

# CEDAR

WESTERN RED

## INSTALLING CEDAR SIDING



# INSTALLING WESTERN RED CEDAR SIDING

Congratulations on your choice of Western Red Cedar siding. Western Red Cedar is one of the world's premier quality woods noted for its appearance, light weight, insulation value and dimensional stability. Properly installed and finished, it will give years of trouble-free service and will give your home a character and distinction that other sidings cannot match.

Wood has been an important building material for centuries. Its characteristics, like shrinking and swelling slightly in response to the moisture content of the air, are well known and building techniques have evolved to mitigate their effects. Please read this brochure thoroughly - it contains much useful information to make your relationship with Western Red Cedar a long and happy one.

This brochure is organized into three sections. Section 1 deals with things you should know before you start installing Western Red Cedar Siding. Section 2 describes installation techniques. Section 3 gives some helpful tips on installing cedar siding.

Note that these are general guidelines that may be followed with confidence in most areas. However, severe local climatic conditions such as extreme heat, extreme dryness, high winds, seacoast exposure, and areas with wide climatic swings may necessitate additional fastening of the siding.



# BEFORE YOU START

## Acclimatize Siding Before Installing

One of the most stable softwoods, Western Red Cedar is nevertheless a natural material and it responds to the environment. Cedar siding can swell or shrink as it gains or loses moisture to reach equilibrium with the moisture content of the surrounding air. Ensuring that the moisture content of cedar siding is at equilibrium before it is installed will minimize movement later on. Recommended moisture content for sidings used in various regions of the country are given in Table 1.

On the job site, keep the wood dry. Stack siding off the ground and under cover. If the wood is to be stored over damp ground or new concrete, place a moisture barrier under the siding. Siding should be 4 to 6 in. above the ground with air circulating freely around and throughout the stack. Acclimatization time varies with the moisture content of the siding. The following procedures are suggested for different siding specifications.

## Kiln Dried Clears

These have been dried at the mill to 12-15% moisture content. They are the most ready-to-use of all siding products. If the siding has not been wetted prior to arrival on the job site it may be applied upon arrival except in hot and dry conditions where 3 to 5 days of well ventilated storage is generally required. If the siding has been wetted it must be separated and allowed to dry thoroughly before installing.

## Dry Knotty Sidings

Knotty sidings are air or kiln dried to less than 19% moisture content. Stack the siding on evenly spaced, vertically aligned stickers (Figure 1) in a dry storage area for 7-10 days. More time may be required in damp or humid conditions.

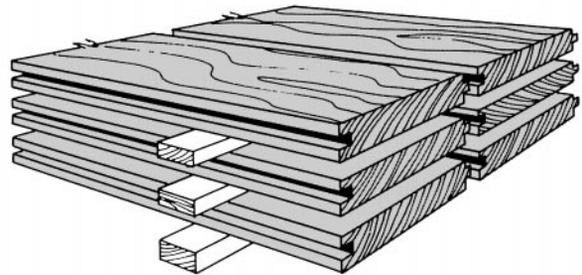
## Green (Unseasoned) Sidings

Unseasoned or green sidings have not been dried prior to delivery and require a longer time to acclimatize than seasoned sidings. Separate the siding with vertically aligned stickers (Figure 1) and store in a well ventilated dry location for a minimum of 30 days, or longer in damp or humid conditions. If specifying unseasoned siding, patterns such as channel, bevel and board-and-batten

are recommended since these allow for shrinkage. Narrower widths are also recommended since these move less overall than wider widths.

## Prime Before Installing

After cedar has achieved equilibrium moisture content and before it is installed, a coating on all surfaces (including ends) is recommended. The type of coating will vary with final finish selected. The coating protects the wood from water penetration, helps prevent staining caused by mildew and extractives and can increase the service life of top coats. The following coatings have proven themselves in field testing (Table 2).



**Figure 1. Siding Stacked with Vertically Aligned Stickers**

**Table 2. Recommended Priming Procedures for Cedar Siding**

Type of Finish Coat	Recommended Priming Coat
Natural and semi-transparent stains	Coat all surfaces with the stain
Solid color stains and paints	Coat all surfaces with an alkyd oil stain-blocking primer. Alternatively, use a clear water repellent on back of siding and the primer on face and edges.
Bleaching oils	Prime all surfaces with a coat of the bleaching oil

**Table 1. Recommended Moisture Content for Siding Installation**

Most Areas		Dry, Southwest States		Damp, Warm Southeastern Coastal Areas	
Average	Individual Pieces	Average	Individual Pieces	Average	Individual Pieces
12%	9-14%	9%	7-12%	12%	9-14%

1. To calculate average, test 10% or more of pieces.
2. Source: *Wood Handbook* 1987.

# BEFORE YOU START

## Nails: Use Hot-Dipped Galvanized, Aluminum or Stainless Steel

Hot-dipped galvanized, aluminum and stainless steel fasteners are all corrosion-resistant and all can be used to fasten Western Red Cedar. Other types of fasteners are not recommended. They can rust and disintegrate and react adversely with the natural preservative present in cedar resulting in stains and streaks.

Stainless steel nails are the best choice, especially if the siding is to be finished with transparent or semi-transparent stain. Use No. 304 stainless for general siding applications and No. 316 for seacoast exposures.

