Lengths: 2438 mm (96"), 3045 mm (119.875")
  - g. Color: 031 Carbon
  - h. Physical Characteristics: EN 12467 'Fiber-cement flat sheets'.
    - 1) Durability classification: Category A.
    - 2) Strength classification: Class 5.
    - 3) Freeze thaw test: RL ≥ 0.75
  - i. Fire Testing:

- 1) ASTM E136.
  - 2) CAN/ULC S114.
  - 3) EN 13501-1: A2-s1-d0.
  - j. UV Testing:
    - 1) UNI EN ISO 4892-3, 1500 hr, DE\* = 0.61
  - k. For additional test data, see product datasheet.
1. Product: AFC Carbon<sup>Lines+</sup> as manufactured/supplied by American Fiber Cement Corp.
- a. Finish: Black, through-colored, muted, matte finish with a deep sanding grain and unique weather-proof and UV resistant surface treatment.
  - b. Thickness:
    - 1) 8 mm (5/16")
    - 2) 10mm (3/8")
  - c. Untrimmed Width: 1250 mm (49.2")
  - d. Untrimmed Lengths: 2510 mm (98.8"), 3050 mm (120.1")
  - e. Trimmed Width: 1219.2 mm (48")
  - f. Trimmed Lengths: 2438 mm (96"), 3045 mm (119.875")
  - g. Color: 031 Carbon
  - h. Physical Characteristics: EN 12467 'Fiber-cement flat sheets'.
    - 1) Durability classification: Category A.
    - 2) Strength classification: Class 5.
    - 3) Freeze thaw test: RL ≥ 0.75
  - i. Fire Testing:
    - 1) ASTM E136.
    - 2) CAN/ULC S114.
    - 3) EN 13501-1: A2-s1-d0.
  - j. UV Testing:
    - 1) UNI EN ISO 4892-3, 1500 hr, DE\* = 0.61
  - k. For additional test data, see product datasheet.
2. Product: AFC Carbon<sup>Reflect+</sup> as manufactured/supplied by American Fiber Cement Corp.
- a. Finish: Black, through-colored with fine sanding grain lines and unique weather-proof and UV resistant reflective surface treatment.
  - b. Thickness:
    - 1) 8 mm (5/16")
    - 2) 10mm (3/8")
  - c. Untrimmed Width: 1250 mm (49.2")
  - d. Untrimmed Lengths: 2510 mm (98.8"), 3050 mm (120.1")
  - e. Trimmed Width: 1219.2 mm (48")
  - f. Trimmed Lengths: 2438 mm (96"), 3045 mm (119.875")
  - g. Color: 031 Carbon
  - h. Physical Characteristics: EN 12467 'Fiber-cement flat sheets'.
    - 1) Durability classification: Category A.
    - 2) Strength classification: Class 5.
    - 3) Freeze thaw test: RL ≥ 0.75
  - i. Fire Testing:
    - 1) ASTM E136.
    - 2) CAN/ULC S114.
    - 3) EN 13501-1: A2-s1-d0.
  - j. For additional test data, see product datasheet.
3. Product: AFC Lines<sup>+</sup> as manufactured/supplied by American Fiber Cement Corp.
- a. Finish: Through-colored, muted, matte finish with a deep sanding grain and unique weather-proof and UV resistant surface treatment.
  - b. Thickness:

- 1) 8 mm (5/16")
  - 2) 10mm (3/8")
  - c. Untrimmed Width: 1250 mm (49.2")
  - d. Untrimmed Lengths: 2510 mm (98.8"), 3050 mm (120.1")
  - e. Trimmed Width: 1219.2 mm (48")
  - f. Trimmed Lengths: 2438 mm (96"), 3045 mm (119.875")
  - g. Color:
    - 1) 010 Pearl
    - 2) 011 Granite
    - 3) 020 Sand
    - 4) 030 Graphite
    - 5) 040 Amber
    - 6) 050 Emerald
    - 7) 060 Magma
    - 8) 061 Ruby
    - 9) 070 Adobe
    - 10) 080 Tufa
    - 11) 081 Parchment
  - h. Physical Characteristics: EN 12467 'Fiber-cement flat sheets'.
    - 1) Durability classification: Category A.
    - 2) Strength classification: Class 5.
    - 3) Freeze thaw test: RL  $\geq$  0.75
  - i. Fire Testing:
    - 1) ASTM E136.
    - 2) CAN/ULC S114.
    - 3) EN 13501-1: A2-s1-d0.
  - j. For additional test data, see product datasheet.
4. Product: AFC Sky as manufactured/supplied by American Fiber Cement Corp.
- a. Finish: Through-colored with fine sanding grain lines, natural color differences, and unique weather-proof surface treatment.
  - b. Thickness:
    - 1) 8 mm (5/16")
    - 2) 10mm (3/8")
  - c. Untrimmed Width: 1250 mm (49.2")
  - d. Untrimmed Lengths: 2510 mm (98.8"), 3050 mm (120.1")
  - e. Trimmed Width: 1219.2 mm (48")
  - f. Trimmed Lengths: 2438 mm (96"), 3045 mm (119.875")
  - g. Color:
    - 1) 011 Granite
    - 2) 020 Sand
    - 3) 030 Graphite
    - 4) 040 Amber
    - 5) 050 Emerald
    - 6) 060 Magma
    - 7) 061 Ruby
    - 8) 070 Adobe
    - 9) 080 Tufa
    - 10) 081 Parchment
  - h. Physical Characteristics: EN 12467 'Fiber-cement flat sheets'.
    - 1) Durability classification: Category A.
    - 2) Strength classification: Class 5.
    - 3) Freeze thaw test: RL  $\geq$  0.75
  - i. Fire Testing:
    - 1) ASTM E136.
    - 2) CAN/ULC S114.

- 3) EN 13501-1: A2-s1-d0.
  - j. For additional test data, see product datasheet.
5. Product: AFC Nature as manufactured/supplied by American Fiber Cement Corp.
- a. Finish: Through-colored with a digitally printed surface providing graffiti resistance.
  - b. Finish Type:
    - 1) Matte
    - 2) Glossy
  - c. Thickness:
    - 1) 8 mm (5/16")
    - 2) 10mm (3/8")
  - d. Untrimmed Width: 1250 mm (49.2")
  - e. Untrimmed Lengths: 2510 mm (98.8"), 3050 mm (120.1")
  - f. Trimmed Width: 1219.2 mm (48")
  - g. Trimmed Lengths: 2438 mm (96"), 3045 mm (119.875")
  - h. Color:
    - 1) W008 Elm
    - 2) W009 White Oak
    - 3) W09G Amber Oak
    - 4) W010 Vintage Walnut
    - 5) W10E Cocoa Walnut
    - 6) W10G Natural Walnut
    - 7) W10R Red Walnut
    - 8) W013 Ash Wood
    - 9) W14R Red Cherry
  - i. Physical Characteristics: EN 12467 'Fiber-cement flat sheets'.
    - 1) Durability classification: Category A.
    - 2) Strength classification: Class 5.
    - 3) Freeze thaw test: RL ≥ 0.75
  - j. Fire Testing:
    - 1) ASTM E136.
    - 2) CAN/ULC S114.
    - 3) EN 13501-1: A2-s1-d0.
  - k. For additional test data, see product datasheet.

## 2.3 MISCELLANEOUS CLADDING MATERIALS

- A. Water-resistive Barrier: DELTA®- FASSADE S by Dörken Systems Inc. See Section 07280 – Water-resistive Barriers. (Supplied by American Fiber Cement Corp.)
- B. Air Barrier: DELTA®-VENT SA by Dörken Systems Inc. See Section 07250 - Air Barriers. (Supplied by American Fiber Cement Corp.)
- C. Aluminum Joint Closures and Cembrit Decorative Corner Profiles: Manufacturer's standard products as detailed. Maximum thickness of finishing profile to be 0.8 mm or 21-gauge.

