



Rocky Mountain Forest Products

Natural Wood Siding Installation Procedures

Priming & Prefinishing

Material which has been properly seasoned, stored and handled will often pick up moisture after installation but prior to finishing. Later, when the siding loses that moisture, joints may open up.

Recent research from the U.S. Forest Products Lab indicates that siding exposed to the weather for two weeks weathers enough to reduce the adhesion of film-forming finishes.

Priming or prefinishing the siding (all sides, edges, and cut ends) **after** it has reached climactic balance but **before** it is installed, can provide extra protection and often prevent adhesion problems and/or premature finish failure.

Prefinishing is recommended in all circumstances. Prefinishing will minimize objectionable unfinished lines where joints open up due to face-width shrinkage during exceptionally dry seasons.

Make certain the prefinish is compatible with the final coat. For example, clear water repellents should not be used if a bleaching oil is to be the final finish.

Installation

Natural wood siding should be installed over building paper regardless of the sheathing materials. Building paper is a water barrier rather than a moisture barrier. It is recommended to prevent water from entering the wall cavity. (An appropriate vapor barrier, on the warm side of the insulation, should be used to reduce moisture movement from inside.)

When sheathing material or building paper surfaces have become wet, allow surfaces to dry before the wood siding is nailed into position.

Foam sheathing is a separate consideration. Refer to WWPA's **Guidelines for Installing and Finishing Wood Siding Over Rigid Foam Sheathing**. Many patterns may be installed horizontally or vertically. Some patterns, such as board-and-batten, may be installed only in a vertical fashion. Others, such as bungalow, bevel and drop, may be installed only horizontally.

Use caulk where siding abuts openings or trim. Latex, latex silicone blends, polyurethane and polysulfide caulks should give satisfactory performance. 100% silicone caulks are not recommended.

In vertical applications, bevel cut the ends and install the siding so water is directed to the outside. Theoretically, any pattern which can be installed in either direction, such as channel or tongue-and-groove, can also be installed diagonally. However, diagonal installation tends to channel water directly into door jambs, window casings or other joinery details on a structure.

If siding is to be installed diagonally, the project must be designed from the outset to accommodate the direction of run-off.

When wood siding is installed over metal studs, concrete or masonry, provide 2x nailers of sufficient spacing and size to meet the nailing requirements. This procedure is sometimes used when wood siding is installed over foam sheathing. (Refer to Nail Penetration and Spacing.)

Nails & Nailing

Correct nails and nailing practices are essential in the proper application of wood siding. In general, siding and box nails are used for face nailing, and casing nails are used for blind nailing. Nail locations are included with the individual patterns. Figure 1



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Recommended Nails

Nails must be corrosion resistant and preferably rust proof. Avoid using staples.

1. **Stainless Steel.** The best choice
2. **High Tensile Strength Aluminum.** An economical choice. this nail is corrosion resistant and will not discolor or cause deterioration of the wood siding. However, Aluminum nails will react with galvanized metal causing corrosion. *Do not use aluminum nails on galvanized flashing(nor galvanized nails on aluminum flashing).*
3. **Hot-dipped Galvanized.** This nail is the least expensive, but may result in discoloration if precautions are not taken.
 - A. Make certain the nails are of top quality, as the degree of protective coating varies with the hot-dip galvanization process.
 - B. In some instances, the use of hot-dipped galvanized nails along with clear finishes on Western red Cedar has resulted in stains around the nails. While this occurrence seems to be limited the northeastern and north central regions of the country, the combination of hot-dipped galvanized nails with clear finishes on Western Red Cedar is not recommended.
 - C. Plastic hammer-head covers can be used when driving hot-dipped galvanized nails. This will reduce the potential for shipping and the subsequent potential for corrosion.
4. **Other fasteners.** Other types of corrosion-resistant fasteners may perform satisfactorily. Before selecting an alternative fastener, check with the fastener manufacturer to determine whether or not it is suitable with the species of wood used for the siding. Avoid fasteners that may result in stains. **Do not use staples or electro-plated nails. These fasteners often result in black iron stains which can be permanent.**

Copper nails are not suitable for Western Red Cedar as cedars natural extractives will react with the copper causing the nails to corrode , resulting in stains on the siding.