## Nails: Type, Size and Spacing

For best result use “splitless” siding nails. These have thin shanks and blunt points to reduce splitting. For greater holding power, nails with ring threaded or spiral threaded shanks are suggested. Nails with textured heads can be used to reduce glossy spots at the nails when finishing (see Figure 2 for nail types).

Nails should be driven with care. Heavy nailing distorts the wood and may cause splitting. At mitered corners, near edges and near ends, nail holes may need to be pre-drilled to avoid splitting.

The size of nails to use depends on the type and thickness of siding. Good building practice is to use nails long enough to go through underlying materials, such as sheathing and insulation, and penetrate at least 1-1/2 in. into solid wood or 1-1/4 in. if using ring or spiral shank nails. See Table 3 for recommended nail lengths for various thicknesses of siding.

**Siding should be fastened to each stud or furring strip with nails spaced at a maximum of 24 in. on center.**

Nail placement depends on the siding pattern and width. The key is to fasten the siding securely without

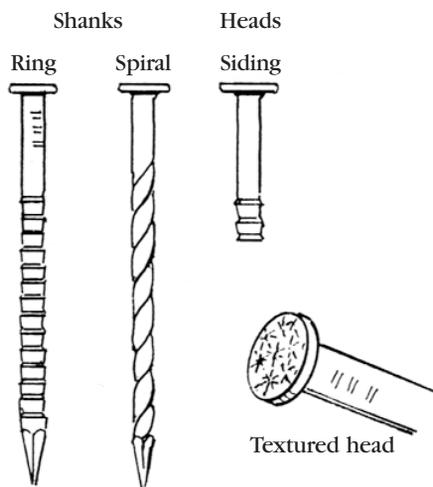


Figure 2. Features of Recommended Nails

preventing it from moving in response to the moisture content in the air. In general, each piece of siding must be nailed independently. **Nailing overlapping pieces together restricts the natural movements of each piece and will cause splitting.**

Table 3. Minimum Recommended Nails Lengths for Cedar Siding Over Wood Sheathing (Nailed at Studs)

Siding Type*	Siding Thickness (in.)	Nail Type and Length (in.)	
		Smooth Shank	Ring or Spiral Shank
Bevel	1/2	2-1/4 (7d)	2 (6d)
	5/8	2-1/4 (7d)	2 (6d)
	3/4	2-1/2 (8d)	2-1/4 (7d)
	7/8 to 15/16	3 (10d)	3 (10d)
	5/4 rabbeted	3 (10d)	3 (10d)
Boards, T&G and Channel	5/8	2-1/4 (7d)	2 (6d)
	3/4	2-1/4 (7d)	2 (6d)
	7/8	2-1/2 (8d)	2-1/4 (7d)
Battens for Board and Batten	3/4	3-1/4 (12d)	3 (10d)

\*For application over foam sheathing, add the thickness of the foam to the tabulated nail length.

## Wall Construction

Like all siding materials, Western Red Cedar performs best when installed properly on a suitable frame. Cedar siding should be securely nailed to framing members, furring members or to blocking between framing members. Lumber sizes and spacing for blocking and furring are shown in Table 4.

Table 4. Lumber Size and Spacing for Blocking and Furring\*

	Minimum Lumber Size (in.)	Maximum Center-to-Center Spacing (in.)
Blocking	2x2	24
Furring over plywood/OSB sheathing**	1x2	24
Furring over masonry walls	2x2	24

\* Furring must be securely fastened to studs.

\*\* Can be used in moist and severe climates to form an air space between siding and sheathing.

# BEFORE YOU START

## Stud Walls

Stud walls generally require no special preparation for horizontal siding installation. Siding should be nailed into studs at maximum 24 in. centers when applied over wood based, solid sheathing and 16 in. on center when bevel sidings 11/16" or thinner are applied without sheathing. In those areas where an air space between siding and sheathing is desired, nail siding to furring strips (Table 4).

Vertical siding applied to stud walls with or without sheathing requires horizontal nailers, blocking or other wood framing members spaced not exceeding 24 in. on center (Table 4). Check your local code to verify requirements.

## Masonry Walls

Masonry walls require furring strips for horizontal and vertical siding installation. Furring strips must be thick enough to allow for nail penetration of 1-1/2 in. into solid wood (Table 4).

## Applying Siding Over Rigid Foam Sheathing

Rigid foam sheathing has an insulation value superior to that of traditional lumber and plywood sheathings. However, it has little or no nail holding power and using rigid foam sheathing as a nailing base for cedar siding is not recommended. For best results with rigid foam and other sheathing products, follow the nailing recommendations given in this publication as to nail type, positioning, penetration and spacing. The footnote to Table 3 gives nail length recommendations for siding applied over rigid foam sheathing.

Foam sheathing panels vary in moisture permeability but are generally considered as good moisture barriers. They should be used with a continuous film vapor retarder on the inside wall under the interior finish. Rigid foam sheathing can cause moisture to accumulate on the back of siding and cause staining, buckling and damage to finish coats. The following recommendations are meant to minimize potential problems when wood sidings are applied over rigid foam sheathing:

- Use thicker siding patterns in widths of 8 in. or less. Thick, narrow siding is more stable than thinner, wider patterns and better able to resist dimensional changes.
- Use kiln-dried siding over rigid foam sheathing. This is the most stable cedar siding.
- Proper prefinish is essential. Follow the priming recommendations given in this publication before installing siding.
- Use light color finish coats to maximize heat reflection and reduce dimensional movement.

