



Architectural Specifications Nichiha Fiber Cement Products

Sierra Premium™

I General

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1.1 SCOPE

- A. Furnish and install Nichiha Sierra Premium™ fiber cement boards where shown on drawings or specified herein.

1.2 RELATED SECTIONS

- A. Division 06 - Wood and plastics.
- B. Section 13112 - Steel framing and bracing.
- C. Section 07210 - Insulation.
- D. Section 07915 - Sealants, caulking and seals.

1.3 REFERENCES

- A. ASTM C1185, Standard Test Methods for Sampling and Testing Non-Asbestos Fiber Cement Flat Sheet, Roofing and Siding, Shingles and Clapboards.
- B. ASTM E228, Standard Test Method for linear Thermal Expansion of Solid Materials with Vitreous Silica Dilatometer.
- C. ASTM E330, Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- D. ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials.

1.4 SUBMITTALS

- A. Drawings: Submit detailed drawings showing installation details.
- B. Product Data: Submit manufacturer's product description, indicating material types and thicknesses, and installation details.
- C. Samples: Submit samples of each product type and color of board proposed for use.
- D. Certificates: Submit documents certifying that products meet or exceed requirements herein.

1.5 QUALITY ASSURANCE

- A. Performance requirements: Nichiha Sierra Premium™ boards are fiber cement board products with the following typical properties:
 1. Wet Flexural Strength: Avg. 1450 psi.
 2. Moisture Movement: Linear change (%): 0.098.
 3. Water Tightness: No water droplets were observed on any specimen.
 4. Freeze-Thaw: No damage or defects were observed.
 5. Warm Water: No evidence of cracking, delamination, swelling, or other defects were observed R=0.98.
 6. Heat-Rain: No crazing, cracking, or other deleterious effects, surface or joint changes were observed in any specimen.
 7. Mean Coefficient of Linear Thermal Expansion: Avg. 3.55×10^{-6} in./in.F.
 8. Surface Burning: Flame Spread: 0, Smoke Developed: 0.
 9. Wind Load: Positive: Avg. 147.683 psf., Negative: Avg. 156.98 psf.

I General

1.5 QUALITY ASSURANCE (continued)

- B. Compliance: Nichiha Sierra Premium™ fiber cement boards shall meet or exceed requirement of the following:
1. ICC Evaluation Service, Inc. (ICC-ES) Report No. ESR-1694.

1.6 WARRANTY

- A. Warrant Nichiha Sierra Premium™ fiber cement boards against manufacturing defects with a lifetime limited warranty. See warranty for detailed information on terms, conditions and limitations.

II Products

2.1 MANUFACTURER

- A. Manufacturer: Nichiha Corporation, 18-19 Nishiki 2 Chome Naka-ku, Aichi 460-8610, Japan - 81-52-220-5111.
- B. Importer: Nichiha USA, Inc., 6599 Peachtree Industrial Boulevard, Suite AA, Norcross, GA 30092
Toll free: 1.86 NICHHA 1 (1.866.424.4421) Office: 770.805.9466 Fax: 770.805.9467

2.2 MATERIALS

- A. Nichiha fiber cement boards are based on autoclaved, wood flake reinforced cement boards. Wood flakes are prepared in accordance with Nichiha specifications and are mixed with Portland cement, additives, and powdered rejects.
- B. The boards are 9" in width (shake boards), and 8-3/4" or 7" in width (smooth boards), 8' in length (shake boards), 10' in length (smooth boards), and 1/2" (12mm) thick (shake and smooth boards). The boards are factory-primed.

2.3 PRODUCT DESCRIPTION

- A. Sierra Premium™ Shake fiber cement boards.
1. Profile Finish: Factory-primed.
 2. Dimensions: 9" (h) x 8' (l) x 1/2" (t) (actual 2438.4mm (l) x 12mm (t)).
 3. Weight: 17.5 lbs. per board/ 2.92 lbs. per sq. ft.
 4. Coverage: 6 sq. ft. per board (nominal).
 5. Exposed Coverage: 5.17 sq. ft. per board (1-1/4" nominal overlap).
 6. Factory Sealed: Sealed on all six sides.
- B. Sierra Premium™ Smooth fiber cement boards.
1. Profile Finish: Factory-primed
 2. Dimensions: 8-3/4" (h) x 10' (l) x 1/2" (t) (actual 3030mm (l) x 12mm (t)).
7" (h) x 10' (l) x 1/2" (t) (actual 3030mm (l) x 12mm (t)).
 3. Weight: 8-3/4" (h) - 22.5 lbs. per board/ 3.1 lbs. per sq. ft.
7" (h) - 18.0 lbs. per board/ 3.1 lbs. per sq. ft.
 4. Coverage: 8-3/4" (h) - 7.20 sq. ft. per board.
7" (h) - 5.83 sq. ft. per board.
 5. Exposed Coverage: 8-3/4" (h) - 6.25 sq. ft. per board (1-1/4" nominal overlap).
7" (h) - 4.79 sq. ft. per board (1-1/4" nominal overlap).
 6. Factory Sealed: Sealed on all six sides.

III Execution

3.1 HANDLING

- A. NichiProducts™ boards MUST be stored flat and off the ground (on pallets) prior to installation. NichiProducts MUST be kept dry and stored in a covered area or covered with wrap before installation. Moisture saturation before installation can cause shrinkage and board damage. If boards are exposed to water or water vapor prior to installation, allow boards to completely dry before installing. Nichiha is not responsible for damage caused by improper storage.
- B. NichiProducts™ boards MUST be carried on edge. Do not carry or lift boards flat. Improper handling may cause cracking or board damage. Nichiha is not responsible for damage caused by improper handling.

3.2 PREPARATION

- A. Job site conditions:
 - 1. Sierra Premium™ Shake & Smooth boards can be installed directly on braced wood construction spaced at max. 24" o.c. over sheathing. Fasteners must penetrate wood studs a min. of 1".
 - 2. It is recommended that APA rated 7/16" OSB [Oriented Strand Board] or plywood sheathing be used to ensure nail-holding power and provide an air gap between board and sheathing.
 - 3. A weather resistive barrier is required by building code when installing NichiProducts™ (refer to local building codes). Use the approved weather resistive barrier (WRB) as defined by the 2007 IRC. Refer to local building codes. Nichiha is not liable for water infiltration.
- B. Surface conditions:
 - 1. Do not begin installation until unacceptable conditions have been corrected.

3.3 FASTENING

- A. Corrosion resistant fasteners, such as hot-dipped galvanized nails and screws that are appropriate to local building codes and practices must be used. Stainless steel fasteners are highly recommended in high-humidity and high-moisture regions.
 - 1. Nichiha is not liable for the corrosion resistance of fasteners.
 - 2. Do not use aluminum fasteners, staples, clipped head nails or fasteners that are not rated or designed for intended use.
 - 3. Fasteners must penetrate studs at least 1" into wood studs. Fastener head must be flush to the board surface.
 - 4. When installing boards directly to OSB or plywood and board ends fall between stud lines, the board end must be fastened with appropriate screws to the sheathing.
 - 5. Boards must be jointed on the stud in metal construction, and should be staggered after installing the first course. For best appearance stagger second course 16". For third course, flip board and stagger 1" from 2nd course (for other than 16" o.c. spacing, plan accordingly).
 - 6. Fasteners should be placed a minimum of 1" from the top edge and a minimum of 3/4" from board edges.
 - 7. If face fastening, fasteners should be a minimum of 1" from the bottom edge.

3.4 CUTTING

- A. Whenever cutting, drilling, sawing, sanding or abrading the product, users must observe the following safety practices:
- B. Use best work practices to reduce airborne dust concentrations.

III Execution (continued)

3.4 CUTTING (continued)

- C. Use a fiber cement circular saw with dust collector for cutting (e.g., Makita 5057KB—recommended blade: Tenryu Board-Pro Plus PCD Blade #BP-18505). The dust collector must be connected to a HEPA vacuum. A jig saw can be used for complicated cuttings, such as service openings, curves, radii and scrollwork.
- D. **Silica Dust Warning:** NICHHA products contain crystalline silica [a.k.a. sand, silicon dioxide], which is a common Earth's naturally occurring mineral. Inhalation of crystalline silica into the lungs and repeated exposure to silica, can cause health disorders, such as silicosis, lung cancer, or a potentially death depending upon various factors. To be conservative, Nichiha recommends that whenever drilling, cutting, sawing, sanding or abrading the product, users must observe the following safety practices. 1] Use best work practices to reduce airborne dust concentrations. 2] Use a fiber cement circular saw with a dust collector for cutting (e.g., Makita 5057KB). The dust collector must be connected to a HEPA vacuum. 3] Do not use compressed air for cleaning dust. 4] Work outdoors where feasible, otherwise use mechanical ventilation. 5] Everyone handling Nichiha products or in the vicinity of others using Nichiha products must wear safety glasses and properly fitted respirators prior to handling Nichiha products. Nichiha requires that users wear a **NIOSH/OSHA approved respirator with a rating of N100, O100, P100, or R100** in accordance with applicable government regulations and manufacturer instructions. 6] All employers must comply with the OSHA PEL and ACGIH TLV-TWA. 6] Warn others in area. These requirements are designed to help minimize exposure to crystalline silica. We also require that you read all instructions and warnings [including MSDS] prior to using NICHHA's products. For further information or questions, please consult the MSDS or your employer. The MSDS for Nichiha products are available at www.nichiha.com, at your local Nichiha dealer or through Nichiha directly at 1.866.424.4421. **FAILURE TO ADHERE TO OUR WARNINGS, MSDS, AND OTHER INSTRUCTION MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.**

3.5 INSTALLATION

- A. General: Install product 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. A starter strip is required to set the first course on the proper angle and to create the drip edges and air spaces.
 - 2. Cut boards horizontally into 3" wide strips and install leaving a minimum of 6" from soil grade or 2" from hard surface (steps, driveways and decking products—roofs 1") to the bottom of the strip. PVC siding starter can also be used, do not use dimensional lumber, plywood, OSB or engineered wood products for starter strip. FS 1010 Nichiha spacer can also be used as a starter strip.
 - 3. Ensure that the first course of boards is level as it will be the guide for entire installation.
- B. Vertical Joints: All board vertical joints must be located at the stud line.
- C. Joint Installation Using Flashing (recommended): Attach joint flashing recommended for fiber cement siding and follow manufacturer's instructions. Then install boards with at least a 1/8" gap. All board edges must be coated with primer, sealer or paint. NEVER leave board edges uncoated.
- D. Joint Installation Using Caulk: Leave a 1/8" gap between each board and fill with recommended sealant ASTM C-834 for primed products and ASTM C-920 for prefinished products.

III Execution (continued)

3.5 INSTALLATION (continued)

- E.. Horizontal Joints: A minimum 1-1/4" overlap is required. Do not fasten closer than 1" from the top edge and no closer than 3/4" from the board ends. If face fastening is required, fasteners should be placed at 1" from bottom edge with a 2" overlap. Fastening can begin from one end of the board to the other or from the board's center out.
- F. Trim Joints (Outside and inside corners around windows, doors, and vents, etc.): For vertical joints, leave a 1/8" gap in between and fill with recommended sealant. For top of horizontal joints, i.e. top of window or top of band board, use a metal flashing over the trim. For bottom of horizontal joints, leave a 1/8" gap and fill with recommended sealant.

3.6 FINISHING AND MAINTENANCE

- A. Use exterior grade high-quality sealant that complies with either ASTM C-834 (for primed products) or ASTM C-920 (for prefinished products) for all gaps that require filling with sealant. Follow the manufacturer's written instructions for use.
- B. All field cut edges should be covered with fiber cement sealant or paint.
- C. Dents, chips, scratches, etc. on the products shall be filled with exterior grade cementitious patching or putty. Follow the manufacturer's written instructions for use.
- D. All unfinished [pre-primed] products must be painted within 12 months. Exterior grade 100% acrylic latex paints are recommended. Follow the manufacturer's written instructions for use.
- E. Cleaning: Rub boards with a soft brush using a diluted neutral detergent. Do not use hard tools such as a wire brush or other abrasive materials.

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