

# WOLVERINE VINYL SIDING

## INSTALLATION GUIDE



**WOLVERINE**  
by CertainTeed



## Top Ten Tips for Installing Vinyl Siding

Wolverine provides quality vinyl siding and accessories that are backed by one of the industry's best warranties. However, even the best products fall short of expectations if they are not installed properly. Following these ten recommendations—the basics of a professional installation—can help ensure a quality installation that fulfills homeowners' expectations and reduces call backs.

1. Install all siding and accessories over a smooth, flat surface. Always install siding over a rigid sheathing, and never install it over open studs.
2. Vinyl siding is not a watertight material. Install a weather-resistant barrier and flash around all windows and doors before installing vinyl siding and trim.
3. There are three recommended ways to cut vinyl siding: For rip cuts, score the panel with a knife or vinyl blade and bend the panel back and forth. Use aviation snips or shears to fit panels around windows and doors. For cross cuts, use a circular saw with a plywood blade in the reverse position.
4. Always leave room for expansion and contraction into receiving channels like outside cornerposts, inside cornerposts, and J-Channel. If the temperature is above 40°, leave 1/4"; if the temperature is below 40°, leave 3/8".
5. When installing horizontal vinyl siding panels 12' 6" in length or shorter, overlap the factory notches 1" to 1-1/4" (depending on the temperature).
6. Always nail in the center of the nail slots: 16" on center for siding; 8" to 12" for accessories.
7. DO NOT NAIL TIGHT! Always leave 1/8" to 1/16" between the nail head and the nail hem to allow for movement when the panel expands and contracts.
8. Hang vertical accessories from the top of the top nail slot.
9. Lap away from the highest traffic pattern, typically the front of the house. Keep laps at least 3' apart from course to course, and install three courses between laps above each other.
10. Finish the last piece of siding into utility trim.

[www.wolverinesiding.com](http://www.wolverinesiding.com)



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## IMPORTANT INFORMATION

### Warranties

This information contained in this Installation Guide describes and illustrates the steps required to properly install Wolverine siding, trim, and accessories. The Installation Guide provides detailed information and how-to tips that will support a successful installation. These requirements are provided throughout this Guide. Also, consult local building codes for additional requirements. Should you have questions about installation techniques, you may contact Wolverine for further information. Any deviations from these requirements described in this Guide must be addressed and approved in writing by Wolverine. Please be aware that Wolverine does not accept any liability or responsibility under its written limited warranty for failure caused by an application that does not meet the requirements for proper installation. Improper installation may void coverage under the limited warranty.

In rare instances, intense sunlight reflected from glass or other reflective surfaces may create heat buildup and cause vinyl siding to distort or melt. To help minimize the effects of heat buildup from reflected sunlight, the homeowner may take one or more of the following measures:

- Install a screen in the window causing the reflection.
- Install an awning over the window to break the line of light reflection.
- Use shrubbery to protect the area of siding from reflections.

Distorted or melted siding caused by the reflection of sunlight is not covered under the limited warranty. For more information on the potential damaging effects of concentrated solar reflection, visit the VSI website at <https://www.vinylsiding.org/vsi-resources/solar-reflection/>

**Building codes and regulations vary throughout the country. Be sure to check with your local code official or governing body for the building requirements in your area.**

### Lead Renovations

Many houses and apartments built before 1978 have paint that contains high levels of lead (called lead-based paint). Lead from paint, chips, and dust can pose serious health hazards if not taken care of properly. You can find out about safety measures for lead-based paint by calling 1-800-424-LEAD (5323).

### Important Fire Safety Information

Exterior vinyl building materials require little maintenance for many years. Nevertheless, common sense dictates that builders and suppliers of vinyl products store, handle and install vinyl materials in a manner that avoids damage to the product and/or the structure. Owners and installers should take a few simple steps to protect vinyl building materials from fire:

- To Home and Building Owners: Rigid vinyl siding is made from organic materials and will melt or burn when exposed to a significant source of flame or heat. Building owners, occupants and outside maintenance personnel should always take normal precautions to keep sources of fire, such as barbecues, and combustible materials, such as dry leaves, mulch and trash, away from vinyl siding.
- To the Building Trades, Specifiers, Professionals and Do-It-Yourself Installers: When rigid vinyl siding is exposed to significant heat or flame, the vinyl will soften, sag, melt or burn, and may thereby expose material underneath. Care must be exercised when selecting underlayment materials because many underlayment materials are made from organic materials that are combustible. You should ascertain the fire properties of underlayment materials prior to installation. All building materials should be installed in accordance with local, state and federal building codes and fire regulations.

*This manual shows the basic guidelines for installation. Additionally, we recommend that local building codes be reviewed*

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# SECTION 1 — INTRODUCTION

## Introduction

Plan your work, then work your plan.

That's the key to success with any project, and it's doubly true when it comes to installing vinyl siding, soffit, trim and accessories.

If you use the right materials and the right tools in the right order, you'll complete remodeling and new home installations in less time, with less effort, and with far greater satisfaction.

Since you're using Wolverine products, you've already taken the first step toward success. Wolverine sidings, soffit, trim and accessories provide premium quality, rugged durability and outstanding appearance. Quite simply, they're made to look great—on the day they're installed and for years after.

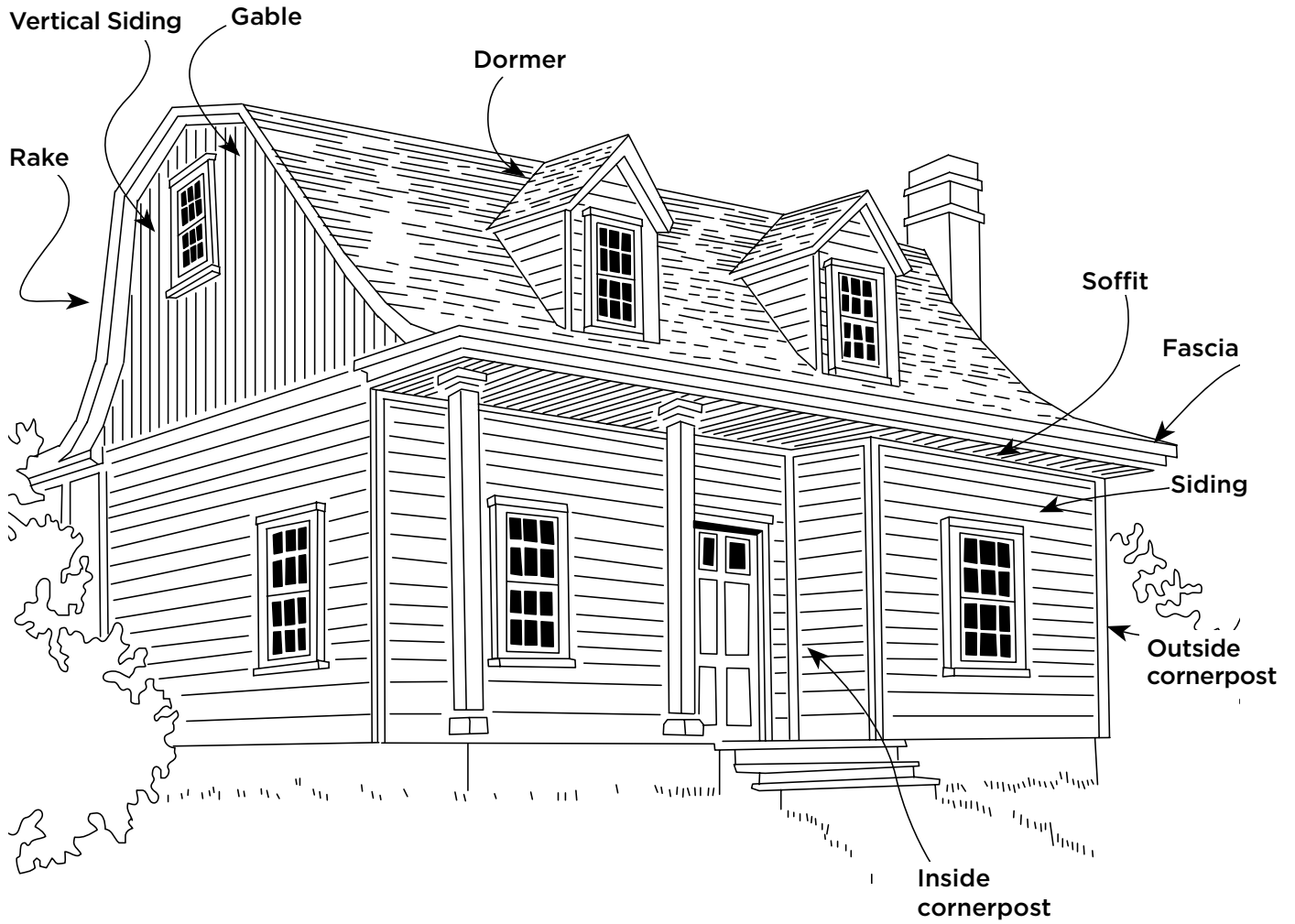
The second ingredient of success—using the proper tools, techniques and procedures—is covered in this book. As you'll see by scanning the table of contents, this book guides you through every step of the installation process, from estimating materials to attaching mailboxes and shutters. Every major installation project is covered: horizontal; vertical, including Board & Batten; soffit and fascia; porch ceilings; and decorative trim. Where various approaches to a particular installation procedure are possible, the book presents practical alternatives. To make the instructions as detailed and complete as possible, hundreds of illustrations accompany the text.

As you're reading—and while you're working—keep in mind the most important rule of thumb for successful vinyl siding installation: **allow for movement**. All vinyl siding, soffit and accessories used in exterior applications must be able to move freely as they expand and contract with temperature changes. You'll see this point emphasized again and again throughout this book; you'll also learn various techniques for measuring, fitting and nailing that will allow this unobstructed movement. These are perhaps the most important lessons in this booklet.

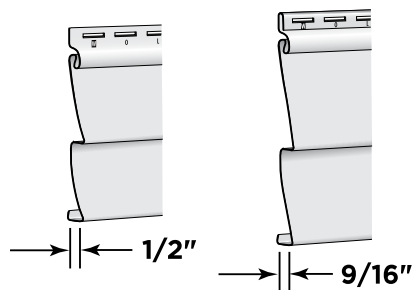
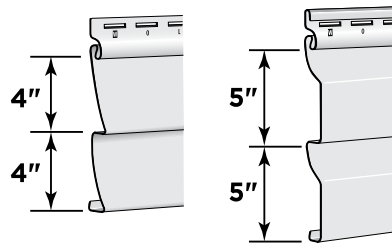
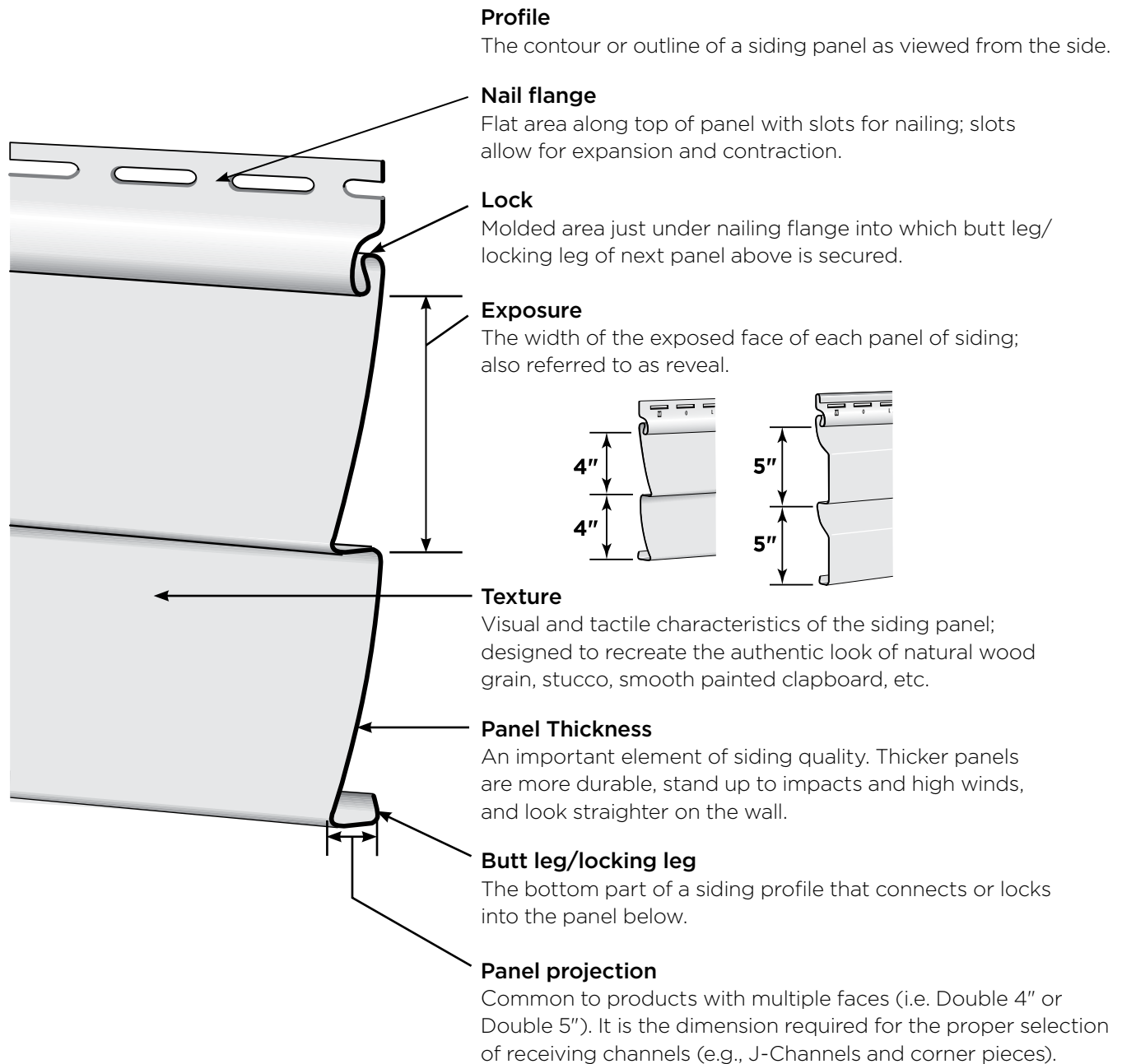
***NOTE: No instruction book can anticipate all the questions that might arise during a siding or soffit installation. Recognizing this, we've focused on the tools and techniques used to complete typical installations. Where appropriate, we've also included alternative approaches for specific installation steps. If you encounter a unique installation problem not covered in this book, we suggest you contact our Customer Experience Team at 1-800-233-8990.***