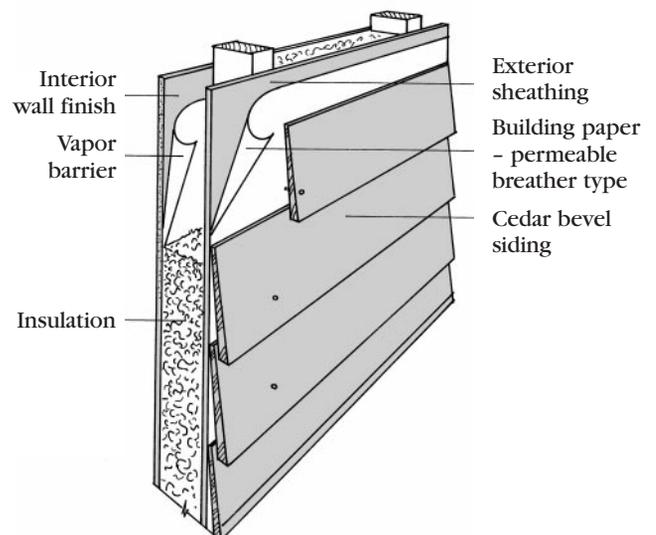
- In severe climates, an air space between siding and rigid foam sheathing can be created by fastening furring strips to the sheathing before installing siding. Air spaces allow for the venting of accumulated moisture.
- **In all cases it is recommended that building paper or an equivalent building wrap be applied over the foam sheathing.**

## Controlling Moisture: Vapor Barriers and Building Paper

High humidity output from washers, dryers, showers, kitchens and other sources, combined with today's energy-efficient construction, can result in a build-up of interior moisture vapor. This vapor migrates through the fabric of a building from the warm interior to the cold exterior, and when it condenses to water can cause structural damage and damage to sidings and finishes.

Vapor barriers installed on the warm side of the wall largely prevent the migration of moisture vapor but they are not perfect. Residual vapor must be allowed to escape to the outside. Building paper installed on the outside face of the sheathing helps prevent rain and snow from penetrating the walls but allows the escape of moisture vapor.

Proper wall construction includes the use of gas permeable building paper and vapor barriers (see Figure 3). These are extremely effective in helping to prevent moisture problems.



**Figure 3. Permeable Building Paper and Vapor Barrier**

# INSTALLATION

## Flashing

Before installing siding, make sure that flashings are installed to prevent moisture from entering wall and roof spaces. Flashing should be made from a corrosion-resistant material such as galvanized steel or aluminum.

Flashings are installed where a horizontal break occurs in the siding. Their purpose is to channel water away from the building to prevent water from collecting in the wall cavity behind the siding. Typical areas of construction requiring flashing are at the horizontal transition of siding materials such as cedar to brick or stucco; at the junction of dormer walls and roof surfaces; and over the heads of windows and doors. Typical flashing details are shown in Figures 4(a)-4(d).

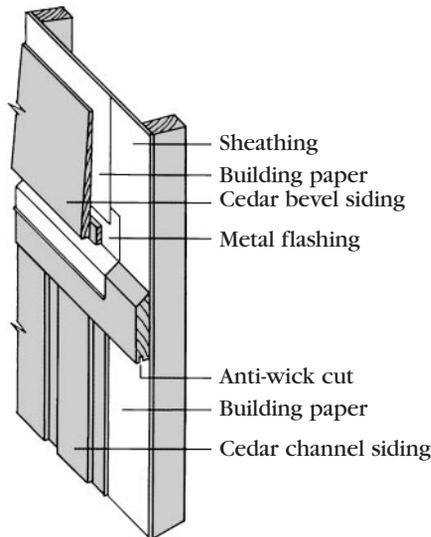


Figure 4 (a) Siding Transition with Z Flashing

## Caulking

Proper caulking is recommended, where ends of siding contact openings or trim. Use only non-hardening caulks, such as polyurethane, polysulfide, terpolymer rubber, acrylic or acrylic-silicone. Pure silicone and clear caulks do not work well on cedar and are not recommended.

## Ground Clearance

Keep the lowest edge of the siding at least 6" off the ground and treat the end grain at the bottom of vertical siding with a water repellent preservative or primer.