While budgets are always a consideration, high quality nails for solid siding are a wise investment. the discoloration streaking or staining that can occur with inappropriate nails ruins the appearance of the project, and is very difficult to remove.

Nail Shanks

Many nails have smooth shanks and will loosen as the siding expands and contracts under the extremes of seasonal changes in temperature and humidity. Ring or spiral-threaded nail shanks will increase the holding power. Both types of shanks are readily available.

Nail Points

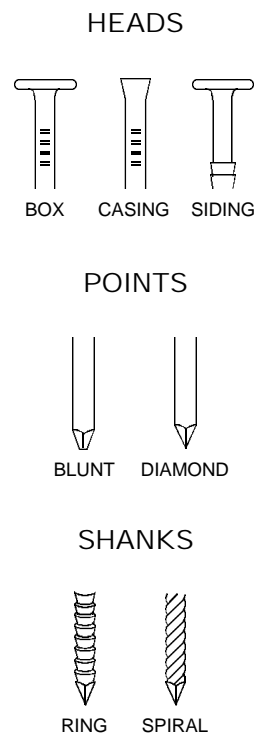
the most commonly used nails points include:

Blunt – Reduces splitting

Diamond – Most commonly used

Needle – Should be avoided as needle points tend to cause splitting.

Figure 2: Nail Types



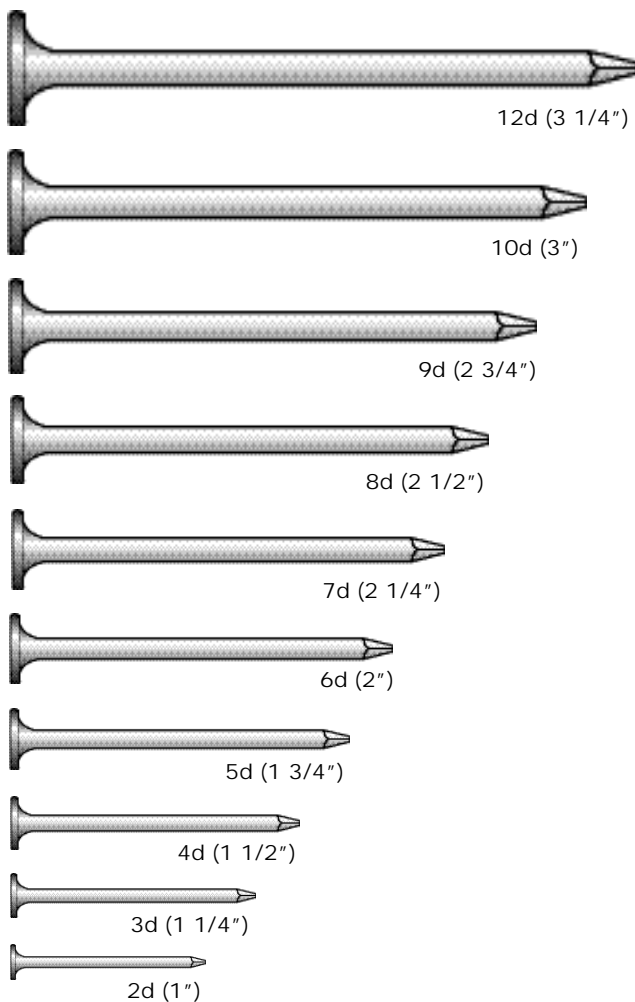


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Nail Penetration and Spacing

recommended penetration into studs or blocking, or into a combination of wood sheathing and these members, is 1 1/2". Penetration is 1 1/4" with ring shank nails. (refer to WWPA's **Guidelines for installing and finishing Wood Siding over Rigid Foam Sheathing** for nailing information when using non wood based sheathings.)