# SECTION 2 — SIDING OVERVIEW

## Home Exterior Terms



## Traditional Vinyl Siding Terms



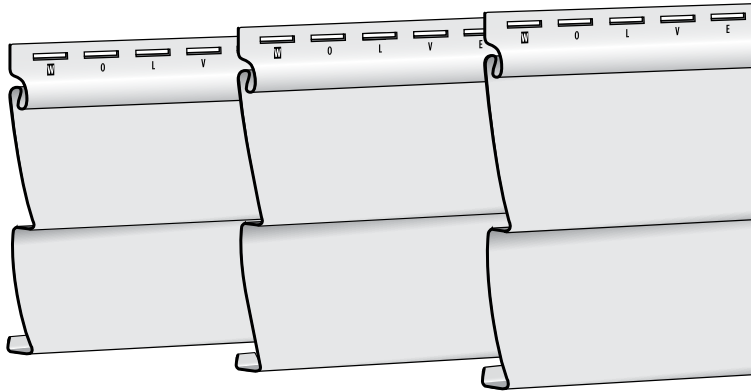


# Vinyl Siding Styles

Double 4"  
Clapboard

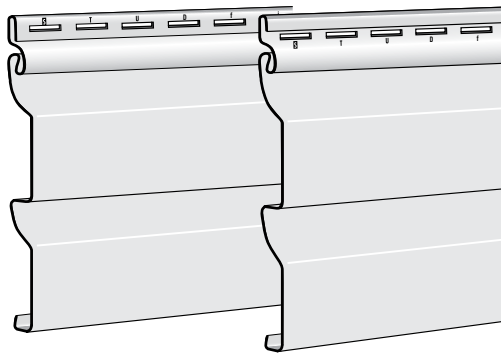
Double 4-1/2"  
Clapboard

Double 5"  
Clapboard

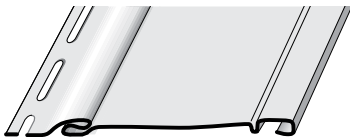


Double 4-1/2"  
Dutchlap

Double 5"  
Dutchlap

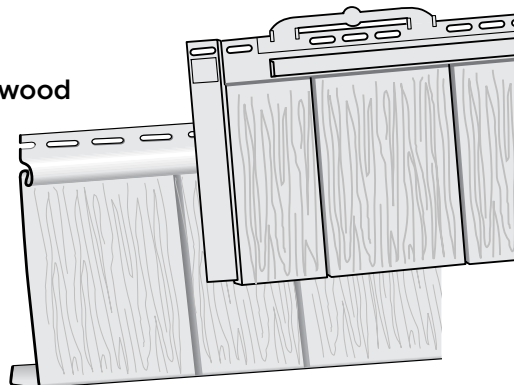


Single 7" Vertical  
Board & Batten



Heartwood

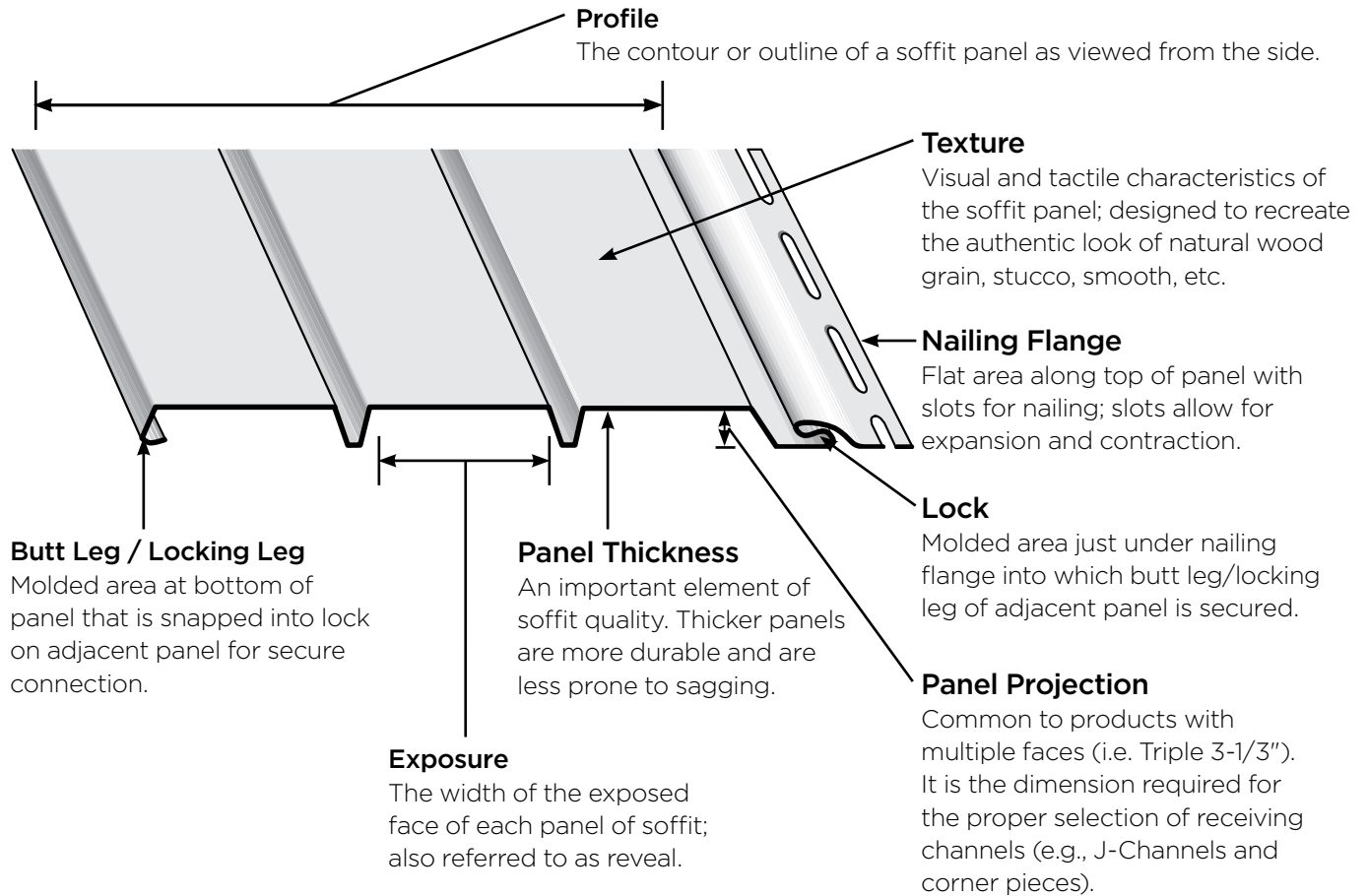
Heartwood PRO



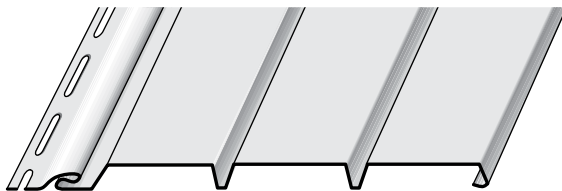
Single 7" Straight Edge Perfection Shingles

# SECTION 3 — VINYL SOFFIT AND VENTILATION

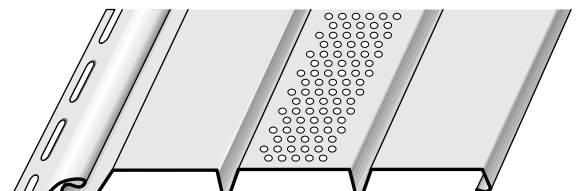
## Features of Vinyl Soffit



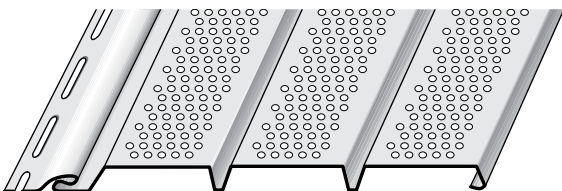
**Solid Soffit**



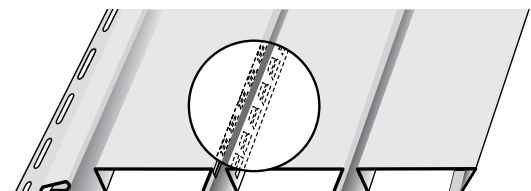
**Center Vented Soffit**



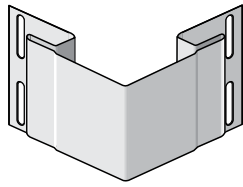
**Fully Vented Soffit**



**Invisibly Vented Soffit**



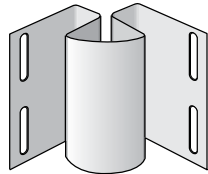
# SECTION 4 — ACCESSORIES AND TOOLS



## Corner Systems

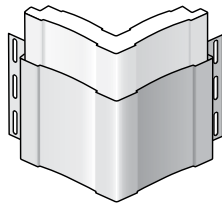
### Outside cornerposts

3/4" Outside cornerpost—matte.  
Use with all sidings.



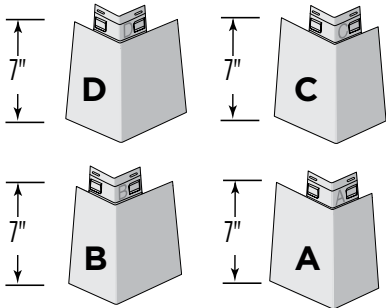
### Inside cornerposts

3/4" Inside cornerpost—matte.  
Use where siding meets at inside corners; provides a finished look.



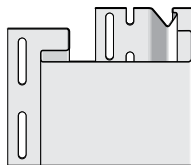
### Traditional 6" XL Corner

3/4" wide decorative traditional corner treatment with foam backing—matte.



### PRO 7" Mitered Offset Cornerpost

(for use with Heartwood PRO).



## Lineals

### 3-1/2" Lineal

For use with a Window and Door Starter around windows and doors as a casing. The 3/4" channel receives siding panels.



## J-Channels

### J-Channel

- 1/2" J-Channel
- 5/8" J-Channel
- 3/4" J-Channel

Universal siding and soffit receiving channel for use around utility openings, under eaves, etc.

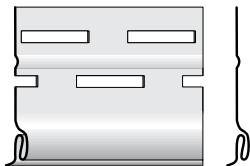
# SECTION 4 — ACCESSORIES AND TOOLS



## Functional Trim

**Utility trim**  
**Shake / Shingle Utility trim**

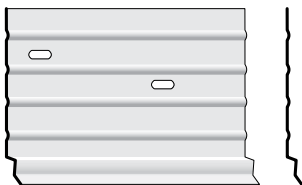
Helps secure trimmed siding panels under windows and eaves.



## Starter Strips

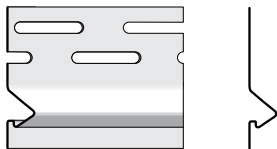
**2-1/4" Vinyl starter strip**

Secures the first course of siding to the home.



**4" Metal shingle starter strip**

For use with Heartwood PRO.



**Window and door starter**

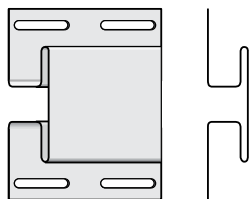
Butts up against protruding window and door jambs and overhangs for installation of 3-1/2" lineals.



## Soffit Trim

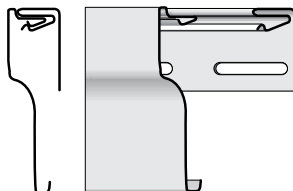
**1/2" F-Channel**

Receives soffit panels.



**1/2" H-Trim**

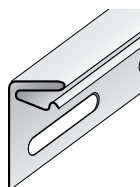
Joins soffit panels. Particularly useful on porch ceilings and hip roof applications.



## Decorative Trim

**Cornice Molding**

Held in place by the Cornice Molding Receiver, this accessory hides the installation of the topmost siding panels. With the help of a nail slot punch, topmost siding panels can be installed with nails every time.



**Cornice Molding Receiver**

Installed under eaves to hold the Cornice Molding in place. Does not receive soffit panels.

## Equipment and Tools

### Fasteners

Use only corrosion-resistant nails (aluminum, stainless or galvanized roofing.) Nails should have a minimum head diameter of 5/16". Wolverine recommends the use of stainless steel nails or other corrosion-resistant fasteners when installing siding in coastal areas. Be sure to check with your local code official or governing body for the building requirements in your area. Staples should be a minimum of 16 gauge.

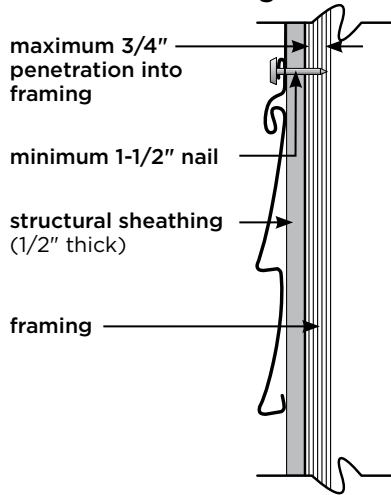
If screws are used, use non-corrosive, self-tapping, pan head or washer head screws or oval head with countersunk washer screws with at least 5/16" diameter head, 1/8" (3mm) diameter shaft, and at least 1-1/8" (29mm) long.

To determine the length of nail required, measure the thickness of the sheathing material. Fasteners must penetrate a total of at least 1-1/4" (32mm) into a nailable material such as wood sheathing and framing. The minimum nail size should be 1-1/2". Example: If you're applying siding over 1/2" structural sheathing, use a nail at least 1-1/2" long (1/2" sheathing + 3/4" stud penetration + nailing hem thickness + minimum 1/16" between nailing hem and fastener head).