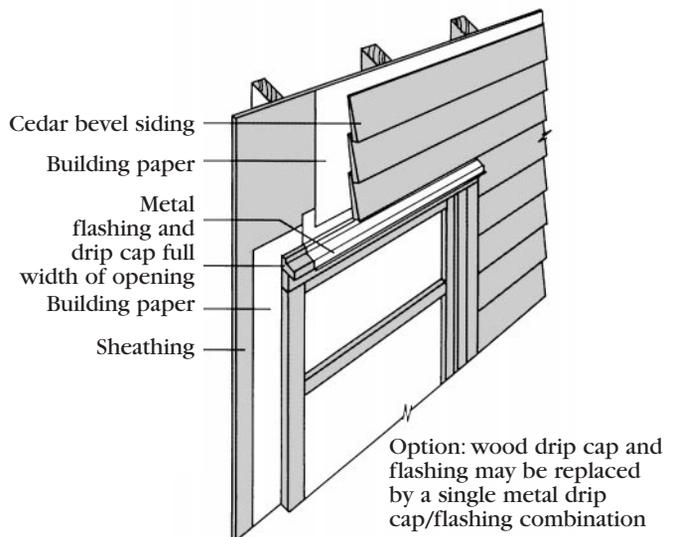


Figure 4 (c) Window and Door Flashing

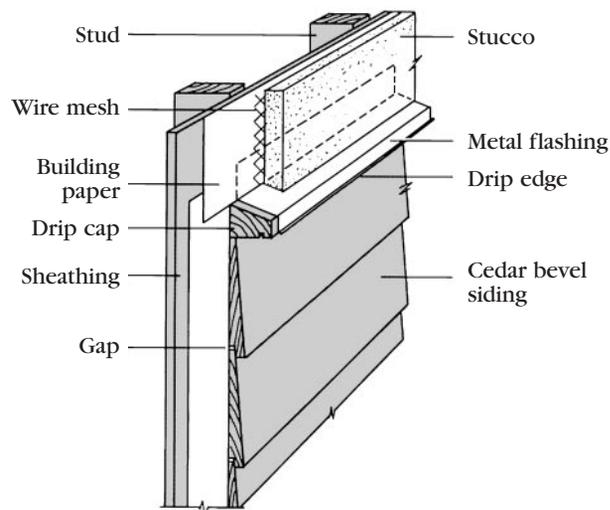


Figure 4 (b) Siding Transition with Drip Cap and Flashing

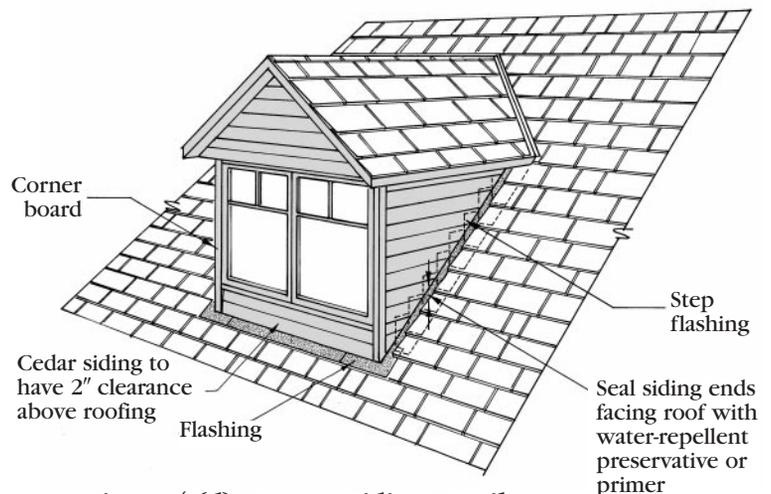


Figure 4 (d) Dormer Siding Detail

# INSTALLATION

## Installing Bevel Siding

Spacing for the siding should be laid out beforehand. The number of board spaces between the soffit and bottom of the lowest piece of siding at the foundation should be such that the overlap is as per Table 6. The wider the siding, the greater the overlap can be.

Start with the bottom course using a furring strip to support the lower edge. Each succeeding course overlaps the upper edge of the previous one by a minimum of 1 in. Rabbeted patterns are self-spacing, but leave 1/8 in. expansion clearance. Where possible, the bottom of the board that is placed across the top of the windows should coincide with the window cap.

Bevel siding should be face nailed to studs with 1-1/2 in. penetration into solid wood using one nail per bearing spaced at a maximum of 24 in. on center. Place nail just above the overlap. Take care not to nail through the overlap of two pieces (see Figure 5).

Do not reduce the siding overlap recommendations given in the installation sections of this publication. To do so could result in damage from wind-driven water.

Butt joints between boards should be staggered and made on studs. Fit siding snugly to other pieces and to trim.

**Table 6. Recommended Overlap for Bevel Siding**

Nominal Width (in.)	Overlap (in.)
4	1
6	1
8	1-1-1/8
10	1-1-1/2
12	1-2 max*

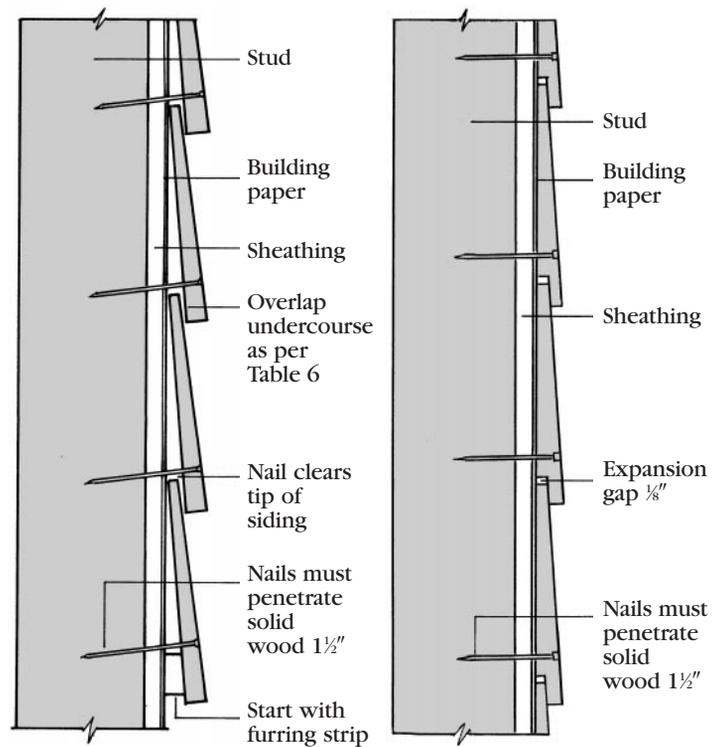
\*Use for unseasoned 10 in. bevel siding.

Notes: Do not exceed 2 in. overlap. Use the larger overlaps for unseasoned sidings to allow for shrinkage and expansion. Take care not to overdrive fasteners when using larger overlaps.

**Table 7. Bevel Siding Dimensions (Seasoned)**

Thickness (in.)	Nominal Width (in.)	Standard Finished Width (in.)*
1/2	4, 6, 8	3-1/2, 5-1/2, 7-1/4
5/8	6, 8	5-1/2, 7-1/4
3/4	6, 8, 10	5-1/2, 7-1/4, 9-1/4
7/8	10, 12	9-1/4, 11-1/4
5/4	8, 10, 12	7-1/4, 9-1/4, 11-1/4

\*May vary by product



**Figure 5. Nailing Bevel Siding**



# INSTALLATION

## Installing Tongue and Groove Siding

Tongue and groove siding can be installed horizontally or vertically. In horizontal application, start at the bottom and work up with the groove edges facing downwards. Siding up to 6 in. wide can be blind nailed with one siding nail per bearing toe-nailed through the base of each tongue. Wider siding should be face nailed using two nails per bearing. Nails must penetrate 1-1/2 in. into solid wood (see Figure 6).

In vertical application, start at one corner with grooved edge toward the adjacent wall. Use a level or plumbline to ensure that the first board is installed plumb. The grooved edge of the first board may have to be trimmed to ensure a flush fit. Siding is nailed to horizontal blocking lines installed between studs or to furring strips (see Wall Construction). As with horizontal installation, pieces up to 6 in. can be blind nailed and wider pieces should be face nailed.

**Table 8. Tongue and Groove Siding Dimensions**

Thickness (in.)	Nominal Width (in.)	Finished Width (in.)*
11/16	4, 6, 8	3-3/8, 5-3/8, 7-1/8
23/32	4, 6, 8	3-3/8, 5-3/8, 7-1/8

\*May vary by product

## Installing Lap Sidings

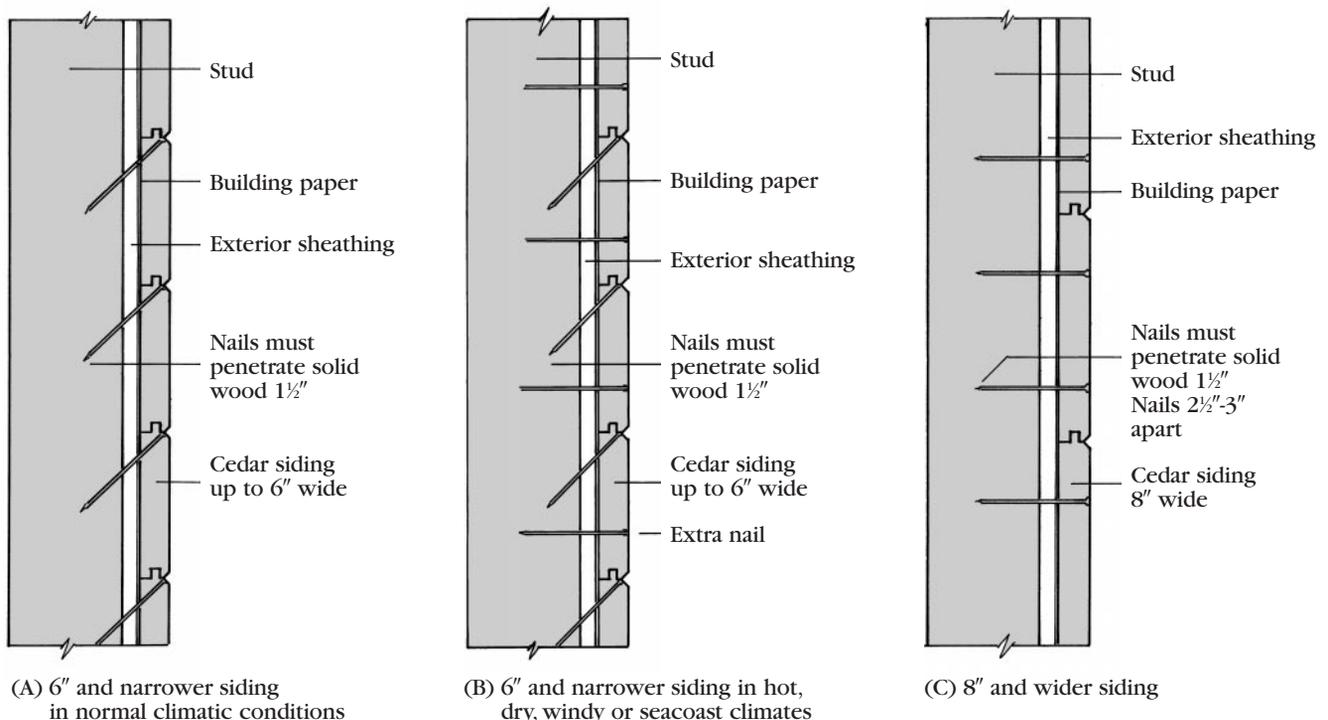
Lap sidings can be installed horizontally or vertically. For horizontal applications, start with the bottom course and work up with the channels pointing upwards. Allow a 1/8 in. expansion gap between pieces if the siding is air- or kiln-dried. Do not nail through overlaps. For siding up to 6 in. wide, use one nail one inch up from the lap. Face nail with two nails per bearing for 8 in. patterns and wider, keeping nails 2-1/2 to 3 in. apart to allow for dimensional movement without splitting (see Figure 7).

For vertical applications, siding should be nailed to horizontal blocking lines or furring strips (see Wall Construction).

**Table 9. Channel Siding Dimensions (Unseasoned)**

Thickness (in.)	Nominal Width (in.)	Finished Width (in.)*
3/4	6, 8, 10	5-1/2, 7-3/8, 9-3/8
5/8	6, 8	5-1/2, 7-3/8

\*May vary by product



**Figure 6. Nailing T&G Siding**

## Installing Board-and-Batten Siding

Board-and-Batten is a vertical pattern created using cedar boards and battens of various widths for a range of effects. Although for good appearance most builders strive for the widest boards and narrowest battens, the battens must be sufficiently wide to adequately overlap boards. For nominal 6 in. boards spaced 1/2 in. apart, battens should overlap by a least 1/2 in. With wider boards, increase batten overlap proportionately. While there are no set widths for board and batten siding, an attractive combination is 1x3 battens with 1x10 boards.

Siding should be nailed to horizontal blocking lines or to furring strips (see Wall Construction).

Boards up to 6 in. wide should be fixed with one nail per bearing driven through the center of the board. The overlying batten covering the gap between boards should be attached with one nail per bearing, the shank passing between the edges of the underboards. Use two nails per bearing on boards 8 in. and wider placing the nails 2-1/2 to 3 in. apart (see Figure 8).

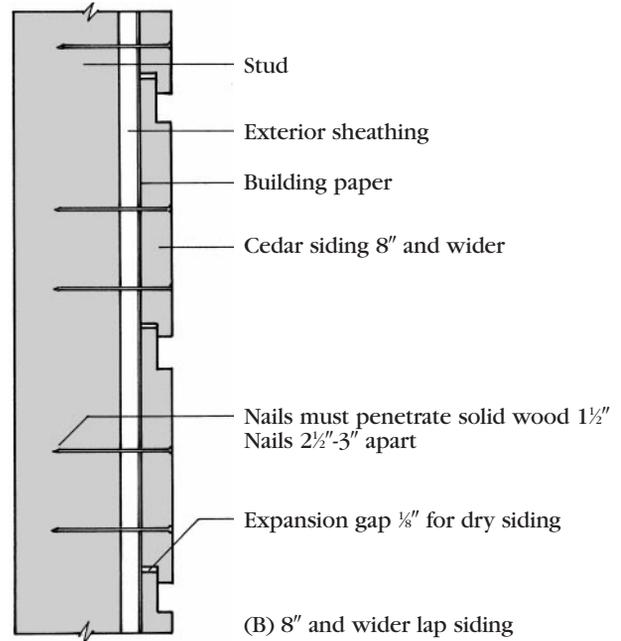
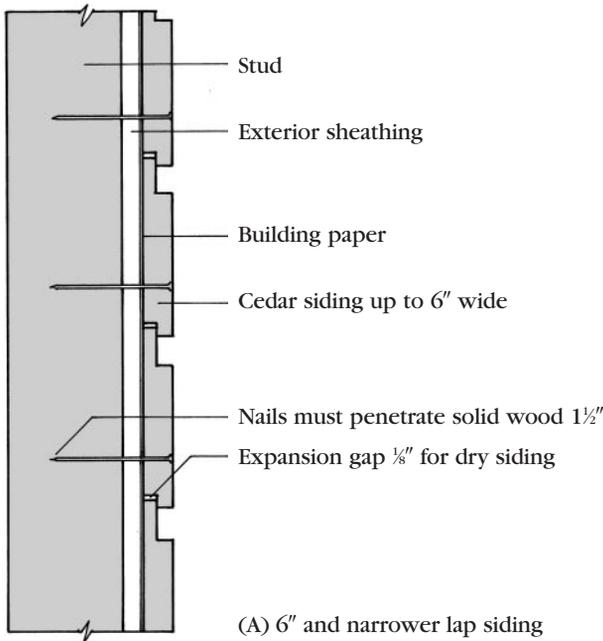


Figure 7. Nailing Channel Siding

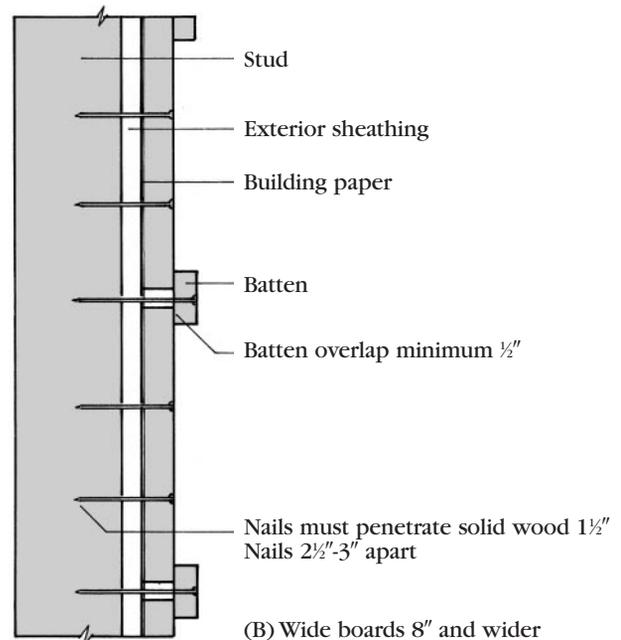
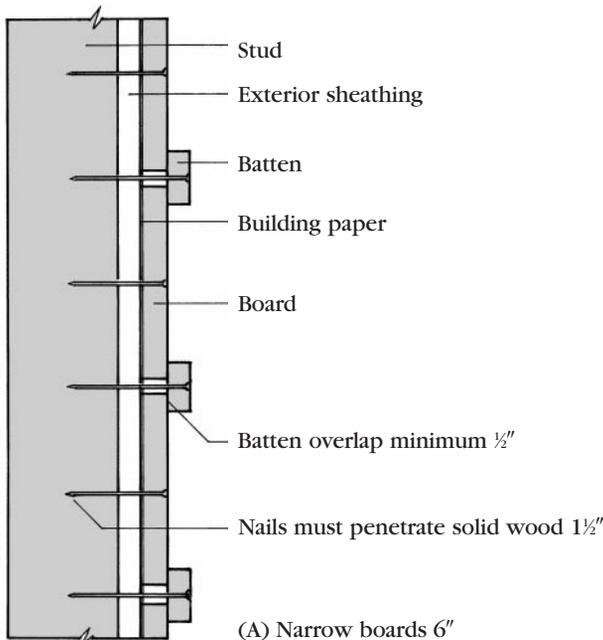


Figure 8. Nailing Board and Batten Siding

## Corners and Field Joints

At inside corners, siding is frequently butted against a trim strip. It can also be butted against adjoining walls with a trim strip used to cover the join.

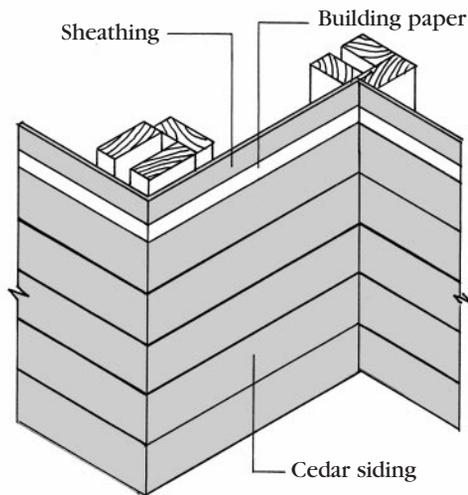
At outside corners, some builders choose mitered corners for a professional looking finish. Mitered corners are most common on horizontally applied siding and they must fit tightly for the full depth of the miter. To maintain a tight fit, the siding should be properly seasoned before installation and protected from the weather at the job site. The ends are often set in caulking compound when siding is applied (see Figure 9).

Corner boards are a popular alternative to mitered corners. They are often 3/4 in. or 1-1/4 in. material depending on the thickness of the siding. Width is a matter

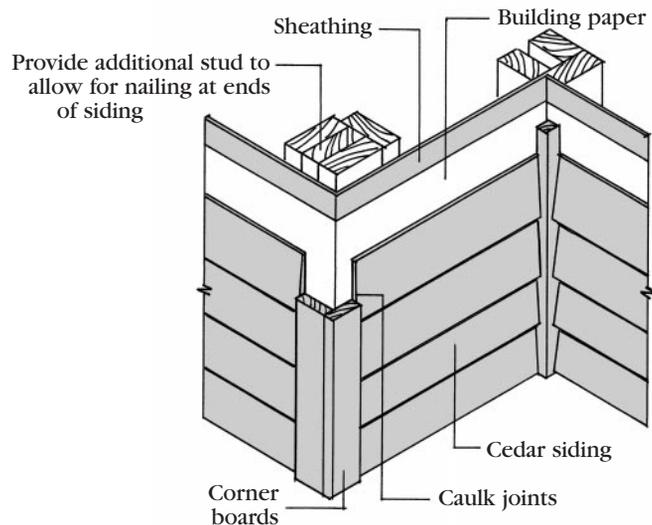
of taste and proper proportion. Corner boards are applied to the sheathing with siding fitting tightly against the narrow edge of the boards. Joints should be filled with caulking compound when siding is applied (see Figure 10). Trim boards can be used to cover butt jointed siding (see Figure 11).

The corner boards and the ends of the siding are nailed to the corner studs which anchors the wood for a maintenance-free joint. Designing roofs with an eaves overhang to protect corners from weathering also helps ensure trouble-free joints.

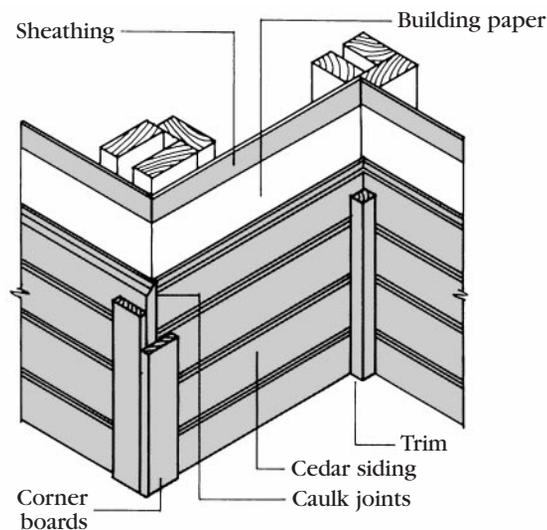
When butt jointing siding, cut ends at 45° angles to form an overlapping joint. This is particularly important for vertical installation (see Figure 12).