Figure 3: Nail Lengths



Vertical siding, when applied over wood-based sheathing, should be nailed to horizontal blocking or other wood framing members not exceeding 36" on center when face-nailed, or 32" on center when blind nailed. vertical siding, when installed without sheathing, should be nailed to wood framing or blocking members at 24" on center. Some building codes require 24" on center with or without sheathing; check your local code to verify requirements.

Horizontal and diagonal siding should be nailed to studs at 24" on center maximum when applied over wood-based, solid sheathing and 16" on center maximum when applied without sheathing.

The siding pattern will determine the exact nail size, placement and number of nails required. (Refer to Figure 1) Nails are placed to allow the wood to move, that is to shrink and swell, as well as to adequately hold the siding in place.

As a general rule, each piece of siding is nailed independently of it's neighboring pieces. Do not nail through two overlapping pieces of siding with the same nail as this practice will restrict the natural movement of of the siding and may cause unnecessary problems. Nail joints into the studs or blocking members - nailing into sheathing alone is not adequate.

Drive nails carefully. Hand nailing is preferred over pneumatic nailers. Nails should be snug, but not overdriven. Nails that are overdriven can distort the wood and may cause excessive splitting. predrilling near the ends will help reduce any splitting that can occur with the thinner patterns.

Coverage Calculations

Siding is usually sold either by the lineal (running) foot or by the board foot.

To simplify cost and coverage estimations, select the appropriate factor from Table 2 according to how the siding is priced. The factors provided in Table 2 can be used to calculate the amount of siding required either lineal or board feet.

in either case, the square footage of the area to be covered is calculated first, then multiplied by the appropriate factor.



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Procedure:

A) Calculate the square footage on walls.
(length x width = sq ft.)

C) Multiply the result by either the Lineal Foot or Board foot factor (See Table 2).

B) Calculate, and then subtract, the square footage of openings. Now add 10% for trim and waste.

D) Multiply the the result by price.

Figure 2: Nail Lengths

Pattern	Nominal Width	Width		Lineal Foot Factor ¹	Board Foot Factor ²
		Dressed	Exposed Face		
Bevel & Bungalow	4	3 1/2	2 1/2	4.8	1.60
	6	5 1/2	4 1/2	2.67	1.33
	8	7 1/4	6 1/4	1.92	1.28
	10	9 1/4	8 1/4	1.45	1.21
Dolly Varden	4	3 1/2	3	4.0	1.33
	6	5 1/2	5	2.4	1.2
	8	7 1/4	6 3/4	1.78	1.19
	10	9 1/4	8 3/4	1.37	1.14
	12	11 1/4	10 3/4	1.12	1.12
Drop, T&G & Channel Rustic	4	3 3/8	3 1/8	3.84	1.28
	6	5 3/8	5 1/8	2.34	1.17
	8	7 1/8	6 7/8	1.75	1.16
	10	9 1/8	8 7/8	1.35	1.13
Log Cabin	6	5 7/16	4 15/16	2.43	2.43
	8	7 1/8	6 5/8	1.81	2.42
	10	9 1/8	8 5/8	1.39	2.32
Boards	2	1 1/2	The exposed face width will vary depending on size selected and on how the boards-and-battens or boards-and-boards are applied. Minimum overlap is 1/2". Determine the exposed face then refer to footnotes to calculate factor.		
	4	3 1/2			
	6	5 1/2			
	8	7 1/4			
	10	9 1/4			

¹ Lineal Foot Factor is derived by dividing 12" by the exposed face width.

² Board Foot Factor is derived by dividing the normal width by the exposed face width and is based on nominal 1" stock, except Log cabin. Log cabin is based on nominal 2" thickness. For nominal 1 1/2" Log cabin, multiply by .75

Note: Factors do not include any allowance for trim or waste and do not apply to diagonal installations. A 10% allowance (for trim and waste) should be added to the square footage required before the factors are used. (Refer to **Procedure** above.)

