



NichiStaggered/Straight Three-Part Specification

07 47 47

Fiber Cement Siding

Part I - General

1.1 SECTION INCLUDES:

- A. Fiber cement lap siding boards, panels, trim, fascia and accessories.

1.2 RELATED SECTIONS

- A. Section 05 41 00 - Structural Metal Stud Framing
- B. Section 06 10 00 - Rough Carpentry
- C. Section 06 16 00 - Sheathing
- D. Section 07 20 00 - Thermal Protection
- E. Section 07 25 00 - Weather Barriers
- F. Section 07 60 00 - Flashing and Sheet Metal
- G. Section 07 90 00 - Joint Protection

1.3 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM C 1185 - Standard Test Methods for Sampling and Testing Non-Asbestos Fiber Cement.
 - a. ASTM C 1186 – Standard Specification for Flat Fiber-Cement Sheets.
 - 2. ASTM E 84 - Standard Test for Surface Burning Characteristics of Building Materials.
 - 3. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
 - 4. ASTM E 136 – Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C.
 - 5. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: Submit manufacturer's product description, standard detail drawings relevant to the project, storage and handling requirements, and installation instructions.

- C. Product Test Reports and Code Compliance: Documents demonstrating product compliance with local building code, such as test reports or Evaluation Reports from qualified, independent testing agencies.
- D. LEED Credits: Provide documentation of LEED Credits for project certification under USGBC LEED 2009 (Version 3.0).
- E. Shop Drawings: Submit drawings, including plan, section, and elevation drawings, showing installation details that demonstrate product layout, dimensions, finish colors, edge/termination conditions/treatments, compression and control joints, openings, and penetrations.
- F. Samples: Submit samples of each product type proposed for use.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. All fiber cement panels specified in this section must be supplied by a manufacturer with a minimum of 10 years of experience in fabricating and supplying fiber cement cladding systems.
 - 2. Provide technical and design support as needed regarding installation requirements and warranty compliance provisions.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer trained by manufacturer or representative.
- C. Mock-Up Wall: Provide a mock-up wall as evaluation tool for product and installation workmanship.
- D. Pre-Installation Meetings: Prior to beginning installation, conduct conference to verify and discuss substrate conditions, manufacturer's installation instructions and warranty requirements, and project requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Fiber cement panels must be stored flat and kept dry, off the ground before installation. A waterproof cover over panels and accessories should be used at all times prior to installation.
- B. If panels are exposed to water or water vapor prior to installation, allow to completely dry before installing. Moisture saturation before installation can cause shrinkage and panel damage.
- C. Panels MUST be carried on edge. Do not carry or lift panels flat. Improper handling may cause cracking or panel damage.
- D. Do not stack product more than three pallets high.

1.7 WARRANTY

- A. Provide manufacturer's 30-year limited warranty against manufactured defects in fiber cement panels.
- B. Warranty provides for the original purchaser and transfers to one subsequent owner. See warranty for detailed information on terms, conditions and limitations.

PART II: PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Nichiha USA, Inc., 3150 Avondale Mill Road, Macon, GA 31216, Tel. 478-238-9070, Fax: 478-238-9160, www.nichiha.com.
- B. Sales Office: Nichiha USA, Inc., 6465 East Johns Crossing, Suite 250, Johns Creek, GA 30097. Toll free: 1.866.424.4421, Office: 770.805.9466, Fax: 770.805.9467, www.nichiha.com.

1. Basis of Design Product: NichiStaggered/NichiStraight.

- a. Profiles: Staggered or Straight cedar shake edges.
- b. Profile color: primed.
 - i. Finish Color(s): See finish schedule.
- c. Width: 16 inches.
- d. Length: 4 feet.
- e. Thickness: 5/16 inch.
- f. Weight: 2.2 lbs. per square foot.
- g. Coverage: 5.33 square feet per board.
- h. Exposed Coverage:
 - i. 2 square feet (NichiStaggered).
 - ii. 2.33 square feet (NichiStraight).
- i. Factory sealed on five [5] sides.

C. Substitutions: Not permitted.

D. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 MATERIALS

- A. Fiber cement panels are manufactured from a pressed, stamped, and autoclaved mix of Portland cement, fly ash, recycled rejects, and wood fiber bundles.

2.3 PERFORMANCE REQUIREMENTS:

A. Fiber Cement Cladding – Must comply with ASTM C-1186, Type A, Grade II requirements:

1. Linear Variation with Change in Moisture Content: 0.08% linear change.
2. Wet Flexural Strength, lower limit: 1015 psi.
3. Water Tightness: No water droplets observed on any specimen.
4. Freeze-thaw: No damage or defects observed.
5. Warm Water: No evidence of cracking, delamination, swelling, or other defects observed.
6. Heat-Rain: No crazing, cracking, or other deleterious effects, surface or joint changes observed in any specimen.

B. Surface Burning (ASTM E-84): Flame Spread: 0, Smoke Developed: 1.

C. Fire Resistant (ASTM E-119): The wall assembly must successfully endure 60-minute fire exposure without developing excessive unexposed surface temperature or allowing flaming on the unexposed side of the assembly.

D. Non-Combustible (ASTM E-136): Meets performance requirements.

E. Wind Load (ASTM E-330): Ultimate loads vary depending upon board dimensions, fasteners, wall assembly type and dimensions. Consult siding manufacturer concerning project wind load requirements.