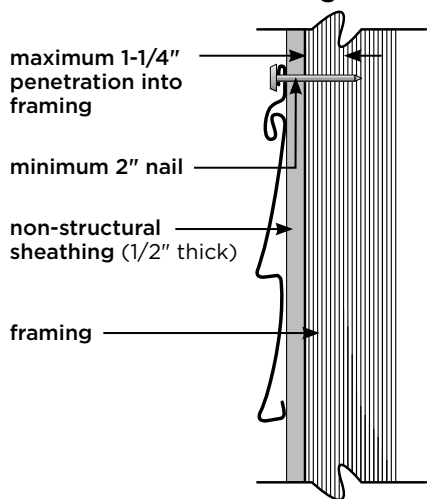
To determine the quantity of nails required, complete the following:

Total square feet of siding required:		_____
(If using aluminum nails)	x	.005
(If using galvanized roofing nails)	x	.01
Pounds of nails required:	=	_____

#### Wood Framing with Structural Sheathing



#### Wood Framing with Non-structural Sheathing



### Tools required

Hammer	Tin snips	Tape measure	Square
Chalk line	Level	Utility knife	Shears
Snaplock punch	Three-hole punch		

Power circular saw with sharp, fine-tooth plywood blade mounted in reverse direction. (Irwin® Tools Vinyl siding blade is not reversed—tooth design is symmetric 60°.)

## Ladders and Scaffolds

***NOTE: If you will be using an extension ladder during installation, be sure to cushion the upper side rails to help prevent damage to installed siding.***

### Cutting table

### Portable brake

Essential for bending aluminum trim coil to fit around fascia boards, window sills, window and door casings, etc.

Please refer to the brake manufacturer's instructions for metal bending techniques.

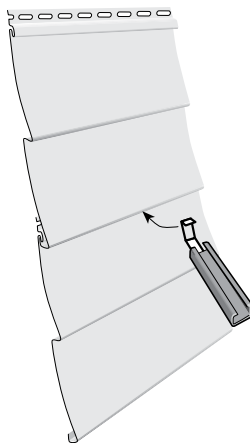
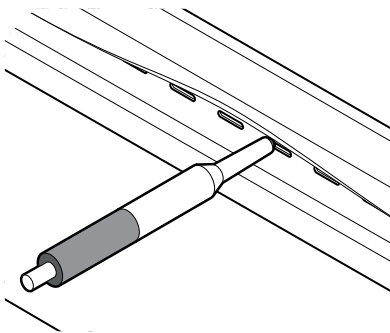
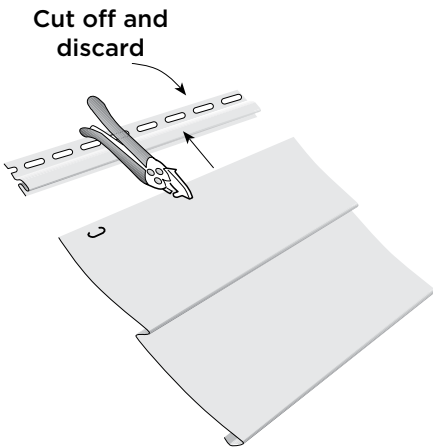
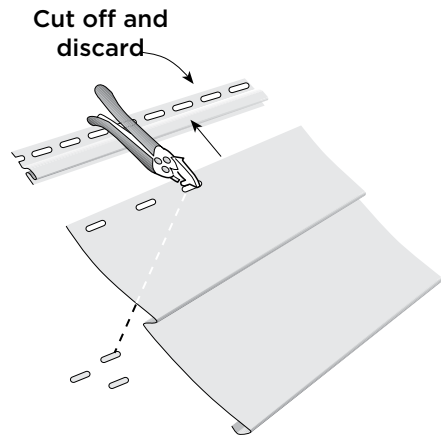
## Transporting and Storing Vinyl Siding

Wolverine's standard shipment method incorporates palletizing and stretch wrapping all products.

- The pallet is a double-faced, reversible, Grade M, SPEQ®-certified pallet constructed of quality materials that meet NWPCA Uniform Voluntary Standards (Sec. 5.1, Table 1).
- Customer racking should be at least 46" deep x 154" long to accommodate Wolverine pallets.
- Siding should be stored indoors and away from direct sources of heat and sunlight. Storing products outside may result in damage.
- If you are transporting vinyl siding to a job site, make certain to keep cartons flat and supported along their entire length.

At the job site, take the following precautions when storing panels:

- Store on a flat surface and support the entire length of the carton.
- Keep cartons dry.
- Store away from areas where falling objects or other construction activity may cause damage.
- Do not store in any location where temperatures may exceed 130° F (e.g., on black top pavement during unusually hot weather, under dark tarps or plastic wraps without air circulation, or in unventilated storage trailers).



## Special Tools

### Nail slot punch\*

Punches elongated holes to allow nailing the cut edge of a panel. Also used to enlarge an existing hole to allow proper nailing.

### Snaplock punch\*

Punches tabs in the cut edge of a panel used as a finishing course at the top of a wall or underneath a window. The tabs lock into utility trim.

### Trim nail punch\*

Punches trim nail holes into soffit, fascia, and other finishing trim without denting or marring the material.

### Zip tool

Locks and unlocks panels. Panel remove tool for siding.

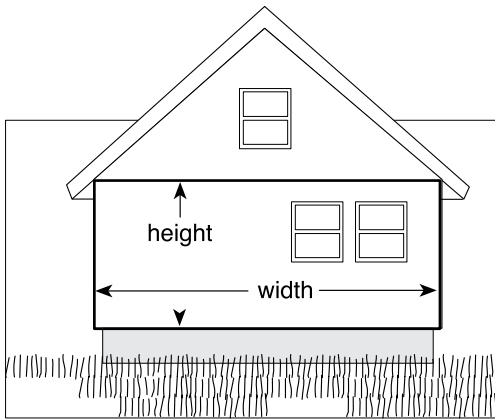
\*Available from Malco Products, Granger, ProSidingTools.com

# SECTION 5 — ESTIMATING

## Siding

Use the illustrations and formulas below and enter totals on the estimating form on page 18. These formulas apply for both horizontal and vertical installations.

**NOTE: When estimating for a large project, you may want to add a waste allowance of 10 percent to the totals for siding, soffit and accessories.**



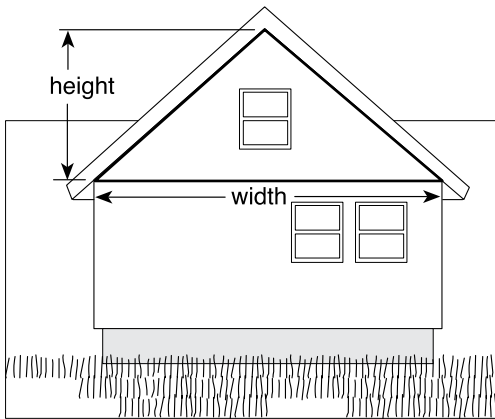
### Rectangular wall surfaces

Measure height (excluding gables). Measure width (including doors and windows).

$$\text{-----} \times \text{-----} = \text{-----}$$

(height)                      (width)                      (surface area)

Repeat for remaining walls.



### Triangular gable end surfaces

Measure height at center (add 1' to allow for waste). Measure width and divide by half.

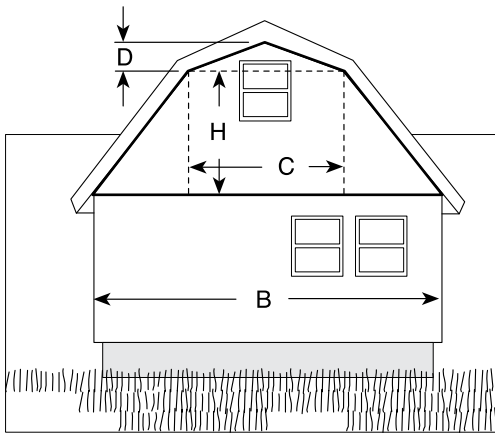
$$\text{-----} \times \text{-----} = \text{-----}$$

(height)                      (1/2 width)                      (surface area)

Repeat for remaining gables.

**NOTE: Lower pitch roofs will produce more waste than higher pitch roofs.**





### Upper wall of gambrel house

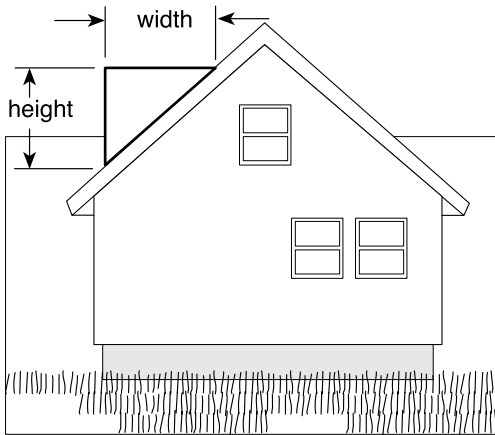
Divide the upper wall of a gambrel house as shown in the illustration. Then use the following formulas:

$$1/2 (B + C) \times H = \underline{\hspace{2cm}}$$

$$1/2 C \times D = \underline{\hspace{2cm}}$$

Add these figures to get total area:  $\underline{\hspace{2cm}}$

Repeat for remaining gambrel surfaces.



### Dormer sides

Measure height of dormer (add 1' to allow for waste). Use the following formula:

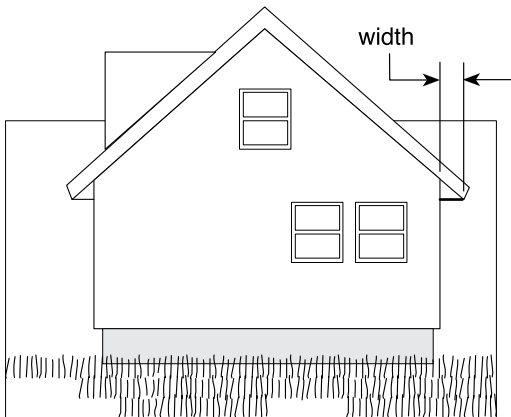
$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

(1/2 height)                      (width)                      (surface area, 1 side)

$$\underline{\hspace{2cm}} \times 2 = \underline{\hspace{2cm}}$$

(surface area, 1 side)                      (total dormer surface area)

Repeat for all dormers.



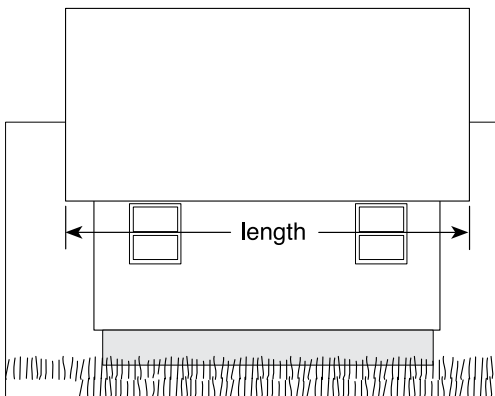
### Soffit

Measure width of eave to be covered. Measure length of eave.

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

(width)                      (length)                      (surface area)

Repeat for remaining eaves.



### Porch Ceiling

Measure length of porch area to be covered. Measure width of porch.

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

(width)                      (length)                      (surface area)

## Measuring

Before ordering accessories, you also have to determine the width of the J-Channel into which you will fit the vinyl siding. To do this, you must first determine which of two methods you will use to apply sheathings or underlayments. This is covered in more detail under “Sheathings.”

***NOTE: Refer to product catalog for product accessory recommendations and availability.***

**Starter strip:** Measure along base of building.

**J-Channel:** For siding installations, measure around doors and windows, under eaves, at rake edges of gables where dormer meets roofline, and anywhere else required to provide a finished appearance.

For soffit, measure along wall under eave and along fascia board.

For porch ceilings, measure along perimeter of the porch area.

**F-Channel:** For soffit, measure along wall under eave.

For porch ceilings, measure along perimeter of the porch area.

**3-1/2" Lineals:** For casing, measure along perimeter of doors and windows. For gables, measure at rake edges of gables where dormer meets roof line.

**Utility trim:** Measure above and below windows and above doors and top course of siding below soffit.

**Soffit H-Trim:** Measure diagonals at all eave corners.

**Outside cornerpost:** Measure length of outside corners.

**Inside cornerpost:** Measure length of inside corners.

***NOTE: If you plan to use J-Channel instead of inside cornerposts, remember to double this measurement and add the total to your entry for J-Channel.***

## Estimating Form

<b>Siding</b>	Walls	_____	sq feet
	Gable ends	_____	sq feet
	Dormer sides	_____	sq feet
	Upper gambrel walls	_____	sq feet
	Total wall surface area	_____	sq feet (A)
	Large areas not to be covered: (garage doors/sliding glass doors)	_____	sq feet x .50
	Uncovered area	_____	sq feet (B)
	Subtract B from A for	_____	
	Total net surface area	_____	sq feet
	<b>Soffit</b>	_____	sq feet
	<b>Porch ceiling</b>	_____	sq feet
<b>Accessories</b>	Starter strip	_____	lineal feet
	Window & door lineal starter	_____	lineal feet
	Utility trim	_____	lineal feet
<b>Receiving channel</b>	J-Channel	_____	lineal feet
	F-Channel: 1/2"	_____	lineal feet
	3-1/2" lineals	_____	lineal feet
	Window & door starter	_____	lineal feet
<b>Outside corner</b>	Outside cornerpost	_____	lineal feet
	Traditional XL Corner	_____	lineal feet
<b>Inside corners</b>	Inside cornerpost	_____	lineal feet
	J-Channel	_____	lineal feet
	H-Trim	_____	lineal feet
	Width of accessory recess opening: (circle one) 1/2" 3/4"		
<b>Nails</b>	Pounds required (1-1/2" minimum)		

## SECTION 6 — PREPARING FOR HORIZONTAL & VERTICAL SIDING

### Preparing Wall Surfaces

#### Sheathings

In new construction, apply sheathing first, then nail accessories over it.

The application method you choose determines the width of the recess opening required. For example, use:

- 1/2" opening when applying accessories over sheathing and installing siding with a panel projection of 1/2" or less.
- 3/4" opening when applying accessories over sheathing and installing siding with a panel projection of 3/4" or less.

#### New construction

Make sure all studs are straight and true. Correct any bowed studs.

***NOTE: Vinyl siding must be applied over a rigid sheathing that provides a smooth, flat surface or an underlayment (such as wood, wood composition, rigid foam or fiber sheathing) that is no more than 1" thick. Vinyl siding cannot be applied over open studs.***

Vinyl and Polymer Siding must be installed over a Weather Resistant Barrier & flashing, per building codes and applied according to the manufacturer's recommendations.

In all cases, however, install the products so they are secured firmly to the substrate so that they provide a smooth, even surface for the final siding installation. Make sure sheathing is fastened securely to studs.

Vinyl siding is an exterior cladding; it is not a complete weather resistant barrier. Before applying siding, make certain the substrate is watertight. In order to be protected from precipitation, the substrate must be properly flashed around areas such as windows, doors, other openings and corners so as to shed water to the exterior. See page 31 for proper flashing around windows. The siding alone is not meant to be a watertight barrier.

**Vinyl siding cannot be installed on a radius wall.**

## Drop-in foam backer boards

Some drop-in foam backers can restrict the movement of vinyl siding. Therefore, Wolverine vinyl siding may not be applied over any drop-in foam backer other than a contoured drop-in foam backer designed specifically for each profile.

**IMPORTANT: Wolverine will not accept any responsibility or liability in the event the drop-in foam backer impacts the performance of the vinyl siding. The use, fit, and performance of the siding backer board is the responsibility of the installer and the backer board manufacturer.**

***NOTE: Contoured drop-in foam inserts are not a substitute for rigid foam sheathing.***

## Home improvement projects

You can prepare your current siding surface to receive vinyl siding in one of three ways:

**Option 1:** Strip off old siding and level the wall, if necessary. If felt paper covers the wall, you have two alternatives: either strip it off completely or staple or nail it to create a smooth surface. If there is no solid sheathing under the old siding, you must apply it as described in the instructions for New Construction.

**Option 2:** Apply rigid sheathing to existing wood siding to provide a smooth surface. Nail securely to old siding. Nail evenly to bridge low spots.

***NOTE: Failure to establish a smooth, solid surface constitutes misapplication under the terms of the warranty.***

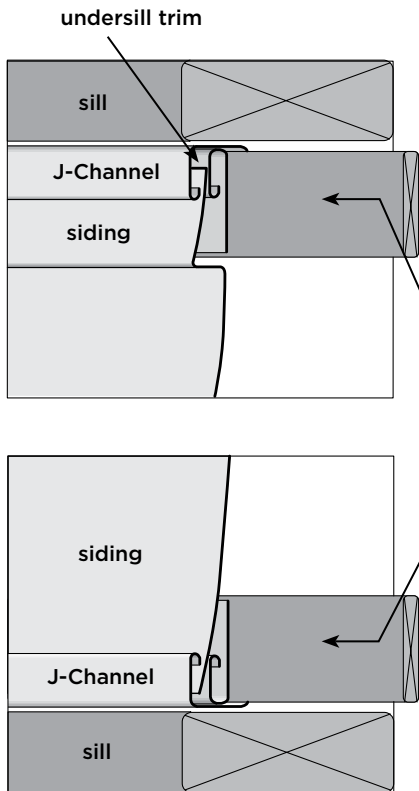
**Option 3:** Apply vertical furring to old siding to straighten noticeable surface unevenness. (See below “Tips for applying wood furring.”) Then apply rigid sheathing, following the instructions presented under New Construction.

***NOTE: For information on installing siding over asbestos and for historic applications, see page 70.***

## Tips for applying wood furring over uneven surfaces

If you are working on an older home with noticeably uneven walls, you must correct this condition before proceeding. If not corrected during preparation, this uneven surface will produce a wavy appearance in siding applied over it.

For best results, space vertical furring strips 16" over studs. Do not exceed 16". To correct an uneven wall, use furring strips (and wood shims if necessary) to eliminate low spots.



Furring and/or foam is also used below eaves and windowsills to maintain correct slope angles when siding panels must be cut to a narrower dimension to fit.

Similarly, when panels are cut to fit over doors or windows, furring and/or foam is used to establish the correct slope angle.

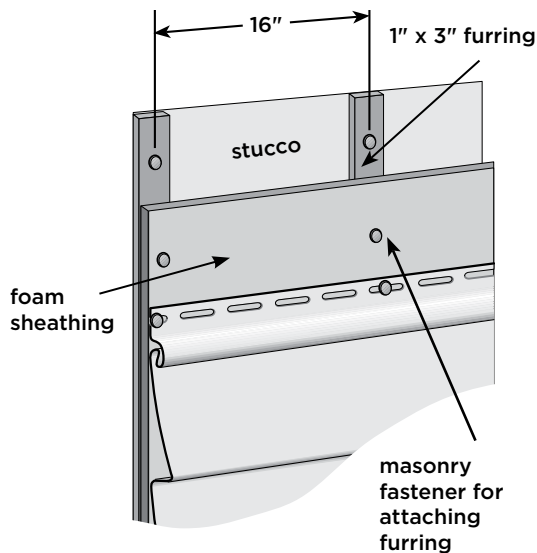
**furring strip/foam shim**

### Applying over stucco or masonry

When applying vinyl siding over stucco or masonry, you first have to be sure you're working on an even surface. To create that surface, you may have to knock down high spots where furring strips will be applied. Use caution when chipping off these spots — you don't want to crack or damage the remaining stucco or masonry.

Apply 1" x 3" furring over the stucco or masonry using power-actuated fasteners or other appropriate masonry fasteners.

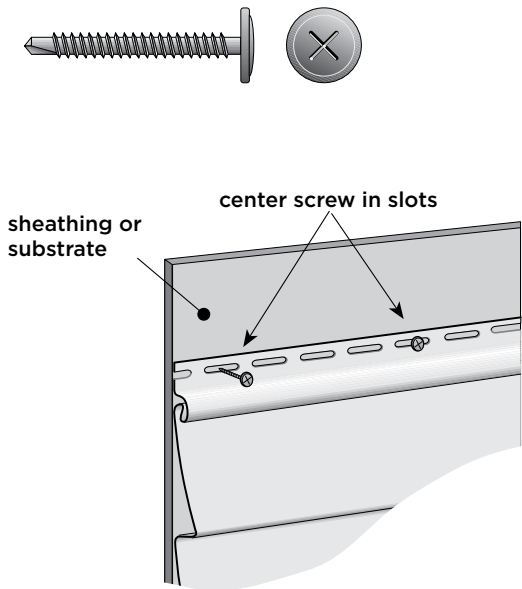
Stucco will not hold fasteners tightly, so be sure nails or screws are anchored securely to studs. Furring strips should be spaced 16" on center.



### Applying rigid foam sheathing to furring

For best thermal performance, install a minimum of 1/4" foam sheathing over furring strips. Install sheathing according to manufacturer's instruction.

***Do not apply siding directly to furring.***



## Applying over steel studs

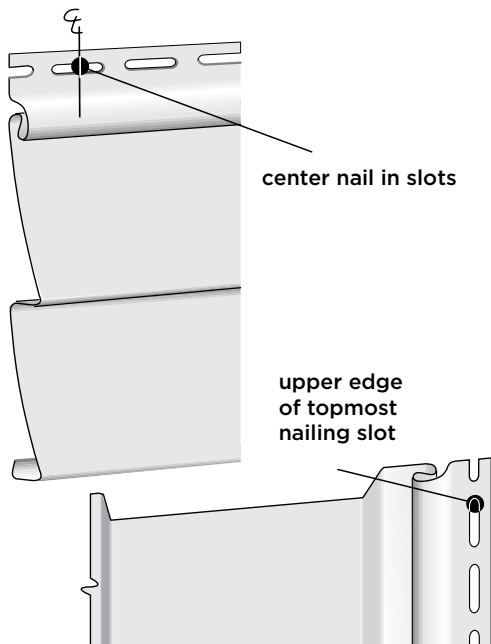
Pre-planning is the key when installing vinyl siding and accessories over steel studs. Pre-planning includes the selection of siding style and the types of accessories. Pre-planning proper stud placement will eliminate many of the problems that could surface once the job has been started, such as at corners, windows, and transitional areas.

Follow the same guidelines as in a wood surface—except for the type of fasteners used. Wall sheathing must be installed over the studs. This will provide a straighter, smoother and more rigid wall surface and help prevent studs from twisting. Siding must be secured into metal studs if the substrate is not a nailable surface such as GlasRoc® exterior gypsum board, rigid foam sheathing, etc.

The application of vinyl siding, soffits and accessories over steel stud framing rather than typical wood framing is straightforward. The main difference is the use of screws to hang components that make up a completed siding job.

Use noncorrosive, self-tapping screws with at least 5/16" diameter head, 1/8" diameter shaft, and at least 1-1/8" long.

Although the fastening method for steel studs differs from wood construction, all other procedures still apply, including fastening in the center of the nail slot and not overtightening the fasteners.



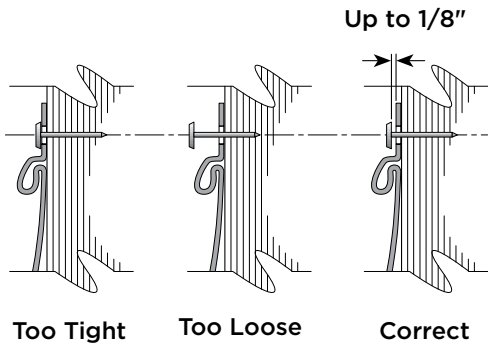
## Nailing, Stapling and Other Fastening Methods

If you want to ensure a quality vinyl siding installation, focus your attention on nailing techniques. Unfortunately, a lot of installers don't. They feel nailing is a routine task, something everyone knows how to do. But that's not the case. **At Wolverine, we analyzed reported installation problems, and we found that more than half of them can be traced back to improper nailing.** So if you want to save yourself lost time and frustration, carefully observe the following guidelines when installing accessories, siding panels, soffit, or porch ceilings.

Lock the panel and begin nailing at the center of the panel, working toward the ends. This helps maintain a level line.

With horizontal accessories and panels, position the nails in the center of the elongated nailing slots to allow for expansion and contraction. Never nail through the panel surface.

With vertical accessories and panels, position the **first nail** at the **upper edge of the topmost nailing slot**. This allows a panel to hang from the nail. Position the remaining nails in the **center of the nailing slots**. Allow for 1/3 of the total expansion at the top and 2/3 of the total expansion at the bottom.



**NOTE: Do not nail too tightly. To permit expansion and contraction, panels should hang freely from nails. This allows the panels to move as the temperature changes. Drive the nails until there is between 1/8" to 1/16" of space between the nail head and the nailing flange.**

**Drive the nails straight in. Do not angle nails.**

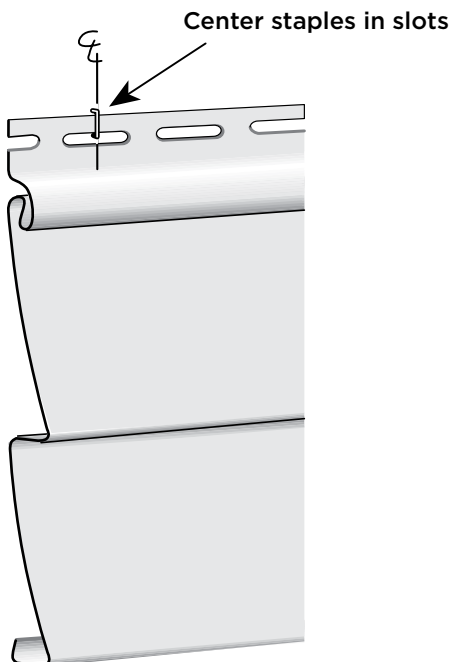
Per the ASTM specification for vinyl siding installation (D4756), proper nail penetration is at least 1-1/4" penetration into a solid framing material such as wood sheathing and studs.

**Fastener spacing**

Fasteners are typically spaced a maximum of 16" apart. In new construction, fasten to studs on 16" centers. Do not skip studs. Products must be tested for 24" o.c. to keep this provision. Check with your local building code official for special requirements.

**Other fastening techniques:**

Manual nailing is the most common way of fastening vinyl siding to a wall. That's because it offers greater control, making it easier to learn how to fasten panels securely, but not tightly. You also can use power screwdrivers or pneumatic staplers/nailers to attach vinyl siding to a wall, but you must take the time to develop the proper skills. If you choose to use one of these alternate techniques, follow all the recommendations above for nail positioning and spacing and the recommendations for substrate preparation on pages 40 to 43 for horizontal applications and page 49 for vertical, including Board & Batten. In addition, be sure to observe the following guidelines:



**Power screwdrivers**

Use noncorrosive, self-tapping truss head screws. Screws must have at least 5/16" diameter head and 1/8" diameter shaft. Screws must be at least 1-1/8" long. If underlayment is less than 3/4" thick and is not considered a nailable surface (for example, foam or exterior grade gypsum), be sure screws are long enough to penetrate at least 3/4" into wood studs or substrate, 1/4" through a steel stud. Be sure screws are centered in the nail slot. **Leave 1/16" to 1/8" space between the screw head and the panel nailing flange.**

**Pneumatic staplers/nailers**

Use corrosion-resistant fasteners only. Fasteners must be centered in the nail slot, no more than 16" on center.

**NOTE: Some power staplers/nailers use an attachment that helps position the fastener in the nail slot. If your unit does not have that feature, you must carefully position the fastener by sight.**



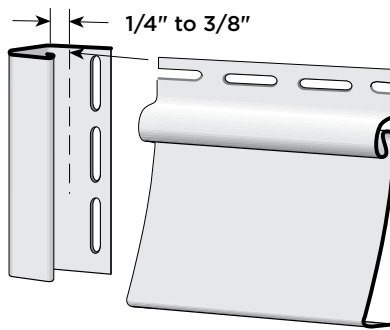
Fasteners must penetrate a nailable surface at least 1-1/4". Be sure to leave up to 1/16" between the fastener and the panel nailing flange. If you're using a power stapler, drive the staple perpendicular to the nailing slot with one leg of the staple centered in the slot and the other leg above the panel.

**NOTE: Check with local building codes to verify fastener requirements for your area.**

### Nail Spacing and Product Expansion and Contraction

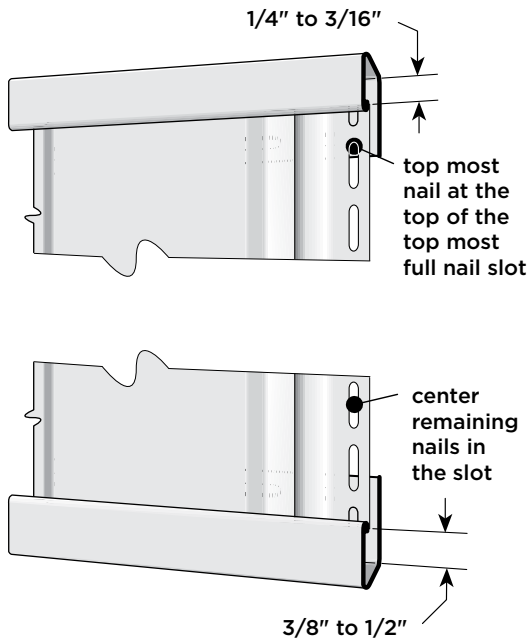
It's normal for vinyl building products to expand and contract with temperature changes. To ensure a successful siding installation, you must allow for this movement during application.

See the following tables for more information.



Product Category	Max. Nail Spacing	Gaps to Accessories		Overlap	
		40°F or Greater	Less than 40° F	40° F or Greater	Less than 40° F
Horizontal Lap Siding (12' 6")	16"-24"*	1/4"	3/8"	1-1/4"	1"

\*Depends on profile, fastener and geographic area.

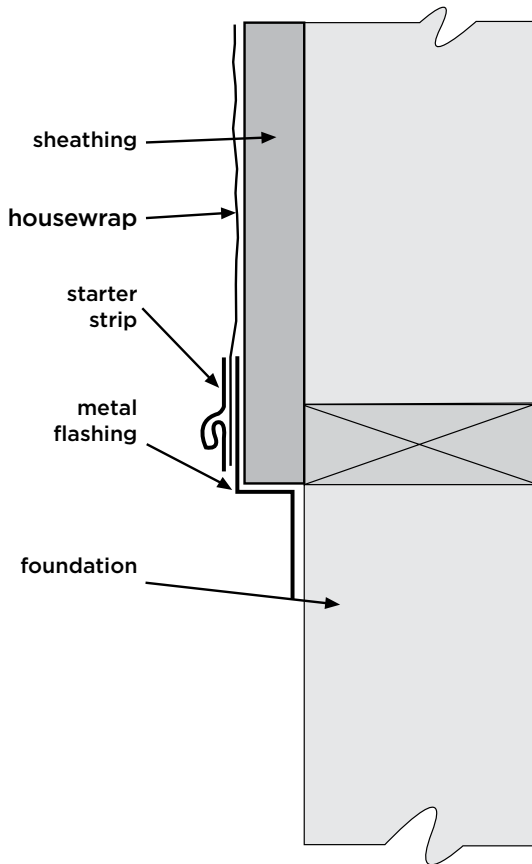


Product Category	Max. Nail Spacing	Gaps to Accessories	
		40°F or Greater	Less than 40° F
Vertical Siding	12"	3/16" top 3/8" bottom	1/4" top 1/2" bottom

Hang off of top nail slot.

Product Category	Max. Nail Spacing	Gaps to Accessories		Overlap		Notes Specific to Product
		40°F or Greater	Less than 40° F	40°F or Greater	Less than 40° F	
Heartwood Shingles	16"	1/4"	3/8"	Use Temp. Marks	Use Temp. Marks	All panels must be center pinned (see page 58 for more details)
Heartwood PRO Shingles	Fasten at Delta Indicators	1/4"	3/8"	Use temp marks/ Gauge	Use Temp. Marks	All panels must be center pinned (see page 54 for more details)

## SECTION 7 — INSTALLING ACCESSORIES



### Snapping a chalk line

To ensure proper installation, you must establish a straight reference line to guide the positioning of the starter strip and the first course of siding.

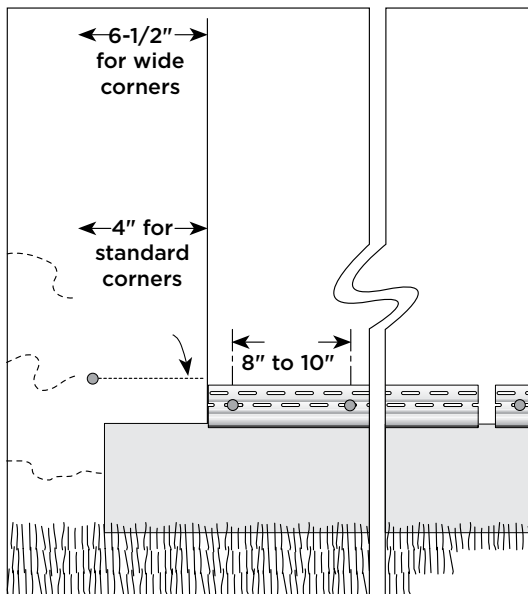
If the house is reasonably level, find the lowest point of the old siding (or sheathing if working on new construction). Partially drive a nail at one corner, starter height minus 1/4" above the lowest corner. Attach chalk line. Go to other corner and pull the chalk line taut. Stretch the chalk line from this nail to the opposite corner of the house. Make sure the line is level, using a line level or 4' (minimum) level. Snap chalk line and repeat the procedure around the entire house.

A water level, a long clear plastic tube 90% filled with water, is useful in marking level points around the house and on opposite sides of openings such as doors. Water will always seek a level state, ensuring the markings will always be at the same level.

**NOTE: If after establishing a chalk line you find that your starter strip will be positioned below an easily nailed surface, you may have to apply a nailable base.**

If you have added sheathing, you may want to bend trim coil to act as flashing and help prevent entry of insects. Bend the coil in a "Z" shape so the top edge of the coil is on the chalk line and the bottom edge extends down over the foundation. (See illustration.)

**NOTE: The general guidelines for cutting and nailing vinyl panels and for allowing for expansion and contraction also apply to vinyl accessory items.**



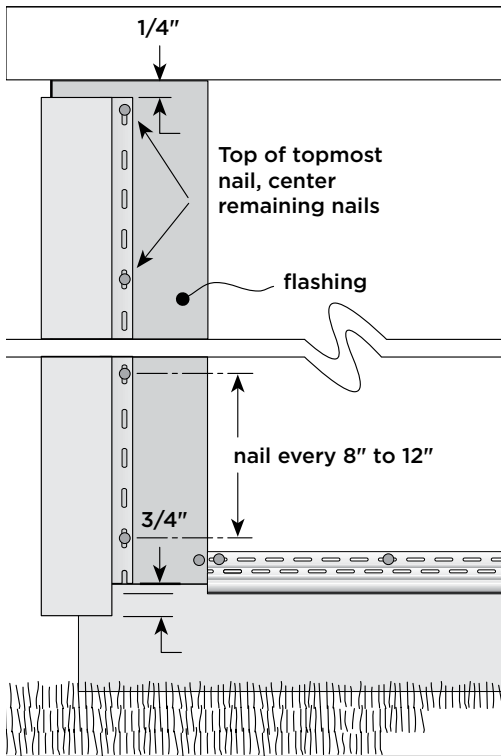
### Installing the starter strip

Position the starter strip with the top edge on the chalk line and the ends 6-1/2" away from the outside and inside corners (when using wide corners), 4" if using standard one-piece corners. Nail to wall following previously mentioned nailing instructions. When hollows occur in the wall surface, shim out the starter strip to avoid a wavy appearance in the finished siding job. Nail every 8" to 12".

As you add starter strip sections, be sure to leave 1/4" space between them for expansion.

Sometimes—especially at sills above garage doors, porches or brick surfaces where the siding has been cut lengthwise—you may find it easier to use a combination of utility trim and J-Channel as a starter strip to secure a panel.

If you are concerned that the house is not level, measure down from the soffit at one corner of the house to the top of the foundation and subtract the width of the starter strip minus 1/4". Mark the wall, then transfer the measurement to the other corner of the wall. Snap a chalk line in between the corners at the marks.



## Outside Cornerposts

A water-resistive material should be used to flash the inside and outside corners a minimum of 10" on each side before installation of the corner posts.

### For cornerposts 12' long or less

Position the outside cornerpost so that the top of the post is 1/4" from the underside of the eave. Extend the bottom of the cornerpost 3/4" below the starter strip.

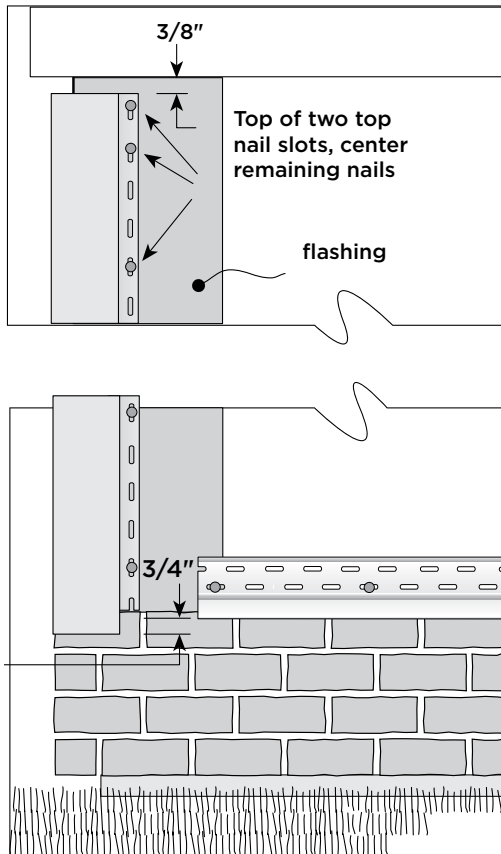
Before nailing, make sure the post is straight and true. Hang the cornerpost by first positioning a nail at the top of the topmost nail slot. Position all remaining nails in the center of nail slots a maximum of every 8" to 12". Leave 1/8" to 1/16" between the nail head and the cornerpost to allow the cornerpost to move during normal expansion and contraction. (DO NOT NAIL TIGHT.) Follow this nailing pattern on both nail flanges of each post.

### For cornerposts longer than 12' long

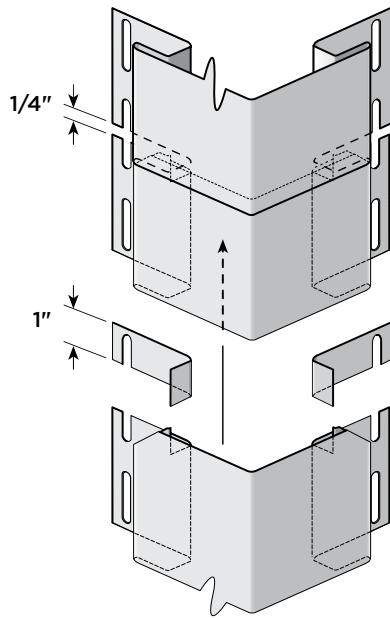
Position the outside cornerpost so that the top of the post is 3/8" from the underside of the eave. Extend the bottom of the cornerpost 3/4" below the starter strip.

Before nailing, make sure the post is straight and true. Hang the cornerpost by first positioning a nail at the top of the two top nail slots slot. Position all remaining nails in the center of nail slots a maximum of every 8" to 12". Leave 1/8" to 1/16" between the nail head and the cornerpost to allow the cornerpost to move during normal expansion and contraction. (DO NOT NAIL TIGHT.) Follow this nailing pattern on both nail flanges of each post.

**NOTE: When installing any hanging cornerpost longer than 12', position the fasteners at the top of the top two nail slots on each side of the corner.**



**NOTE:** *If the transition material allows, the bottom 3/4" of the channels may be removed from the outside cornerpost so that the face of the corner may be positioned lower and more in line with the bottom of the siding. This method creates a transition with more pleasing aesthetics. The outside cornerpost face must still maintain 3/8" or 5/8" clearance from obstructions.*



**If posts must be spliced for high walls, you have two options:**

**Option 1**

Cut 1" off the nailing flanges and back so just the face of the outside cornerpost remains. Then lap 3/4" of the upper post over the lower post, allowing 1/4" gap for expansion. This method will provide an obvious joint between the two posts, but will allow water to flow over the joint, reducing the chance of water infiltration.

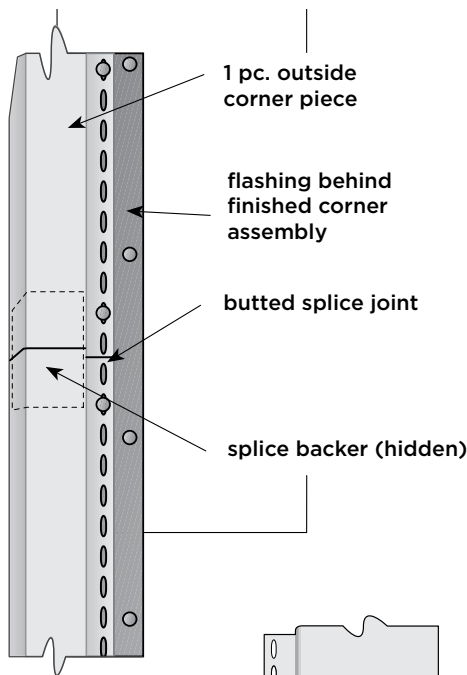
When the bottom edge of a cornerpost terminates into a porch, deck, brick, stone ledge, or roof line, etc., allow 3/8" for every 10' of corner when the ambient temperature is above 40°F; 1/2" for every 10' of corner when the ambient temperature is 40°F or below.

**NOTE:** *It is acceptable to reverse lap outside corners as long as the corners are properly flashed and water can drain from the bottom of the cornerpost.*

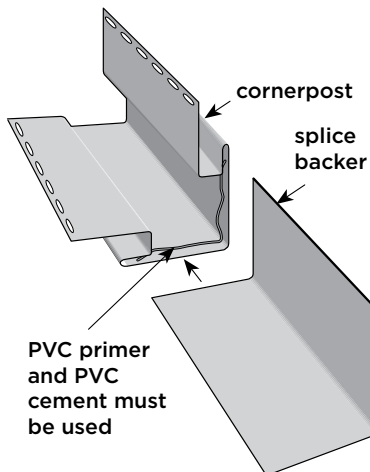
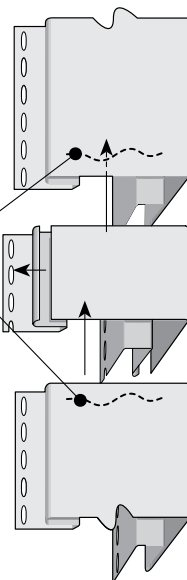
**NOTE:** *When installing XL Corners on runs exceeding 20' follow standard outside corner installation instructions, but be sure to trim back the foam to accommodate the intersection of the pieces.*

**Option 2**

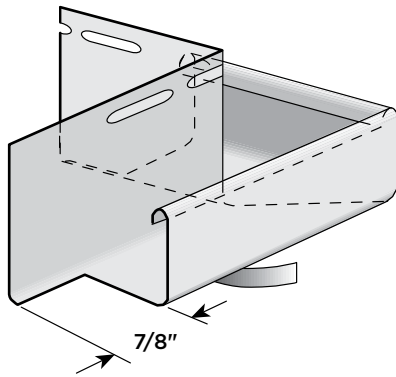
Cut a 6" length of cornerpost and trim the nail flange, receiving channel, and sides until you have just a 90° bend of vinyl. Using PVC primer and PVC cement, glue the bent piece to the inside of the upper post and lower post. Butt the two posts together. Nail the entire assembly as one post with all nails in the lower post centered in the nail slots.



PVC adhesive on backside of cornerposts



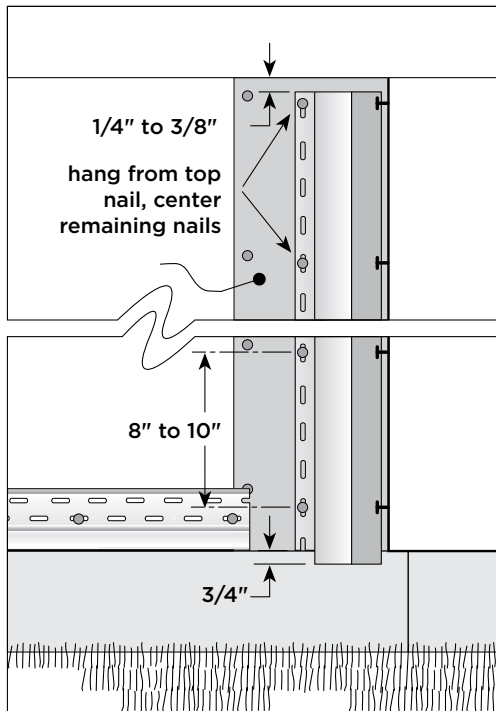
PVC primer and PVC cement must be used



### Capping an outside cornerpost

One method of capping an outside cornerpost is to cut a piece of J-Channel twice as long as the width of the corner-post face. Mark a 90° angle from the center and cut out this area. Then cut 7/8" away from each end, except for the nailing flange. Bend the J-Channel in the center and nail it to the outside of the corner of the house. Then insert the cornerpost into the J-Channel.

Another alternative is to trim the nail flange, receiving channel, and sides from the bottom 1" of the cornerpost. Notch 1" at the 90° bend, fold the bottom 1" of the cornerpost face, and fasten these "flaps" with a pop rivet.

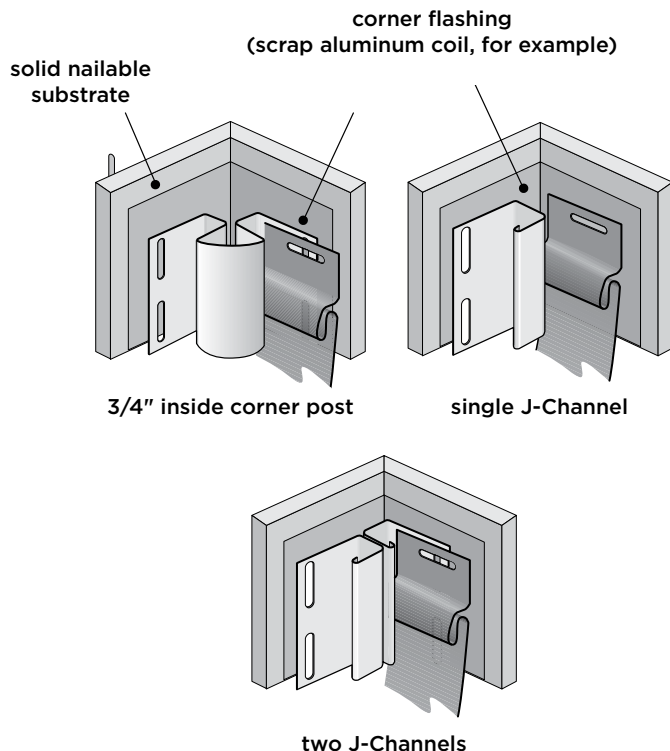


### Inside Cornerposts

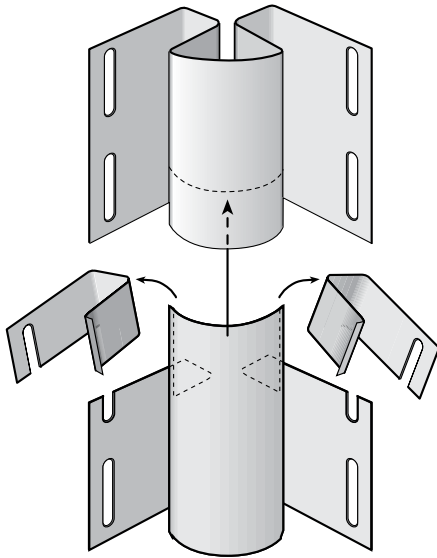
There are three options for trimming inside corners: Standard 3/4" inside cornerpost, single J-Channel, and two J-Channels.

A water-resistant material such as trim coil or self-adhering flashing should be used to flash the inside and outside corners a minimum of 10" on each side before installation of the corner posts.

To install inside cornerpost, hang the post from the top of the eave. The bottom should extend 3/4" below the starter strip. Remove the bottom 3/4" of the nailing flange so it does not show below the siding. Set the post straight and true. Position the top nail in the top of the nailing slot. All other nails should be in the center of the nail slots.



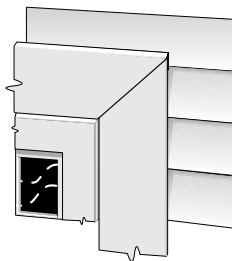
**inside cornerpost splice**



If you have to splice the inside cornerpost, cut 1" off all but the outer face of the lower post. Lap 3/4" of the upper post over the lower post, leaving 1/4" for expansion.

If you are using two pieces of J-Channel instead of an inside cornerpost, hang the J-Channel from the top of the eave. The bottom should extend 3/4" below the starter strip. Remove the bottom 3/4" of the nailing flange so that it will not show below the siding. Use the same positioning and nailing guidelines as inside cornerpost.

To create a narrower corner, you can also use a single length of J-Channel and color-matched flashing. First, install the siding on one wall. Then place the J-Channel lightly against the siding and nail it to the substrate on the adjacent wall. Follow the same positioning and nailing guidelines as inside cornerposts.

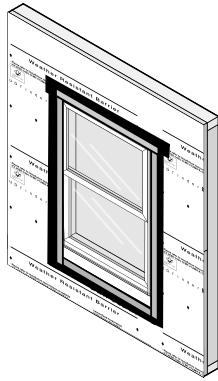


**Decorative Trim Options around Windows and Doors**

**3-1/2" Lineal system**

System requires 3-1/2" lineals and starter strips.

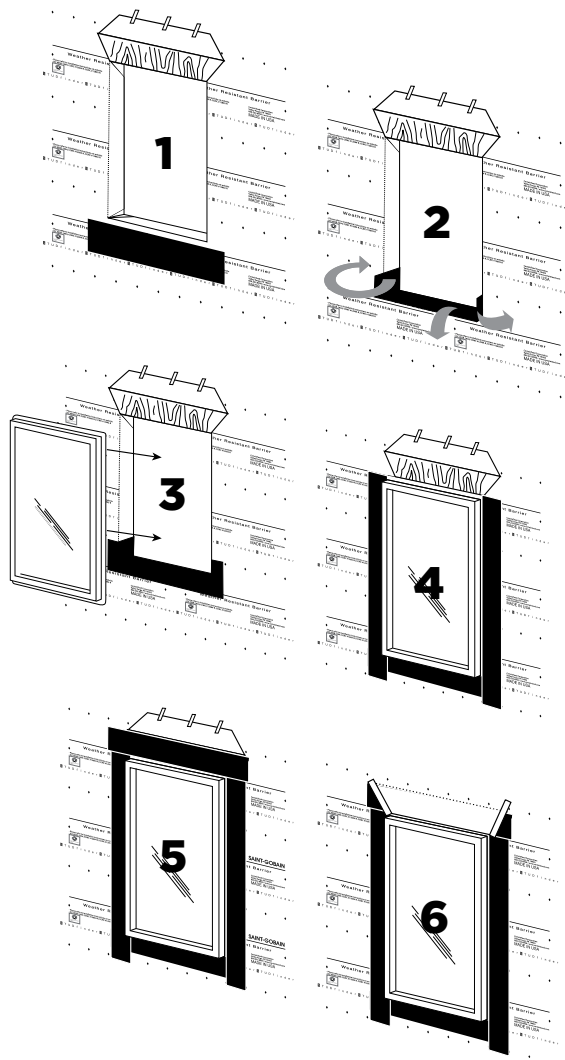
## Window Flashing



If installing a new window and flashing, refer to the window manufacturer's instructions and ASTM E2112, Standard Practice for Installation of Exterior Walls, Doors, and Skylights for the proper flashing installation method for the window type and wall configuration of the project.

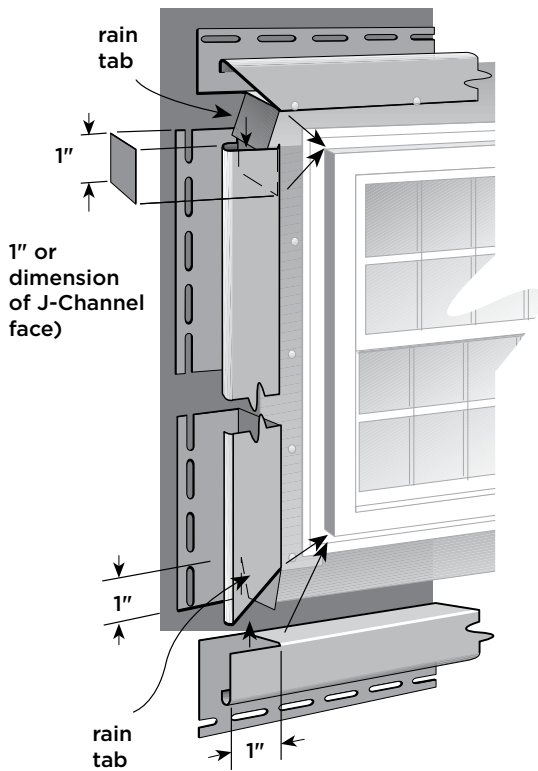
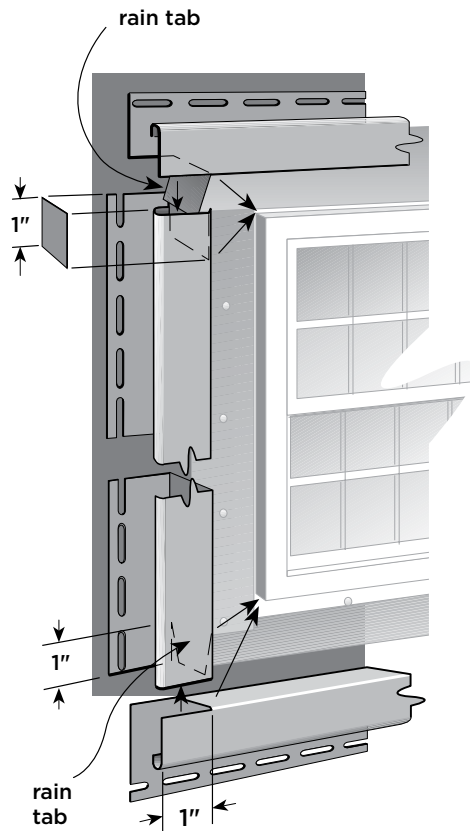
The width of all flashings is determined by the type of accessory surrounding the window and where the final complete course of siding stops below the window (in the case of the flashing under the window). The flashing should extend past the nail flanges of the accessory. The width of the flashing under the window must allow for the diversion of water.

### Installing flashing around a rectangular window



1. Make diagonal cuts in the weather-resistant barrier at the upper corners of the top (head) of the rough opening. Gently lift and tape the flap temporarily in place.
2. Cut a piece of flashing for the bottom (sill) that is 12" longer than the width of the rough opening. Remove the backer from the flashing and begin applying one end to the jamb of the rough opening 6" above the sill. (NOTE: the tape will extend over the exterior edge of the jamb.) Applying even pressure to the tape with your hands, work your way down the jamb, across the sill, and up the opposite jamb, finishing 6" above the sill. Flex the overhanging tape down onto the wall, covering the weather resistant barrier in weatherboards fashion, again applying even pressure to ensure adhesion.
3. Before installing the window, apply a continuous bead of sealant to the interior of the window's mounting flange. Install the window according to the manufacturer's instructions.
4. Cut two strips of flashing for the sides (jamb) of the window. Jamb flashing tape should extend a minimum of 3" above the top of the jambs of the window unit and a minimum of 1" beyond the bottom flashing tape installed in step #2, covering the width of the previously installed flashing at the base. Slowly peel release paper off as you press the flashing in place. Ensure the flashing covers all nails and mounting slots on the window's mounting flange.
5. Cut flashing for the top (head) of the opening so it will extend beyond both ends of the jamb flashing. Ensure the flashing covers all nails and mounting slots on the window's mounting flange.
6. Finally, lay weather resistant barrier over the head flashing. Apply tape over both diagonal cuts.





## Installing Window and Door Trim

Install J-Channel along the top and sides of door casings and around windows.

**NOTE: When installing J-Channel around replacement windows that do not have nail flanges, add flashing for greater protection against water infiltration. For an example of completed flashing, see the previous page.**

There are two methods of joining J-Channels at corners. The easiest method is to square cut the corners. For a more finished appearance, you can miter the corners. To prevent gaps, do not butt ends. Instead, lap them as shown.

### To square cut corners

Install J-Channels at the sides of the windows. Notch them as shown.

**NOTE: For best results, use aviation snips when cutting J-Channel.**

Cut the top and bottom J-Channels so the ends extend beyond the casing to the width of side J-Channels.

Place the top J-Channel along the casing shoulder and nail it to the wall.

Make two cuts in the bottom of the upper channel and bend it down to overlap the side J-Channel. Repeat for the other side. This forms a water drain and allows the J-Channel to receive siding panel.

Nail the bottom J-Channel in place. Cut the channel as previously described. Fold the rain tabs into the receiving pockets for a tighter miter joint.

### To miter cut corners

For best results, make sure you cut all J-Channels to the proper length, leaving the proper allowance for the width of the face of the J-Channel.

Square cut the bottom J-Channel so that its ends extend beyond the window casing to the width of the face of the side J-Channels. Notch the ends for clearance. Position and nail the J-Channel.

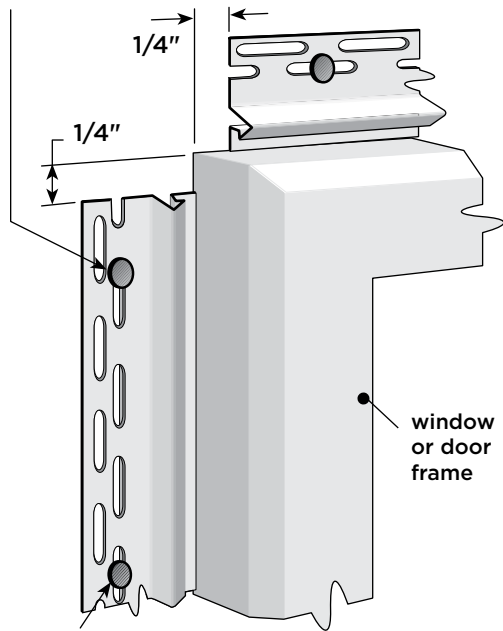
Measure the side J-Channels, adding the width of both the top and bottom J-Channels. Miter cut (45° angle) the lower ends of both side J-Channels. Notch the channel to form a rain tab, position it and nail.

Mark the top J-Channel so its ends extend beyond the casing to the width of the side J-Channels. Miter cut (45° angle) the ends. Cut and bend rain tabs. Position and nail.

**NOTE: You can create blind miters on a J-Channel using a J-Channel cutter.**

measure window and subtract 1/2"  
(leaving 1/4" per side as shown)

vertical pieces: place the uppermost nail  
in top of nail slot (still loose nailed)



remaining vertical nails and all horizontal nails:  
place in center of slots

## Lineal Starter Application for Windows and Door Surrounds

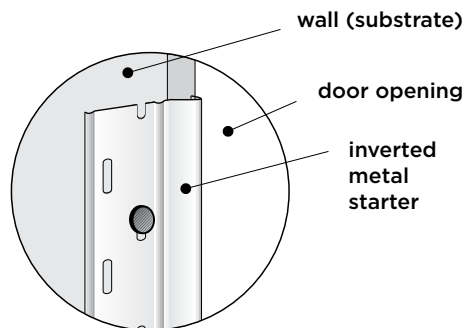
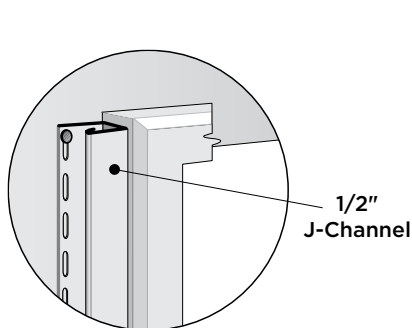
When securing window and corner starter strips, outside corner pieces (OSCP), inside corner pieces (ISCP), one piece corners, lineals—basically, any vertically mounted siding product—always place the top nail (or staple) first, and in a manner that allows the part to hang from it without dropping. This promotes movement downward only, a must for a good corner joint. This is the only time you should not center a nail (or staple). It is also preferred to use the nail slots closest to the locking area (when using product with double nail slots).

Remember to place the nails for the horizontal pieces in the center of the nailing slots as shown. Space nails 8" to 12" apart.

Follow instructions in the diagram at left. When applying starter around windows and doors, ensure that the starter butts up against the protruding door or window jamb. This will create the required friction fit between the lineal and the door or window jamb.

### Using a 1/2" J-Channel as a starter for lineals

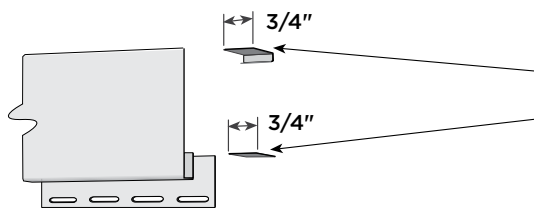
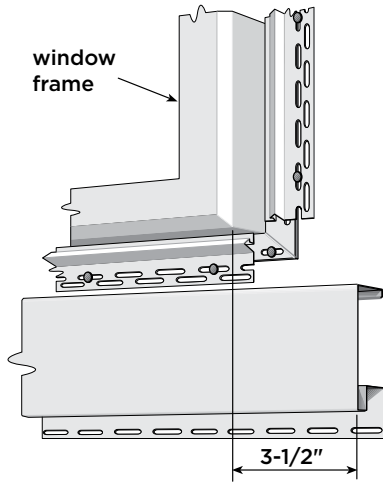
**NOTE:** Slide the lineals on from either end of the J-Channel (the lineal will not snap over the J-Channel as with a Window and Door Starter Strip), or pull the J-Channel away from the window slightly and zip the lineal into place.



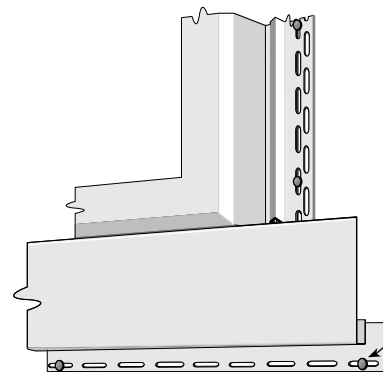
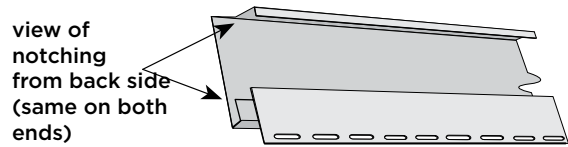
If the opening has no framework, such as a brick molding, use a metal starter in place of the Window and Door Starter Strip. The lineal's locking leg will fit behind the aluminum starter and into the receiving pocket of the Window and Door Starter.

### Lineal Application around Windows

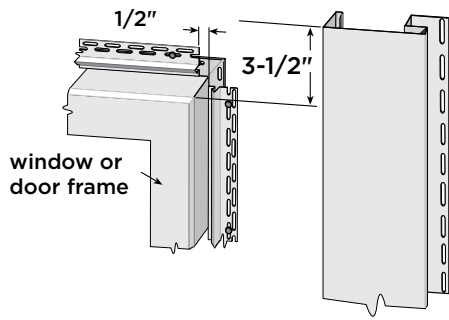
Measure the bottom of the opening and add 7" if the side lineals are also 3-1/2" (3-1/2" extra for each side equals 7").



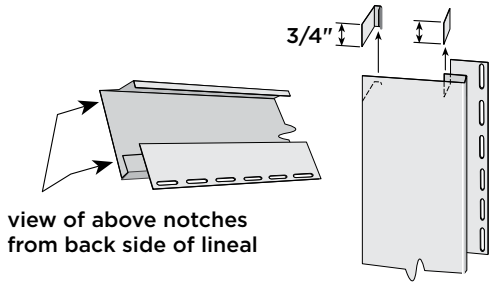
Trim 3/4" tabs from the lineal as shown.



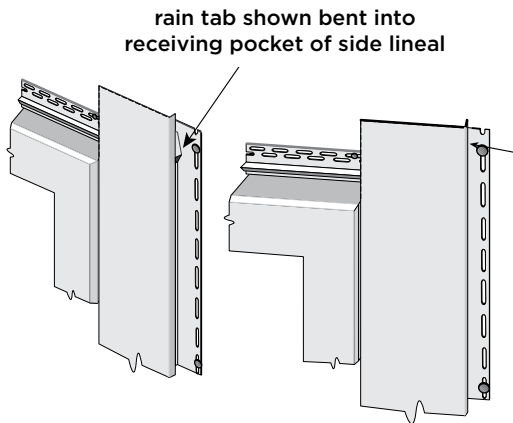
Snap the lineal in place and secure by nailing (or stapling) it through center of the nail slots.



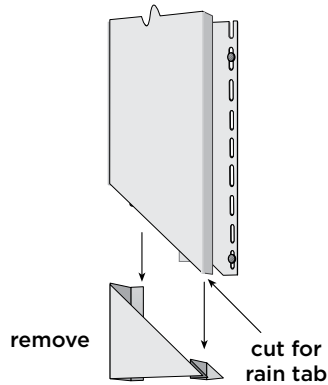
Measure the height of the window. Add 7" if using 3-1/2" lineals for the header and bottom lineal.



Trim a minimum of 3/4" from the top end of the side lineals.

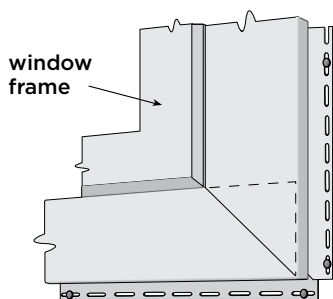


Snap the side lineals into place to check the fit.

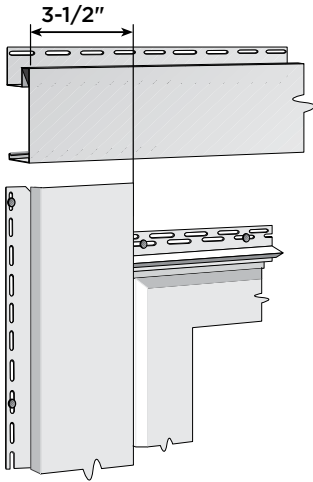


Use a triangle to create a 45° angle or measure 3-1/2" in from the locking leg.

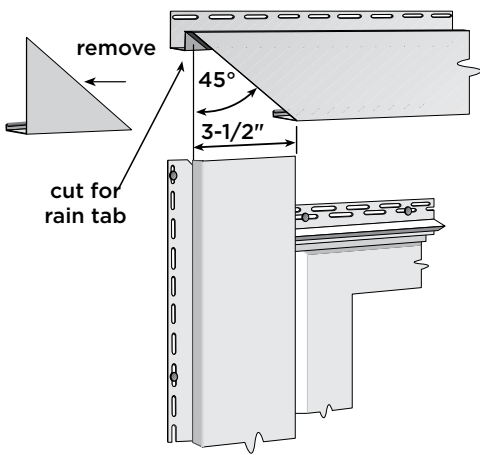
Cut a 3/4" rain tab (as shown).



Snap the side lineals into place and secure using nails or staples.



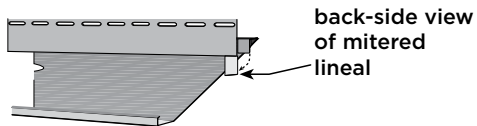
Measure the top of the opening and add 7" if the side lineals are also 3-1/2" (3-1/2" extra for each side equals 7").



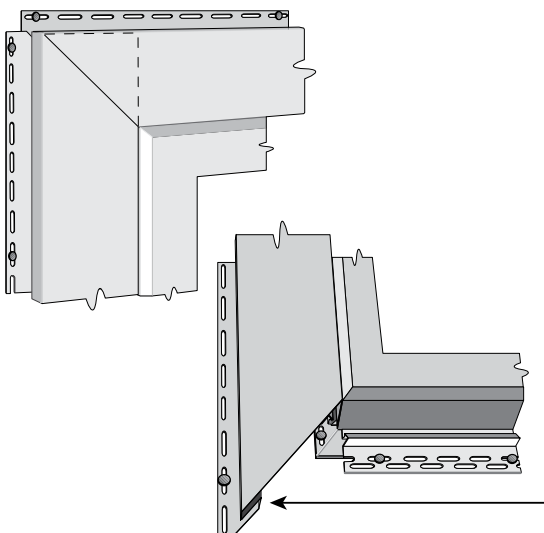
Use a triangle to create a 45° angle or measure 3-1/2" in from the locking leg.

**NOTE: The nail flange is always the longest part of a surrounding miter.**

Use snips to remove the part as shown.



Cut a 3/4" rain tab (as shown).

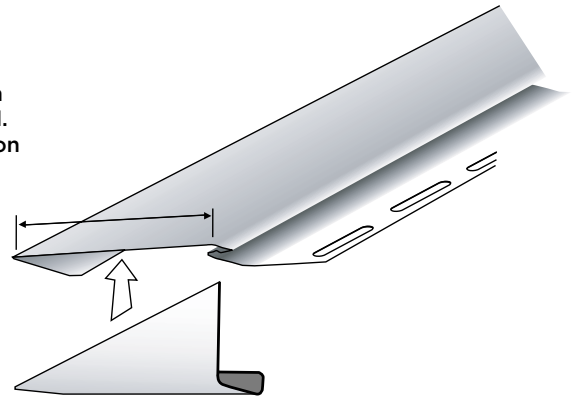
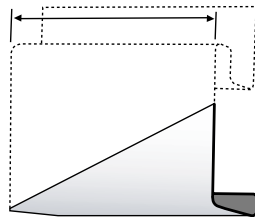


Snap the completed top lineal into the previously attached starter strip. Bend the rain tabs of the top lineal down into the receiving pocket of the side lineals.