Figure 1: Siding Patterns & Nailing



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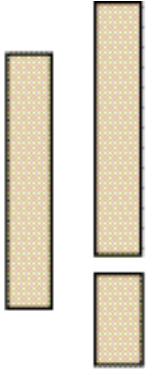
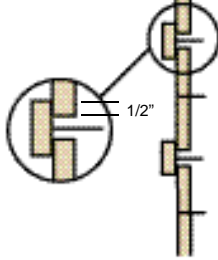
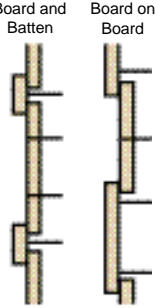
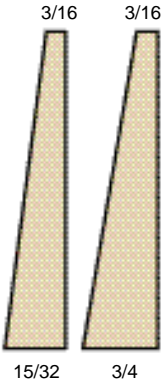


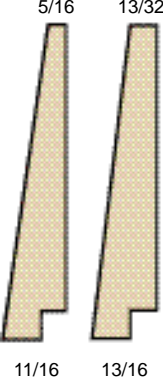



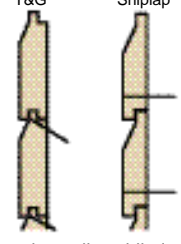
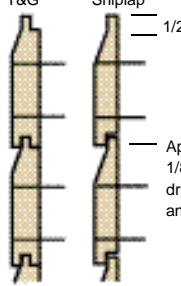





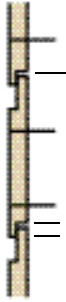


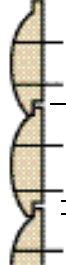
SIDING PATTERNS	NOMINAL SIZES Thickness & Width	NAILING	
		6" & Narrower	8" & Wider
 <p>Trim Board-On-Board Board-And-Batten Boards are surfaced smooth, rough or saw textured. Rustic ranch-style appearance. Provide horizontal nailing members. Do not nail through overlapping pieces. Vertical applications only.</p>	<p>1 x 2 1 x 4 1 x 6 1 x 8 1 x 10 1 x 12</p> <p>1 1/4 x 6 1 1/4 x 8 1 1/4 x 10 1 1/4 x 12</p>	<p>Board and Batten</p>  <p>Recommended 1/2" overlap. One siding or box nail per bearing.</p>	<p>Board and Batten Board on Board</p>  <p>Increase overlap proportionately. Use two siding or box nails, 3-4" apart.</p>
 <p>3/16 3/16 15/32 3/4</p> <p>Bevel or Bungalow Bungalow ("Colonial") is slightly thicker than bevel. Either can be used with the smooth or saw-faced surface exposed. Patterns provide a traditional-style appearance. recommend a 1" overlap. Do not nail through overlapping pieces. Horizontal applications only. Cedar bevel is also available in 7/8 x 10,12.</p>	<p>1/2 x 4 1/2 x 5 1/2 x 6</p> <p>5/8 x 8 5/8 x 10</p> <p>3/4 x 6 3/4 x 8 3/4 x 10</p>	<p>Plain</p>  <p>Recommended 1" overlap. One siding or box nail per bearing. Just above the 1" overlap.</p>	<p>Plain</p>  <p>Recommended 1" overlap. One siding or box nail per bearing. Just above the 1" overlap.</p>
 <p>5/16 13/32 11/16 13/16</p> <p>Dolly Varden Dolly Varden is thicker than bevel and has a rabbeted edge. Surfaced smooth or saw textured. Provides traditional-style appearance. Allows for 1/2" overlap, including an approximate 1/8" gap. Do not nail through overlapping pieces. Horizontal Applications only. Cedar Dolly varden is also Available 7/8 x 10,12.</p>	<p>Standard Dolly Varden 3/4 x 6 3/4 x 8 3/4 x 10</p> <p>Thick Dolly Varden 1 x 6 1 x 8 1 x 10 1 x 12</p>	<p>Rabbeted Edge</p>  <p>Allows for 1/2" overlap. One siding or box nail per bearing. 1" up from bottom edge.</p>	<p>Rabbeted Edge</p>  <p>Approximate 1/8" gap for dry material 8" and wider</p> <p>Allows for 1/2" overlap. One siding or box nail per bearing. 1" up from bottom edge.</p>
 <p>Drop Drop siding is available in 13 patterns, in smooth, rough and saw textured surfaces. Some are t&G others shiplapped. Refer to "Standard Patterns" for dimensional pattern profiles. a variety of looks can be achieved with different patterns. Do not nail through overlapping pieces. Horizontal or vertical applications. Tongue edge up in horizontal applications.</p>	<p>3/4 x 6 3/4 x 8 3/4 x 10</p>	<p>T&G Shiplap</p>  <p>Use casing nails to blind nail t&G patterns, one nail per bearing. Use siding or box nails to face nail shiplap patterns, 1" up from bottom edge.</p>	<p>T&G Shiplap</p>  <p>1/2" = Full depth of rabbet</p> <p>Approximate 1/8" gap for dry material 8" and wider</p> <p>Use 2 siding or box nails, 3-4" apart to face nail, 1" up from bottom edge.</p>