2.4 INSTALLATION COMPONENTS

A. Fasteners: Corrosion resistant fasteners, such as hot-dipped galvanized nails and screws appropriate to local building codes and practices must be used. Use Stainless Steel fasteners in high humidity and high-moisture regions. Board manufacturer is not liable for corrosion resistance of fasteners. Do not use aluminum fasteners, staples, clipped head nails or fasteners that are not rated or designed for intended use. See manufacturer's instructions for appropriate fasteners for construction method used.

B. Flashing: Flash all areas specified in manufacturer's instructions. Do not use raw aluminum flashing. Flashing must be galvanized, anodized, or PVC coated.

C. Sealant: Sealant shall be polyurethane, or hybrid, and comply with ASTM C834 or C920.

PART III: EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. Fiber cement panels can be installed over braced wood, steel studs and sheathing including plywood, OSB, plastic foam or fiberboard sheathing. Fiber cement panels can also be installed over Structural Insulated Panels (SIP's), Concrete Masonry Units (CMU's) and Concrete Block Structures (CBS's).
2. Allowable stud spacing: See manufacturer's installation instructions for details.
3. A weather resistive barrier is required when installing fiber cement panels. Use an approved weather resistive barrier (WRB) as defined by the 2012 IRC. Refer to local building codes.
4. Appropriate flashing shall be used to prevent moisture penetration around all doors, windows, wall bottoms, material joints, transitions, and penetrations. Refer to local building codes for best practices.

B. Examine site to ensure substrate conditions are within specification for proper installation.

C. Do not begin installation until unacceptable conditions have been corrected.

D. Do not install boards or components that appear to be damaged or defective. Do not install wet boards.

3.2 INSTALLATION

A. General: Install products in accordance with the latest installation guidelines of the manufacturer and all applicable building codes and other laws, rules, regulations and ordinances. Review all manufacturer installation, maintenance instructions, and other applicable documents before installation.

1. Consult with your local dealer or Nichiha Technical Department before installing any Nichiha fiber cement product on a building higher than 45 feet or three stories. Special installation conditions may be required.

B. Board Cutting

1. Always cut fiber cement panels outside or in a well ventilated area. Do not cut the products in an enclosed area.
2. Always wear safety glasses and NIOSH/OSHA approved respirator whenever cutting, drilling, sawing, sanding or abrading the products. Refer to manufacturer MSDS for more information.
3. Use a dust-reducing circular saw with a diamond-tipped or carbide-tipped blade.
 - a. Recommended circular saw: Makita 7-1/4" Circular Saw with Dust Collector (#5057KB).
 - b. Recommended blade: Tenryu Board-Pro Plus PCD Blade (#BP-18505).

c. Shears (electric or pneumatic) or jig saw can be used for complicated cuttings, such as service openings, curves, radii and scrollwork.

4. **Silica Dust Warning:** Fiber cement products may contain some amounts of crystalline silica, a naturally occurring, potentially hazardous mineral when airborne in dust form. Consult product MSDS or visit www.osha.gov/SLTC/silicacrystalline/index.html.

C. Fastening

1. Fiber cement panels must be jointed on studs.
2. Fasteners must penetrate studs at least 1" into wood studs and ½" into steel studs.
3. Fastener head must be flush to the board surface.
4. Fasteners shall be placed a minimum of 3/8" from board edges.
5. Fasten panels 1/2 to 3/4" above the top of the keyway and through the underlying course.

D. Joint Installation: Butt panel edges together in moderate contact.

E. Trim Joints (corners and around windows, doors, and band boards): For vertical joints, leave a 1/8" gap between panel edge and trim and fill with recommended sealant. For horizontal joints above windows and doors, use a metal flashing over the trim, leaving a ¼" gap between the siding and flashing. For horizontal joints underneath window sills and trim, leave a 1/8" gap and fill with recommended sealant.

3.3 CLEANING AND MAINTENANCE

A. Review manufacturer guidelines for detailed care instructions.

B. Paint: All unfinished (pre-primed) products must be painted within 12 months of installation with exterior grade 100% acrylic latex paints. Follow the paint manufacturer's instructions for use, care, and future repainting. Do not use stain or oil based paints.

C. Field Cut Edges: All exposed field cut edges, such as outside edges, field cut butt joints, cuts around doors and windows, or bottom ends of corners and window trim, must be coated with primer, paint, or sealant.

D. Dents/Chips/Scratches: Any minor surface damage to fiber cement boards must be patched with exterior grade cementitious patching or putty. Follow the product instructions.

E. Sealant: Use an exterior grade high-quality sealant (caulk) that complies with either ASTM C-834 or ASTM C-920 for all gaps that require sealant. When replacing caulk in the future, carefully remove the old caulk first and then follow the manufacturer's instructions and siding manufacturer requirements.

F. Cleaning: Wash down exterior surfaces at least every 12 months to remove any dirt and debris. *DO NOT use high-pressure power washers which may damage fiber cement.* A mild household detergent and soft bristle brush or cloth may be used if needed. Rinse with clean water from a standard garden hose. For mildew removal, consult your paint manufacturer's instructions prior to the use of commercial mold and mildew cleaners.