**Figure 9. Mitered Corners**

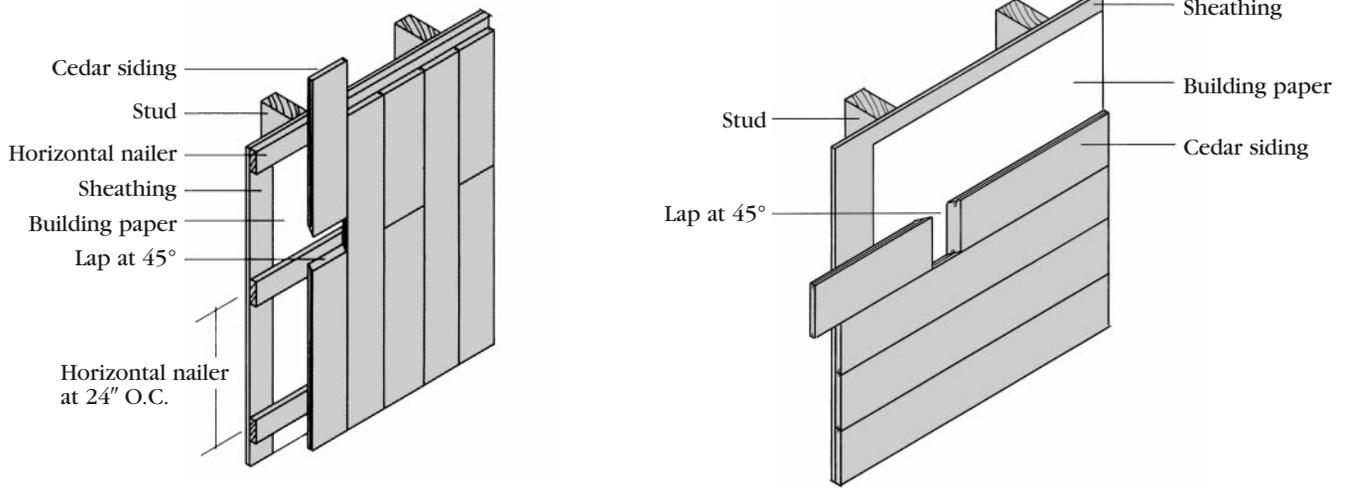


**Figure 10. Corner Boards**



**Figure 11. Trim Boards**





**Figure 12. Butt Jointing Over Studs**

## Specifying Siding

The following information is required when specifying siding products:

### Specification Information Required

**Species:** Western Red Cedar.

**Product Pattern and Intended Use:**

Siding is used as an exterior cladding to provide both weather protection and style. When specifying siding the designer may choose from bevel, tongue and groove (T&G), lap and board patterns.

**Size:** Specify the nominal size of the product.

**Grade:** The grade of the product governs its overall quality.

Refer to WRCLA specification literature or grading agency rule books for available grades.

**Grading Agency Paragraph:** To ensure that the product meets a written standard, an agency grade paragraph should be referenced.

**Moisture Content:** Specify whether the product is to be green (unseasoned) or kiln dried.

**Surface to be Exposed:** Specify the application orientation to assist the supplier in shipping the right product for the job.

**Quantity:** Express in surface measure the quantity required. See WRCLA 'Specifying Siding' for factor to convert square feet to surface measure.

### Sample Specification

WRCLA Western Red Cedar  
Bevel Siding

1/2 x 6 in.  
Clear VG Heart

NLGA paragraph 201a

Kiln dried

Surface face

5500 Surface measure

## WRCLA MEMBERS PRODUCING:



CAMCO, Inc.  
City Lumber Sales & Service Ltd.  
Colonial Cedar Co. Inc.  
Columbia Cedar, Inc.  
Delta Cedar Products Ltd.  
Downie Timber Ltd./Selkirk Specialty  
Haida Forest Products Ltd.  
Interfor  
Lazy S Lumber Inc.  
LP Engineered Wood Products  
Lyle Forest Products Ltd.  
Northwest Forest Products

Pope & Talbot, Inc.  
Sawarne Lumber Company Ltd.  
Skana Forest Products Ltd.  
Teal Cedar Products  
    Salmon Arm Division  
Tolko Industries Ltd.  
TRI-PRO™ Cedar Products  
Twin Rivers Cedar Products Ltd.  
Tye Timber Products Ltd.  
Welco USA/Skookum Lumber  
    Company  
Weyerhaeuser Company

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Western Red Cedar Lumber Association



**T**he Western Red Cedar Lumber Association (WRCLA) is a non-profit trade association representing quality producers of Western Red Cedar lumber products in British Columbia, Canada and the US Pacific Northwest states. Association members are dedicated to producing quality sidings, decking, paneling, outdoor and other specialty cedar products in a wide range of sizes and grades. The WRCLA is committed to providing the construction industry with information about WRCLA member products, their specification, and proper use.

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