Figure 1: Cont.



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SIDING PATTERNS	NOMINAL SIZES	NAILING	
	Thickness & Width	6" & Narrower	8" & Wider
 <p>Tongue & Groove Tongue & Groove siding is available in a variety of patterns. T&G lends itself to different effects aesthetically. Refer to WWPA "Standard Patterns" (G-16) for pattern profiles. Sizes given here are for plain tongue & Groove. Do not nail through overlapping pieces. Vertical or horizontal applications. Tongue up in horizontal applications.</p>	<p>1 x 2 1 x 4 1 x 6 1 x 8 1 x 10</p> <p>Note: T&G patterns may be ordered with 1/4, 3/8 or 7/16" tongues. For wider widths, specify the longer tongue and pattern.</p>	<p>Plain</p>  <p>Use one casing nail per bearing to blind nail.</p>	<p>Plain</p>  <p>Use two siding or box nails 3-4" apart to face nail.</p>
 <p>Channel Rustic Channel Rustic has 1/2" overlap (including an approximate 1/8" gap) and a 1" to 1 1/4" channel when installed. The profile allows for maximum dimensional change without adversely affecting appearance in climates of highly variable moisture levels between seasons. Available smooth, rough or saw textured. Do not nail through overlapping pieces Horizontal or vertical applications.</p>	<p>3/4 x 6 3/4 x 8 3/4 x 10</p>	 <p>Use one siding or box nail to face nail once per bearing. 1" up from bottom edge.</p>	 <p>Approximate 1/8" gap for dry material 8" and wider</p> <p>1/2" = Full depth of rabbet</p> <p>Use 2 siding or box nails 3-4" apart per bearing.</p>
 <p>Log Cabin Log cabin siding is 1 1/2" thick at the thickest point. Ideally suited to informal buildings in rustic settings. The pattern may be milled from appearance grades (Commons) or dimension grades (2x material). Allows for 1/2" overlap, including an approximately 1/8" gap. Do not nail through overlapping pieces. Horizontal or vertical applications.</p>	<p>1 1/2 x 6 1 1/2 x 8 1 1/2 x 10 1 1/2 x 12</p>	 <p>Use siding or box nail to face nail once per bearing, 1 1/2" up from the bottom edge.</p>	 <p>Approximate 1/8" gap for dry material 8" and wider</p> <p>1/2" = Full depth of rabbet</p> <p>Use 2 siding or box nails, 3-4" apart, per bearing to face nail.</p>

SIDING INSTALLATION TIPS

- Do not nail through overlapping pieces. Use stainless steel, high tensile strength aluminum or hot dipped galvanized nails with ring or spiral-threaded shanks. Use casing nails to blind nail; siding or box nails to face nail.
- Horizontal applications only for Bevel, Bungalow and Dolly Varden.
- Vertical applications only for Board-and-Board or Board-and-Batten, bevel cut ends of pieces and install so water is directed outside.
- Horizontal or vertical applications for Tongue & Groove, Channel Rustic, Log Cabin or Drop patterns. Tongue edge up in horizontal applications of Drop and T&G patterns.
- Read the section on Nail Penetration & Spacing to determine nail size.
- Read the sections on prefinishing before installing siding.