## 2.4 ATTACHMENT SYSTEMS

- A. Attachment System, Steel Supporting Members:
  - 1. Product: "Hat" or "Z" profiles supplied by others.
    - a. Material: Steel, minimum 16-gauge, minimum G90 coating.
  - 2. UV Protective Membrane: As supplied by American Fiber Cement Corp.
    - a. For open joint ventilated rain screen systems.

- B. Attachment System, Aluminum Supporting Members:
  - 1. Product: "Hat" or "Z" profiles supplied by others.
    - a. Material: Aluminum - min. 2mm thickness.
  - 2. UV Protective Membrane: Supplied by American Fiber Cement Corp.
    - a. For open joint ventilated rain screen systems.
  
- C. Attachment System, Wood Supporting Members:
  - 1. Product: Wood profiles supplied by others.
    - a. Material: Pressure treated wood.
  - 2. UV Protective Membrane: Supplied by American Fiber Cement Corp.
    - a. For open joint ventilated rain screen systems.
  
- D. Attachment System, XKELEX Z19:
  - 1. Product: Perforated Horizontal Aluminum profiles supplied by American Fiber Cement Corp.
    - a. Material: 6063-T5
    - b. Finish: Black Powder Coat
  - 2. UV Protective Membrane: Supplied by American Fiber Cement Corp.
    - a. For open joint ventilated rain screen systems.
  
- E. Concealed Attachment, Epoxy Adhesive System: For concealed fastening of exterior cladding panels on ventilated rain screen constructions. **(Note: Applied onto pressure treated wood, G90 Steel, or Anodized or Mill Finish Aluminum)**
  - 1. Product: Dynamic Bond as manufactured by Dynamic Bonding Systems and supplied by American Fiber Cement Corporation.
    - a. Material: Structural adhesive and sealant based on MS-hybrid-polymer.
    - b. Physical Characteristics:
      - 1) Density: 1.54 g/cm<sup>3</sup>.
      - 2) Tensile strength: 2.3 N/mm<sup>2</sup>.
      - 3) Shear strength: 2.1 N/mm<sup>2</sup>.
      - 4) Fire reaction (EN 13501-1): B-s1-d0.
  - 2. Accessories:
    - a. Dynamic Clean: For use in conjunction with Dynamic Bond.
    - b. Dynamic Tape: For use in conjunction with Dynamic Bond.
    - c. Dynamic Protect: For impregnation of wood surfaces.
    - d. Dynamic SI Epoxy: For impregnation of porous (fiber) cement panels.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions and approved submittals.

- B. For exterior applications, comply with local codes and structural engineer's fastening calculations along with manufacturer's recommendations for fastener spacing.

### 3.4 EXTERIOR CLADDING FOR RAINSCREEN APPLICATIONS

#### A. Detailing Requirements:

1. Air space at top and bottom of building or wall termination shall be 3/4 inch (20 mm) to facilitate airflow from behind the panels. Do not block vertical airflow at windows, doors, eaves, or at the base of the building. Airflow shall be continuous from bottom to top so there is air movement behind each panel. For walls over 60 feet high (18 m), the ventilated cavity between rear of panels and exterior wall shall be increased to 1-5/8 inches (40 mm). Air flow behind the cement fiber panels is critical to the performance of the rain screen constructions.
2. Fasteners in profile shall accommodate thermal expansion/contraction of metal and not interfere with panel application.
3. Install panels from top of building to bottom.
4. For straight walls, start panel installation in center and work outward.
5. For walls with inside corners, start installation at corner and work across wall.
6. Pattern: Straight pattern with vertical panels. Panel size as indicated.
7. Pattern: Straight pattern with horizontal panels. Panel size as indicated.
8. Pattern: Semi pattern with horizontal panels. Panel size as indicated.

#### B. Rain Screen Installation: Comply with manufacturer's installation requirements.

1. Attachment System: Comply with manufacturer's engineered design for cladding support framing.

### 3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION