



# SIERRA PREMIUM & NICHIFRONTIER INSTALLATION GUIDELINES



### CONSTRUCTION REQUIREMENTS

Sierra Premium and NichiFrontier products can be installed directly on braced wood or steel stud\* (20GA or heavier) construction spaced at a maximum of 24" o.c. or over sheathing with solid wood or steel backing. Correct any misaligned framing as irregularities may mirror through finished application.

Sierra Premium and NichiFrontier products must be installed on flat, vertical wall applications only. Do not install on sloped or tilted walls or Mansard type roofs.

Shake and lap siding products must be installed horizontally. Do not install in an angled, sloped, or other non-horizontal (chevron, sunburst, diamond) fashion.

A weather resistive barrier is required in accordance with local building codes when installing NichiProducts™. Use the approved weather resistive barrier (WRB) as defined by the 2012 IRC. The weather resistive barrier must be installed in accordance with the manufacturer's specifications and local codes if applicable. Nichiha is not liable for water infiltration.

When installing Sierra Premium and NichiFrontier products, it is recommended that an APA rated 7/16" OSB or plywood sheathing be used. Sierra Premium and NichiFrontier products may be installed over non-structural sheathing such as foam, fiber builder board, and gypsum type panels. Non-structural sheathing thickness must not exceed 1". Due to the compressive nature of some non-structural sheathing, care must be taken not to overdrive the fastener and compress the sheathing which may result in distortion or waviness. The fastener length must be increased in accordance with the thickness of the non-structural sheathing.

Please consult with your local dealer or Nichiha directly when using Sierra Premium and NichiFrontier products on large projects, such as buildings greater than three (3) stories or taller than 45 feet. Some special reinforcements may be required.

### PRODUCT INSPECTION

Inspect all products thoroughly prior to installation. Do not install any product which may have been damaged in shipment or displays damage to the primer or finish coat.

Contact your local dealer or Nichiha Customer Service Representative toll-free at 1-866-424-4421 immediately, should you have any questions about Sierra Premium and NichiFrontier products.

\*Steel stud installation approved for NichiFrontier only.

### STORAGE & HANDLING

Sierra Premium and NichiFrontier products MUST be stored flat, and off ground prior to installation. Nichiha recommends storing on pallets.

Sierra Premium and NichiFrontier products MUST be kept dry, and stored in a covered area or covered with a tarp before installation. Moisture saturation before installation may result in shrinkage and board damage. Do not install saturated boards.

All prefinished products are required to be stored in a covered area.

Carry the products on edge. Do not carry or lift Sierra Premium and NichiFrontier products flat. Improper handling may cause cracking or board damage.

Nichiha is not responsible for damage caused by improper storage and handling of Nichiha Sierra Premium and NichiFrontier products.

### MINIMUM CLEARANCES

Maintain a minimum 1" - 2" clearance between Sierra Premium and NichiFrontier products and decking, walks, steps, stoops, porches, and hard surface driveways. (Fig. 1.1)

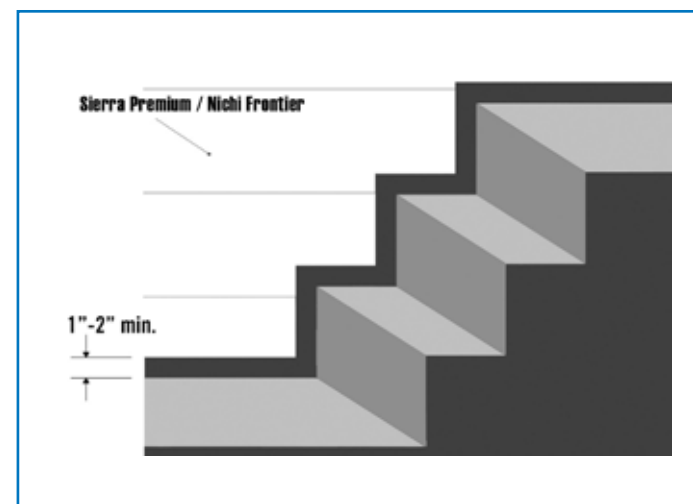


Fig. 1.1

Maintain a minimum clearance of 6" above finished grade, or in accordance with local codes if greater than 6" clearance is required. (Fig. 2.1)

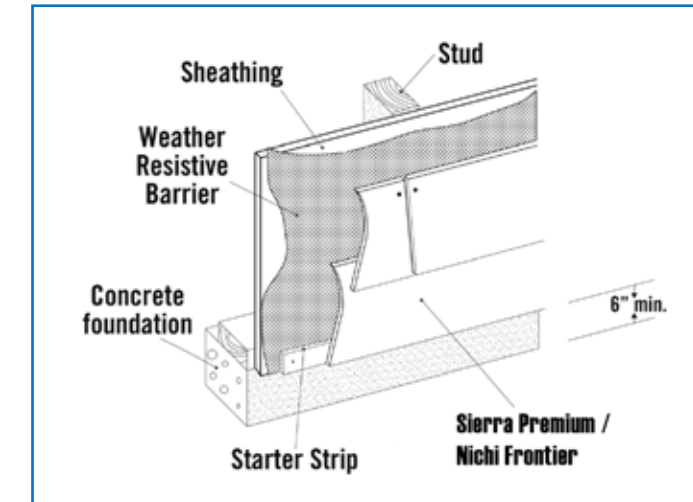


Fig. 2.1

At roof and wall junctures and according to roofing manufacturer's instructions, flashing and counter-flashing are required. Sierra Premium and NichiFrontier products must be installed with a minimum 1" clearance from roofing. (Fig. 2.2)

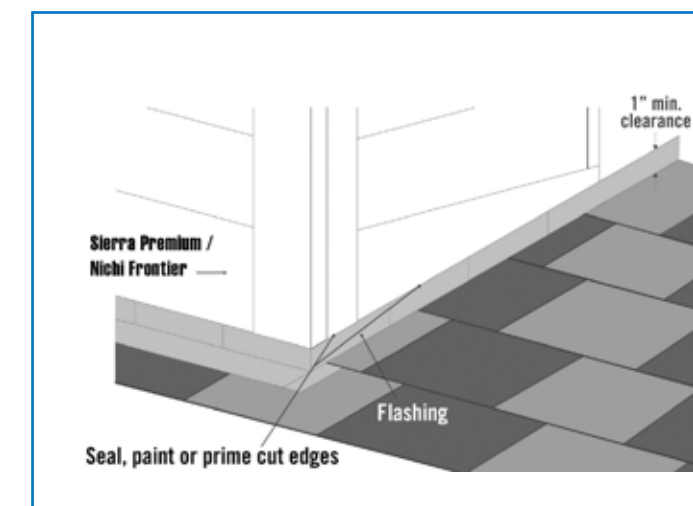


Fig. 2.2

A kickout flashing must be present at roof to wall intersects in order to direct roof water away from the siding and trim. (Fig. 2.3)

All horizontal trim is required to be flashed with a 1/4" clearance between the siding and flashing.

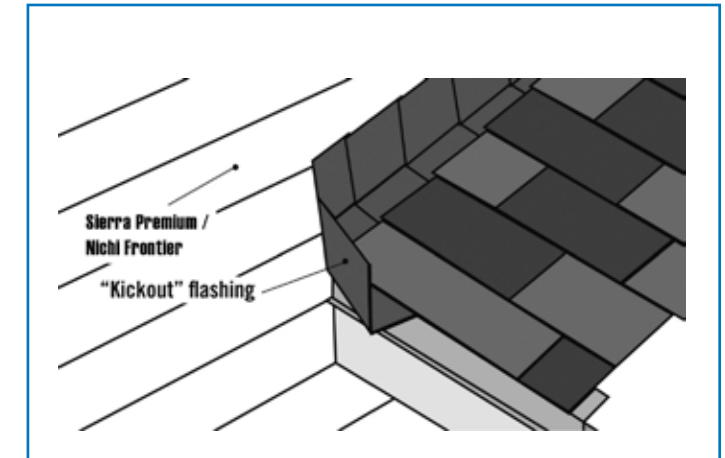


Fig. 2.3

### CUTTING

For your protection and that of others, refer to the Nichiha Safety Guidelines and OSHA guidelines for important safety practices.

Work outdoors where feasible, otherwise use mechanical ventilation. Position cutting station so that wind will carry the dust away from the user and others in the work area.

Always wear safety glasses and NIOSH/OSHA approved respirator with a rating of N100, O100 or P100 whenever cutting, drilling, sawing, sanding or abrading the products. Refer to the Safety Instructions in this guide for more details.

Use a dust-reducing or dust collecting circular saw with a vacuum attachment in combination with a diamond-tipped blade designed for cutting fiber cement products.

The dust collector must be connected to a HEPA vacuum.

A jig saw fitted with a carbide tipped blade may be used for cutting service opening holes, irregular shapes, radii, and scrollwork.

When using a circular saw or jigsaw, cut Sierra Premium and NichiFrontier products face down. Also ensure the board is fully supported along its length. Additionally, on factory prefinished products, take steps to protect board finish from damage.

## FASTENING

Sierra Premium and NichiFrontier products may be hand fastened or fastened with a pneumatic tool. Pneumatic fastening is recommended.

When using pneumatic tools, ensure the gun has an adjustable depth of drive or flush mount attachment to control nail seating depth. The fastener head must be flush to the board surface. Do not over drive or under drive fasteners. Caulk or seal any fasteners that are countersunk more than 1/16" and add an additional properly seated fastener.

DO NOT use framing nailers as board damage may result.

Pressure from compressors can vary depending on tank volume and the number of lines connected to the unit. For best performance, always test and adjust pressure before beginning installation.

Corrosion resistant fasteners, such as hot-dipped galvanized nails and screws appropriate to local building codes and practices must be used. Stainless steel fasteners are highly recommended in high-humidity and high-moisture regions. Nichiha is not liable for corrosion resistance of fasteners. Do not use aluminum fasteners, staples, finish nails, clipped head or T-head nails, or fasteners not rated or designed for intended use.

Corrosion resistant, full round head siding nails or appropriate screws may be used to install Sierra Premium™/ NichiFrontier™ to wood and steel\* framing members. Fasteners must penetrate into wood a minimum of 1" or into a minimum 20-gauge steel stud ½".

## FINISHING & MAINTENANCE

Use an exterior grade high-quality sealant that complies with either ASTM C-834 (for primed products) or ASTM C-920 (for prefinished products) requirements for all gaps that require filling with sealant. Follow the manufacturer's instructions for use.

All exposed field cut edges (i.e. outside edges, field cut door and window cut outs, field cut butt joints, bottom ends of corners and window trim), must be sealed with a primer, paint, or caulk.

Dents, chips, scratches, etc. on the products should be filled with exterior grade cementitious patching or putty. Follow the manufacturer's instructions for use.

All unfinished (pre-primed) products must be painted within 12 months of installation. High quality, exterior grade, 100% acrylic latex paints are recommended.

DO NOT use stain, or oil or alkyd based paints on Sierra Premium and NichiFrontier products. Do not apply paint when siding is wet. Follow the manufacturer's instructions for use.

Nichiha does not warrant or accept liability for the appearance or performance of third party or field applied caulks, sealants, or finishes.

Periodic maintenance of the exterior of any structure is considered normal. As a guide, it is recommended that normal maintenance shall include:

- Washing down the exterior surfaces periodically with a low pressure spray or garden hose to remove dirt and debris. DO NOT use high pressure power washers as they may damage the siding.
- Reapplication of exterior finishes.
- Please refer to your paint manufacturer for recoating requirements and schedules.
- Maintaining caulks and sealants.
- Ensure that gutters are clear and unclogged to prevent overflows.
- Ensure that the minimum ground clearance is maintained by preventing build up of decorative mulch, stone, etc.
- Maintain a clearance between the siding and any vegetation, shrubs, etc.

## SAFETY INSTRUCTIONS

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 dust reducing circular saw with collector or vacuum attachment for cutting. The dust collector must be connected to a HEPA vacuum.
3. Position cut station where wind will carry dust away from user and others in the area.
4. Do not use compressed air for cleaning dust.
5. Work outdoors when feasible; otherwise use mechanical ventilation.
6. Anyone handling or in the vicinity of others using Sierra Premium and NichiFrontier products must wear safety glasses and properly fitted respirators, prior to handling Sierra Premium and NichiFrontier products. We require that users wear a NIOSH/OSHA approved respirator with a rating of N100, O100 or P100 in accordance with applicable government regulations and manufacturer's instructions.
7. All users must comply with the OSHA PEL.
8. Notify others in the immediate area.

## SIERRA PREMIUM™ SHAKE & SIERRA PREMIUM SMOOTH

### PREPARATION

Follow all General Instructions on Page 1 of this guide.

- Sierra Premium™ Shake and Smooth boards can be installed directly on braced wood construction spaced at a maximum of 24" o.c. or over sheathing with solid wood backing. Correct any misaligned framing as irregularities may mirror through finished application. (Fig. 4.1)
- Sierra Premium™ Shake and Smooth boards must be installed on flat, vertical wall applications only. Do not install on sloped or tilted walls, or Mansard type roofs.
- Sierra Premium™ Shake and Smooth boards must be installed horizontally. Do not install in an angled, sloped, or other non-horizontal (chevron, sunburst, diamond) fashion.

- Ensure all weather resistive barriers are in place in accordance with local code.

- When installing Sierra Premium™ Shake and Smooth boards, it is recommended that an APA rated 7/16" OSB or plywood sheathing be used. Boards may be installed over non-structural sheathing such as foam, fiber builder board, and gypsum type panels. Non-structural sheathing thickness must not exceed 1". Due to the compressive nature of some non-structural sheathing, care must be taken not to overdrive the fastener and compress the sheathing which may result in distortion or waviness. The fastener length must be increased in accordance with the thickness of the non-structural sheathing.

- Please contact Nichiha regarding installation over steel framing.

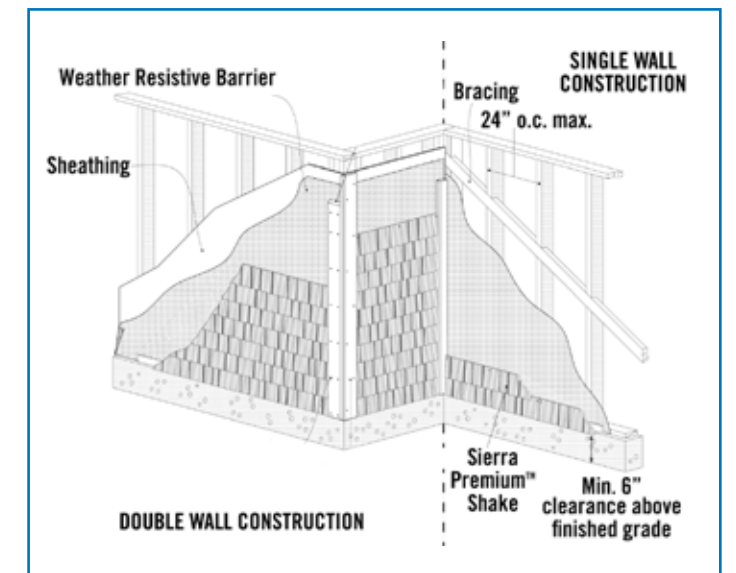


Fig. 4.1

**FASTENING**

Follow all general fastening instructions in this guide.

- Sierra Premium™ Shake and Smooth boards must be installed with corrosion resistant, galvanized, or stainless steel fasteners.
- A corrosion resistant, #8, ribbed, bugle head (.375" HD) screw of appropriate length is recommended. As an alternative, a hot dipped galvanized, full round head (min .221" HD) siding nail may also be used. Fasteners must penetrate into wood a minimum of 1".
- Stainless steel fasteners are highly recommended in high-humidity and high-moisture regions. Nichiha is not liable for corrosion resistance of fasteners. Do not use aluminum fasteners, staples, clipped head or T-head nails, finish nails, or fasteners that are not rated or designed for intended use.
- The fastener head must be flush to the board surface. Do not over drive or under drive fasteners.

**STARTER STRIP & FIRST COURSE INSTALLATION**

- A starter strip is required to set the first course on the proper angle and to create the drip edge at the bottom course of siding. The starter strip material may be a cut piece of Sierra Premium, PVC, or pressure treated lumber. Do not use untreated lumber, plywood, OSB or other engineered wood products as a starter strip. (Fig. 5.1)
- Install the starter strip level with the bottom of the wall sheathing or mudsill.
- Ensure the first course of boards is level as it will be the guide for the entire installation. Use a level and chalk line to establish a level and straight reference point for the first course. Continue to check for level lines throughout installation.
- The first course of siding must hang below the starter strip a minimum of 1/4".
- The siding should not extend below the corner trim.
- The bottom edge of the first course must have at least 6" clearance above finished grade.
- It is recommended the course heights remain aligned and transfer around corners.

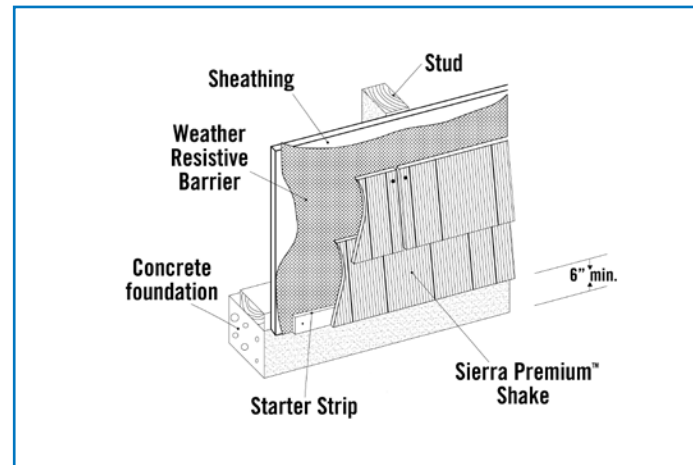


Fig. 5.1

**OVERLAP**

- Sierra Premium™ Shake and Smooth boards must be installed with a minimum overlap of 1 1/4". (Fig. 6.2)
- Alternatively, on Sierra Premium Shake a maximum overlap of up to but no greater than 2" may be used.

**BLIND NAILING**

- For a more aesthetically pleasing installation, Sierra Premium™ Shake and Smooth boards may be installed in a hidden, or blind nail application. (Fig. 6.1)
- Position the fastener a minimum of 1" down from the top edge of the board and no closer than 3/4" from the board ends.
- Fasten from one end of the board to the other.

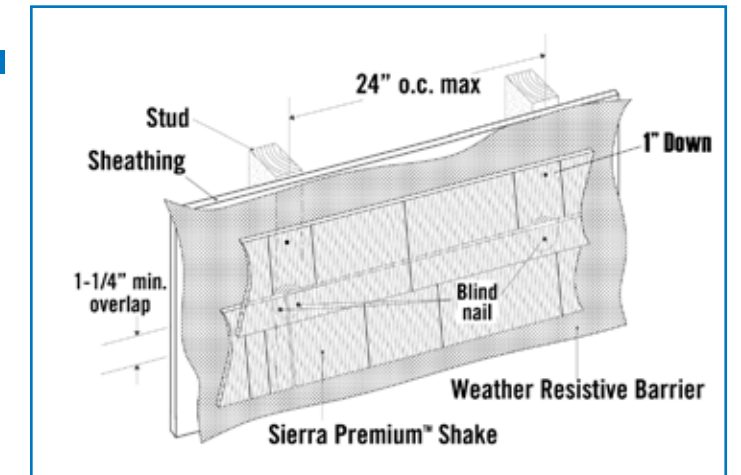


Fig. 6.1

**FACE NAILING**

- It is permissible to install Sierra Premium Shake and Smooth boards in a face nail type installation to meet certain installation requirements or when specified by local code.
- Position the fastener a minimum distance of 3/4" up from the bottom edge of the board and no more than 1". This ensures the fastener will penetrate through the overlap and through both courses. Place the fastener no closer than 3/4" from board ends. (Fig. 6.2)
- Fasten from one end of the board to the other.
- DO NOT install Sierra Premium Shake and Smooth boards in a combined Blind and Face nailing manner.

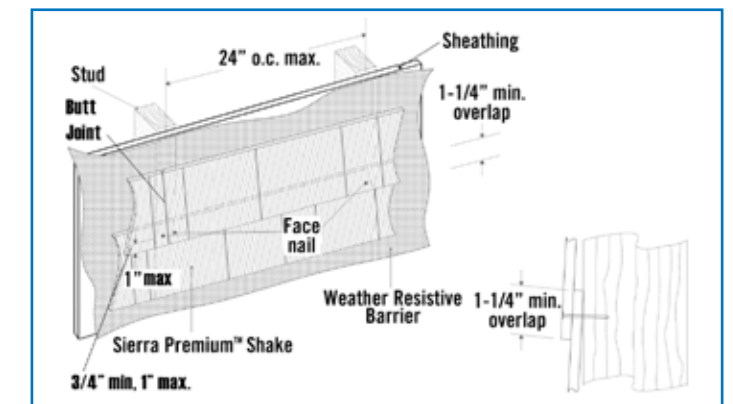


Fig. 6.2

**VERTICAL JOINT PLACEMENT, FASTENING, AND SEALING**

- All Sierra Premium Shake and Smooth board vertical (butt) joints MUST land or break over studs or solid wood framing.
- When boards are installed over OSB or plywood sheathing using nails, board ends must be secured with a corrosion resistant, #8, ribbed, bugle head screw at each butt joint.
- Pin-backs may be done for aesthetic purposes only. Pin backs shall be done with corrosion resistant finish nails only, and are not a substitute for blind or face nailing.
- When possible, use factory sealed or finished ends at butt joints.
- ALL cut ends must be sealed with a primer or paint. NEVER leave exposed cut edges uncoated.



**STAGGERING THE SHAKE BOARDS**

- Shake keyways from one course to the next should not line up vertically. Layout of the application may be necessary to avoid stacked keyways.
- All boards are identical. They have a “right-hand” and a “left-hand” side (see detail).The 1st shake on the right-hand side is 4- 5/16” in width; the 2nd shake (traversing Right to Left) is 7”, the 3rd is 8-5/8”, the 4th is 5”, and the 5th is 5-1/8” wide (see detail).
- All boards must be installed in the same orientation. DO NOT flip or reverse the board orientation.
- All cuts must be made from the LEFT side of the board. (Fig. 7.1)

**JOINT TREATMENT**

- The use of a joint flashing behind the butt joints is required. (Fig. 7.2)
- Install Sierra Premium Shake and Smooth boards in moderate contact at butt joints.
- Suitable materials for joint flashing include anodized or PVC coated coil stock, and code approved water resistive barriers.
- The joint flashing should be at least 3” in width and long enough to extend above the board height a minimum of 2”.

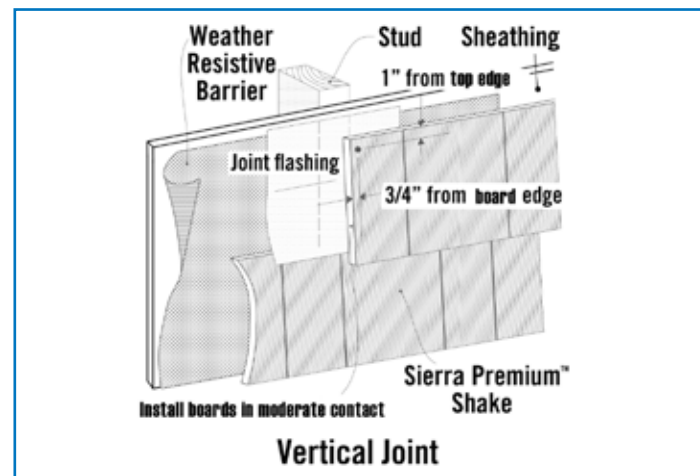
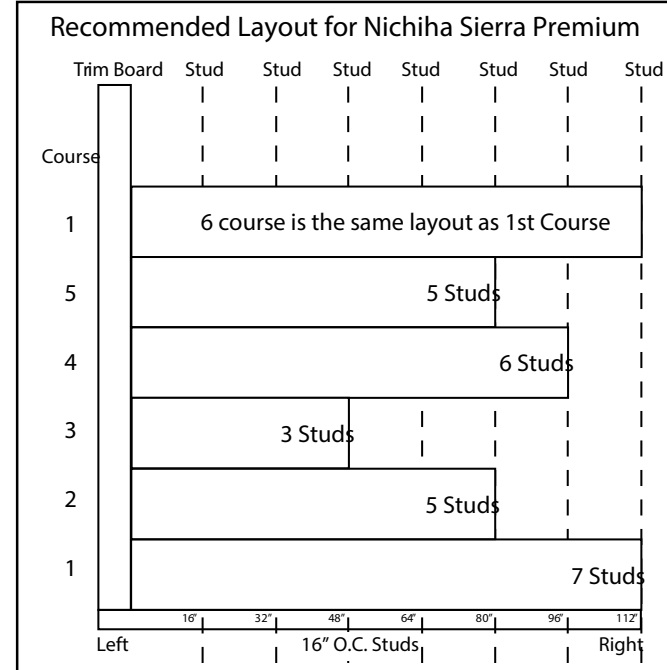


Fig. 7.2

Course	Stairstep Stagger
1	Measure from cornerboard to 7th stud and cut shake board.
2	Measure from cornerboard to 5th stud and cut shake board.
3	Measure from cornerboard to 3rd stud and cut shake board.
4	Measure from cornerboard to 6th stud and cut shake board.
5	Measure from cornerboard to 5th stud and cut shake board.
6	Pattern repeats (same as course 1)



Sketch of Sierra Premium™ Shake Plus Board																	
4-7/16"	7"	8-5/8"	5-3/8"	7-1/8"	5-1/8"	6-7/8"	6-7/16"	4-1/4"	5-5/8"	7-1/4"	5"	7-1/2"	5-1/8"	5"	8-5/8"	7"	4-5/16"
1. Board Orientation (5-1/8" and 5") shake boards to the right side.																	

Fig. 7.1

**SIDING TO TRIM JOINTS**

- Where board ends and edges meet trim at inside and outside corners, door, window, and other trim attachments, leave a minimum 1/8” gap and caulk with a quality sealant that meets ASTM C-920 requirements. (Fig. 8.1)
- Corner Trim and other trim attachments must be of sufficient thickness. The overlapped Sierra Premium siding must not extend beyond the face of the trim. A continuous, solid shim or build out behind the trim may be necessary.
- All horizontal trim must be flashed. Leave a 1/4” gap between the siding and flashing. Do not caulk this gap. Do not use raw aluminum flashings. Flashings must be galvanized, anodized or PVC coated. (Fig. 8.2)

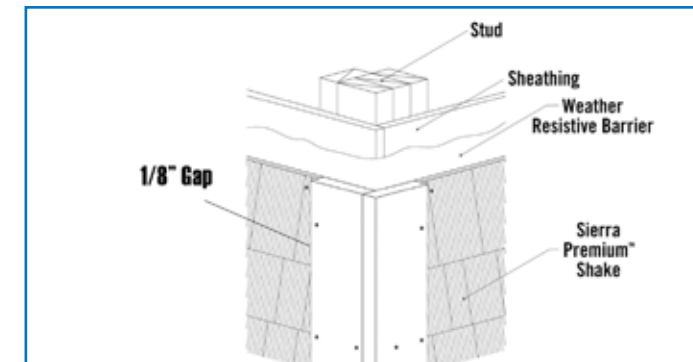


Fig. 8.1

**ALTERNATIVE CORNER TREATMENTS**

- Sierra Premium Shake and Smooth boards may be installed with “mitered” style corners. For best results, use a compound miter saw to accurately cut the 45 degree miter cut and slope angle.
- Sierra Premium Shake and Smooth boards may also be installed in a “laced” or staggered corner application.
- When installing Sierra Premium siding in a mitered or laced corner manner, a galvanized, coated aluminum, or vinyl/PVC flashing over the building corner prior to beginning the application is required.
- Use a polyurethane adhesive where mitered or laced boards join. (Fig. 8.3 - 8.4)

**FINISHING**

Follow all finishing instructions in the General section of this guide.

**NICHIFRONTIER™**

**PREPARATION**

Follow all General Instructions on Page 1 of this guide.

- NichiFrontier boards can be installed directly on braced wood or steel stud (20GA or heavier) construction spaced at a maximum of 24” o.c. or over sheathing with solid wood or steel backing. Correct any misaligned framing as irregularities may mirror through finished application.
- NichiFrontier boards must be installed on flat, vertical wall applications only. Do not install on sloped or tilted walls, or Mansard type roofs.
- NichiFrontier boards must be installed horizontally. Do not install in an angled, sloped, or other non-horizontal (chevron, sunburst, diamond) fashion.
- Ensure all weather resistive barriers are in place in accordance with local code.

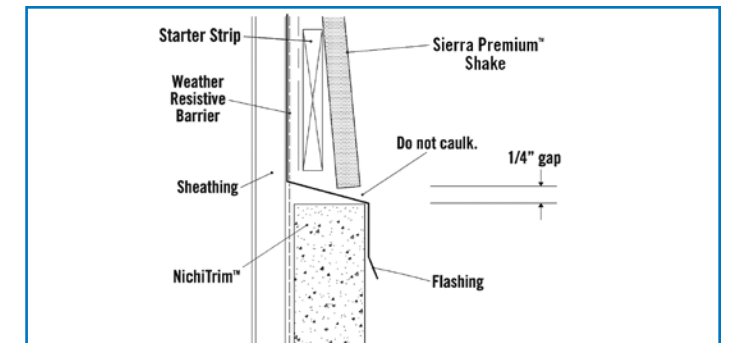


Fig. 8.2

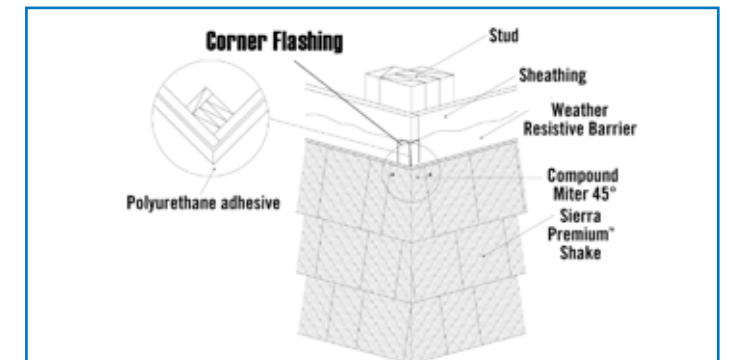


Fig. 8.3

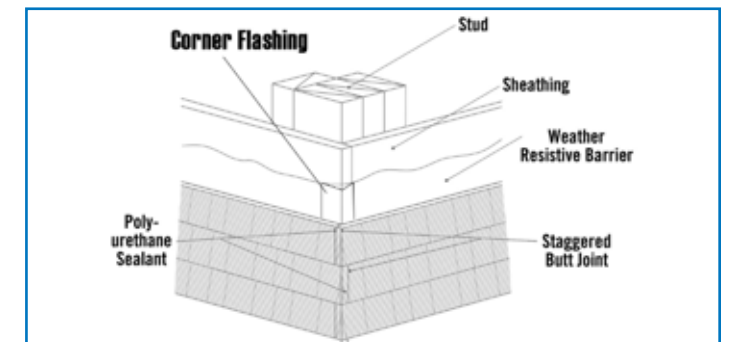


Fig. 8.4

- When installing NichiFrontier, it is recommended that an APA rated 7/16" OSB or plywood sheathing be used. Boards may be installed over non-structural sheathing such as foam, fiber builder board, and gypsum type panels. Non-structural sheathing thickness must not exceed 1". Due to the compressive nature of some non-structural sheathing, care must be taken not to overdrive the fastener and compress the sheathing which may result in distortion or waviness. The fastener length must be increased in accordance with the thickness of the non-structural sheathing. (Fig. 9.1)

**FASTENING**

Follow all general fastening instructions in this guide.

- **Corrosion resistant fasteners such as hot-dipped galvanized nails and screws that are appropriate to local building codes and practices must be used. When applying Frontier over wood framing, suitable fasteners include a full round head (min .221" HD) siding nail of sufficient length to penetrate into wood a minimum of 1". A corrosion resistant, #8, ribbed, bugle head (.375" HD) screw of sufficient length to penetrate into steel framing a minimum of 1/2" may also be used.**
- Stainless steel fasteners are highly recommended in high-humidity and high-moisture regions. Nichiha is not liable for corrosion resistance of fasteners. **Do not use aluminum fasteners, staples, clipped head or T-head nails, finish nails, or fasteners that are not rated or designed for intended use.**
- The fastener head must be flush to the board surface. Do not over drive or under drive fasteners.

**INSTALLATION - STARTER STRIP & FIRST COURSE**

- A starter strip is required to set the first course on the proper angle and to create the drip edge at the bottom course of siding. The starter strip material may be a cut piece of Frontier, NichiBoard, PVC, or pressure treated lumber. Do not use untreated lumber, plywood, OSB or other engineered wood products as a starter strip. (Fig. 9.2)
- Install the starter strip level with the bottom of the wall sheathing or mudsill.
- Ensure the first course of boards is level as it will be the guide for the entire installation. Use a level and chalk line to establish a level and straight reference point for the first course. Continue to check for level lines throughout installation.
- The first course of siding must hang below the starter strip a minimum of 1/4".
- The siding should not extend below the corner trim.
- The bottom edge of the first course must have at least 6" clearance above finished grade.
- It is recommended the course heights remain aligned and transfer around corners.

**OVERLAP**

- A minimum overlap of 1 1/4" is required. (Fig. 10.2)

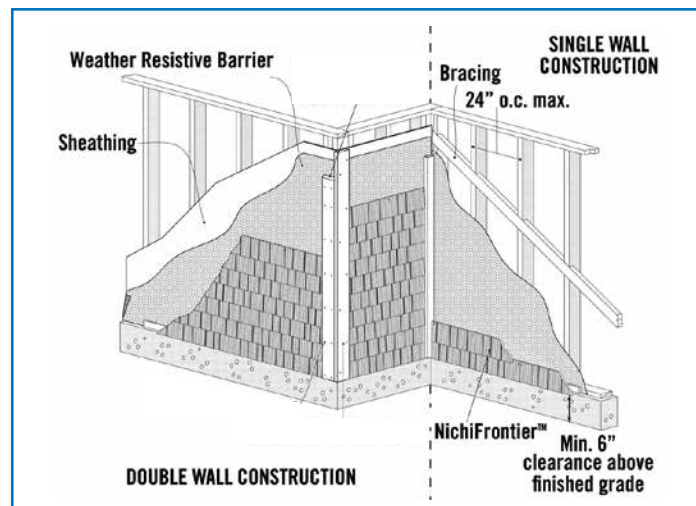


Fig. 9.1

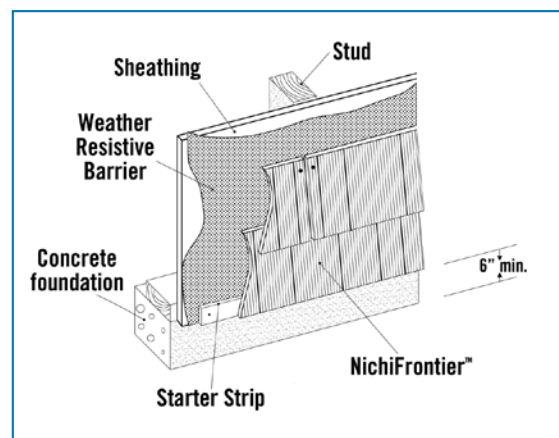


Fig. 9.2

**BLIND NAILING**

- For a more aesthetically pleasing installation, NichiFrontier boards may be installed in a hidden, or blind nail application.
- Position the fastener 1" down from the top edge of the board and no closer than 1/2" from the board ends.
- Fasten from one end of the board to the other. (Fig. 10.1)

**FACE NAILING**

- It is permissible to install NichiFrontier in a face nail type installation to meet certain installation requirements or when specified by local code. (Fig. 10.2)
- Position the fastener a minimum distance of 3/4" up from the bottom edge of the board and no more than 1". This ensures the fastener will penetrate through the overlap and through both courses. Place the fastener no closer than 1/2" from board ends.
- Fasten from one end of the board to the other.
- DO NOT install NichiFrontier boards in a combined Blind and Face nailing manner.

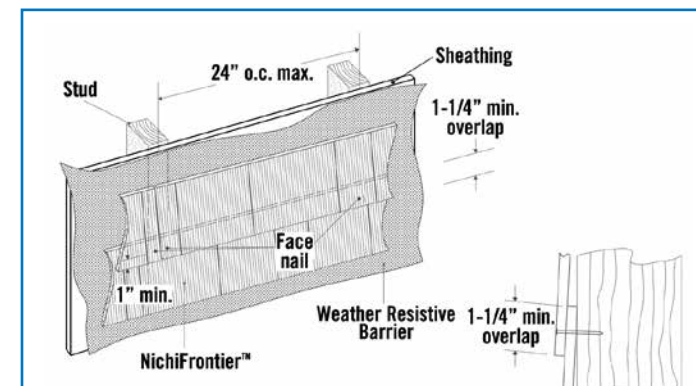


Fig. 10.2

**VERTICAL JOINT PLACEMENT, FASTENING, & SEALING**

- **All NichiFrontier vertical (butt) joints MUST land or break over studs or solid framing.**
- Pin-backs may be done for aesthetic purposes only. Pin backs shall be done with corrosion resistant finish nails only, and are not a substitute for blind or face nailing.
- When possible, use factory sealed or finished ends at butt joints.
- **ALL cut ends must be sealed with a primer or paint. NEVER leave exposed cut edges uncoated.**

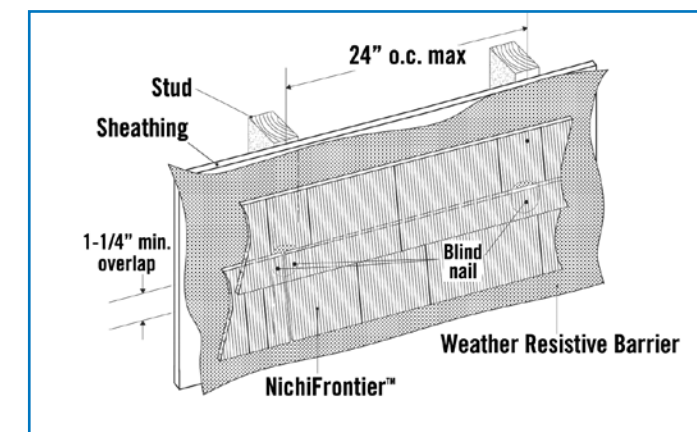


Fig. 10.1

**STAGGERING THE SHAKE BOARDS**

- Shake keyways from one course to the next should not line up vertically. Layout of the application may be necessary to avoid stacked keyways.
- NichiFrontier boards have three pattern spacing variations.
- Board orientation may be "flipped" or reversed to aid in staggering the shake pattern and avoiding stacking of keyways.

**JOINT TREATMENT**

- The use of a joint flashing behind the butt joints is **required**. (Fig. 10.3)
- Install NichiFrontier boards in **moderate contact** at butt joints.
- Suitable materials for joint flashing include anodized or PVC coated coil stock, and code approved water resistive barriers.
- The joint flashing should be at least 3" in width and long enough to extend above the board height a minimum of 2".

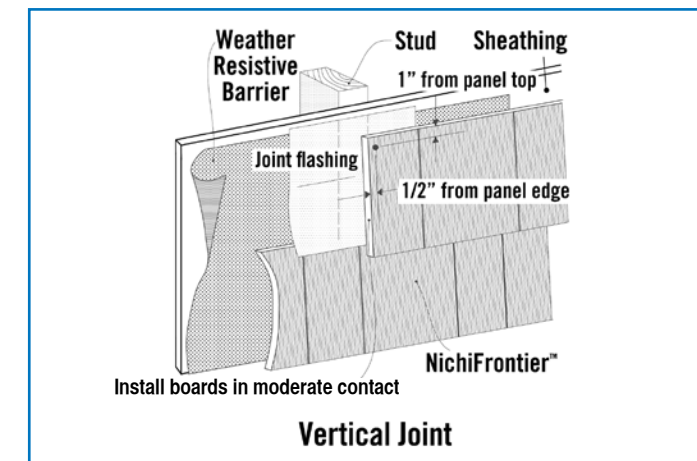


Fig. 10.3

## SIDING TO TRIM JOINTS

- Where board ends and edges meet trim at inside and outside corners, door, window, and other trim attachments, leave a **minimum 1/8" gap** and caulk with a quality sealant that meets ASTM C-920 requirements. (Fig. 11.1)
- Corner Trim and other trim attachments must be of sufficient thickness. **The overlapped NichiFrontier siding must not extend beyond the face of the trim.** A continuous, solid shim or build out behind the trim may be necessary.
- **All horizontal trim must be flashed. Leave a 1/4" gap between the siding and flashing. Do not caulk this gap.** Do not use raw aluminum flashings. Flashings must be galvanized, anodized or PVC coated. (Fig. 11.2)

## ALTERNATIVE CORNER TREATMENTS

- NichiFrontier boards may be installed in a "laced" or staggered corner application. (Fig. 11.3)
- When installing NichiFrontier siding in a laced corner manner, a galvanized, coated aluminum, or vinyl/PVC flashing over the building corner prior to beginning the application is required.
- Use a polyurethane **adhesive** where laced boards join.

## FINISHING

- Follow all finishing instructions in the General section of this guide.

Nichiha MSDS's for all products are available at the end of this manual, on [nichiha.com](http://nichiha.com), at your local NICHIHA dealer, or through NICHIHA directly, toll-free at 1.866.424.4421.

**Silica Dust Warning:** NICHIHA products may contain some amounts of crystalline silica [a.k.a. sand, silicon dioxide], which is a naturally occurring mineral. The amount will vary from product to product. Inhalation of crystalline silica into the lungs and repeated exposure to silica can cause health disorders, such as silicosis, lung cancer, or death depending upon various factors. To be conservative, Nichiha recommends that whenever cutting, sawing, sanding, sniping or abrading the product, users observe the SafetyInstructions above. For further information or questions, please consult the MSDS, your employer, or visit [www.osha.gov/SLTC/silicacrystalline/index.html](http://www.osha.gov/SLTC/silicacrystalline/index.html) and [www.cdc.gov/niosh/topics/silica](http://www.cdc.gov/niosh/topics/silica).

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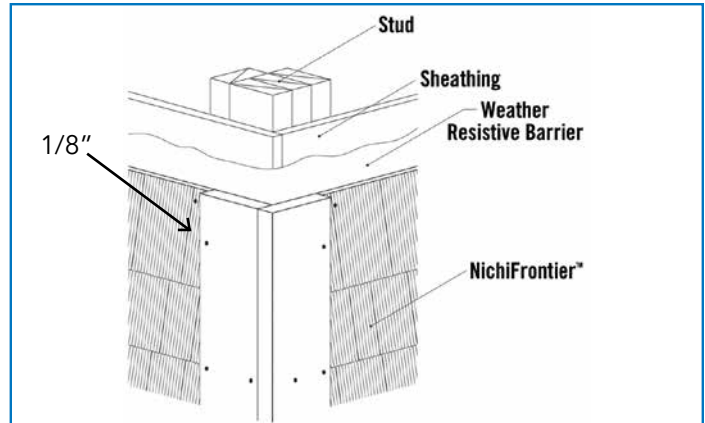


Fig. 11.1

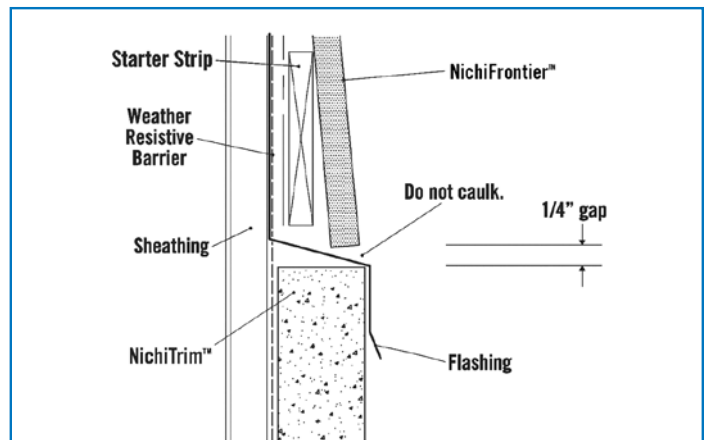


Fig. 11.2

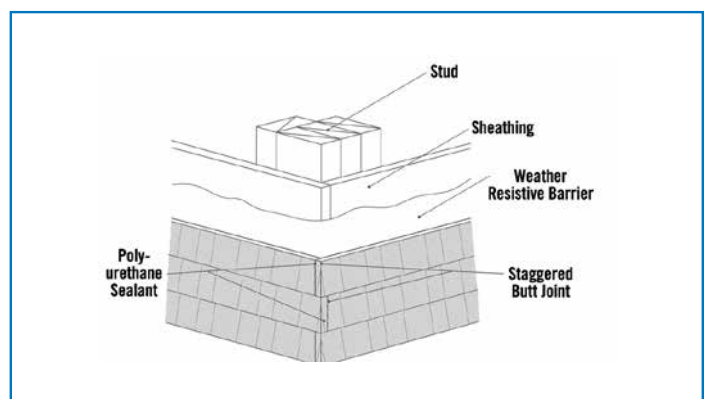


Fig. 11.3

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