**NOTE: The bottom miter of side lineals has the same cut as both ends of a top lineal.**

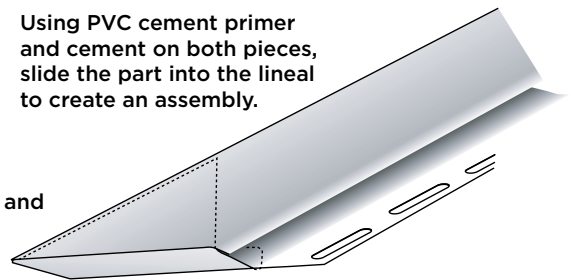
## Capping a Lineal Used as a Rake Board

Cut a section of lineal equal in length to the face of the lineal. This dimension is dependent on the rake angle.



Using PVC cement primer and cement on both pieces, slide the part into the lineal to create an assembly.

Apply the assembly to the wall and secure it, nailing as necessary.



## Finishing Siding

### Finishing siding with Utility Trim

To finish the top course of siding with utility trim, attach a utility trim to the top of the wall under the eave or soffit. Trim the top of the panel so that it fits inside of the utility trim. Use a snaplock punch every 6" across the top of the panel (punch tabs should stick out away from the wall). DO NOT alternate punch direction. Slide the panel into utility trim and test to ensure fit and hold.

## Installing J-Channel as Gable End Trim

Install J-Channel to receive siding at gable ends, as shown in the illustration. To create a clean, professional look, follow these steps:

To create an angle template, hold a piece of J-Channel against the slope while transferring the angle to another J-Channel with a pencil.

Next, transfer the angle of the template to the end of a length of J-Channel. Be sure to extend the line onto the nail flange. Cut away the channel face and the nail flange.

Turn the pattern over and transfer the opposite angle to the second J-Channel, being sure to extend the line onto the nail flange. Cut away the nail flange and return lip, but do not cut the J-Channel face.

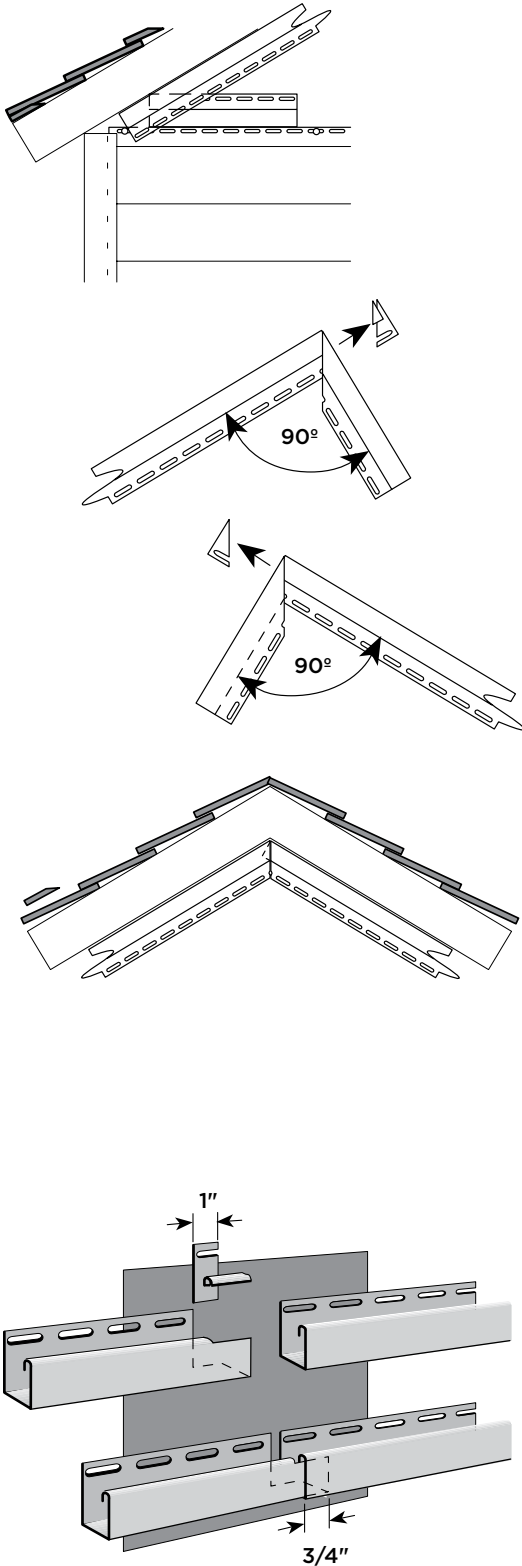
Insert the full-faced J-Channel into the mitered J-Channel. If the nail flange or return lips butt and prevent a tight fit, trim off additional material from the second J-Channel.

**NOTE:** For a more decorative appearance, you also can use 3-1/2" lineals to trim gable ends (see next page for details).

### To splice the J-Channel, follow these steps:

Cut out a 1" section of the nailing flange and face return as shown.

Install inverted J-Channel along the top of the wall, under the eave. Here again, leave a 1/4" gap between the J-Channel and the cornerposts. Overlap the J-Channel 3/4" to allow for expansion. When positioning the upper J-Channel, be sure to allow for expansion of the siding panel. In most cases, position the J-Channel at a point equal to the length of the panel plus 5/8" (1/4" for upper expansion and 3/8" for lower expansion).



### Using Lineals as Gable Trim

You can give gable end trim a more dramatic appearance by using 3-1/2" lineals instead of J-Channel.

#### To install the lineals:

Make a pattern duplicating the gable slope. To create an angle template, lock a piece of lineal into the previous course of siding or other gable starter. Hold a second piece of lineal or starter against the slope and transfer the angle with a pencil.

Transfer the angle of the template to the end of a length of lineal. Cut away the lineal face and nail flange.

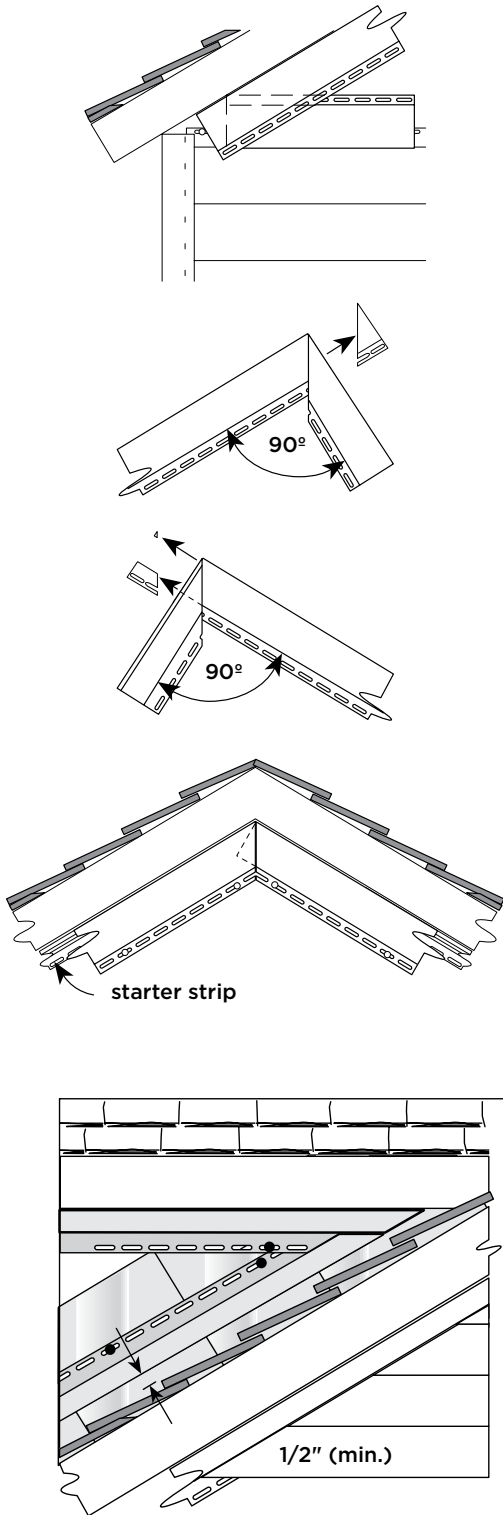
Turn the pattern over and transfer the opposite angle to the second lineal. Trim the nail flange and receiving channel from the opposite lineal to this line. Do not cut the lineal face.

Insert the full-faced lineal into the mitered lineal. If the nail flange or return lips butt and prevent a tight fit, trim off additional material from the second lineal.

#### Installing trim at roof line

To prevent water infiltration along the intersection of roof and wall, install flashing before installing J-Channel. At points where vinyl siding and accessories will meet at a roof line—such as areas where a gable dormer or a second story side wall intersect with the roof—it's best to position the J-Channel so it is a minimum of 1/2" away from the roof line. Placing the J-Channel directly on the roof line will subject it to a build-up of heat, which could result in excessive expansion.

**NOTE:** If you use more than one length of J-Channel to span a wall surface, be sure to overlap them 3/4".



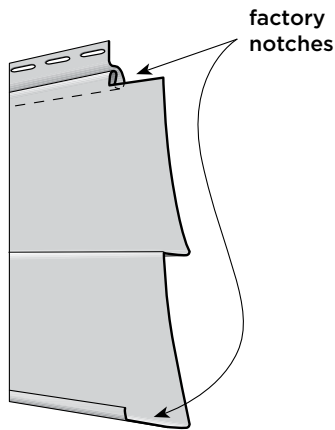


## SECTION 8 — INSTALLING HORIZONTAL SIDING

### Top Ten Tips for Installing Vinyl Siding

Wolverine provides quality vinyl siding and accessories that are backed by one of the industry's best warranties. However, even the best products fall short of expectations if they are not installed properly. Following these ten recommendations—the basics of a professional installation—can help ensure a quality installation that fulfills homeowners' expectations and reduces call backs.

1. Install all siding and accessories over a smooth, flat surface. Always install siding over a rigid sheathing, and never install it over open studs.
2. Vinyl siding is not a watertight material. Install a weather-resistant barrier and flash around all windows and doors before installing vinyl siding and trim.
3. There are three recommended ways to cut vinyl siding: For rip cuts, score the panel with a knife or vinyl blade and bend the panel back and forth. Use aviation snips or shears to fit panels around windows and doors. For cross cuts, use a circular saw with a plywood blade in the reverse position.
4. Always leave room for expansion and contraction into receiving channels like outside cornerposts, inside cornerposts, and J-Channel. If the temperature is above 40°, leave 1/4"; if the temperature is below 40°, leave 3/8".
5. When installing horizontal vinyl siding panels 12' 6" in length or shorter, overlap the factory notches 1" to 1-1/4" (depending on the temperature).
6. Always nail in the center of the nail slots: 16" on center for siding; 8" to 12" for accessories.
7. DO NOT NAIL TIGHT! Always leave 1/8" to 1/16" between the nail head and the wall surface to allow for movement when the panel expands and contracts.
8. Hang vertical accessories from the top of the top nail slot. If the accessory is longer than 12', hang it from the top two nail slots.
9. Lap away from the highest traffic pattern, typically the front of the house. Keep laps at least 3' apart from course to course, and install three courses between laps above each other.
10. Finish the last piece of siding into utility trim.



## Cutting Panels

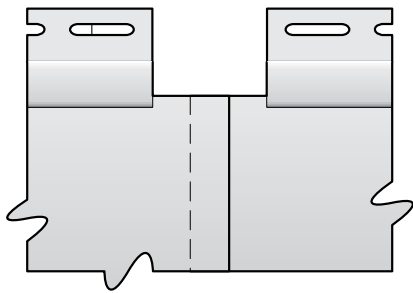
To cut panels to size, follow these procedures:

### Cross cuts

For a precise cut, use a power circular saw equipped with a sharp, fine-tooth plywood blade. For best results, reverse blade direction.

Cut one or two panels at a time, carefully advancing the saw through the vinyl. A rule of thumb: The lower the temperature, the slower the feed rate.

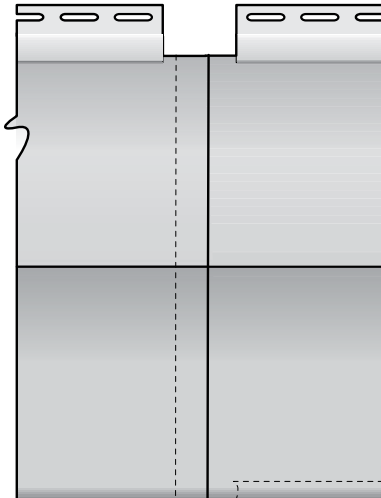
Panels can also be cut with snips. Use a square to mark the cut line. Start the cut at the top lock and continue to the bottom of the panel.



### Rip cuts

Use a utility knife to score the panel along the cut line. Bend the panel back and forth along the score line until it snaps apart cleanly.

Use a combination of tin snips and utility knife to cut panels to fit around windows and doors.



### Overlapping Panels

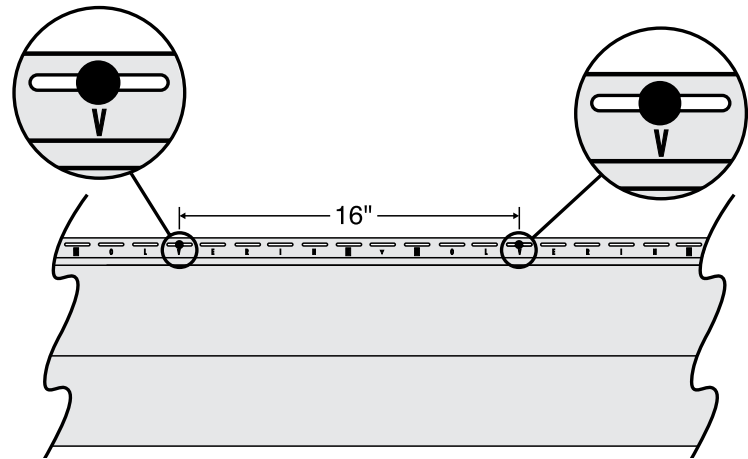
Refer to the chart on page 24-25 for required overlap spacing.

**NOTE: Whenever you cut a panel to be used in an overlap area, you also have to duplicate the factory notch at both the top and bottom of the cut end.**

## Wolverine Stud Locator Installation System for 12' Panels

The Wolverine Stud Locator Installation System combines precisely engineered nail slot locations with graphics to help ensure quick, accurate and secure installation of Wolverine siding panels on homes with standard 16" or 24" o.c. frame construction.

**NOTE:** *In areas without special wind-load requirements, some vinyl siding may be used in 24" o.c. construction. Check with your local building code official for special requirements.*



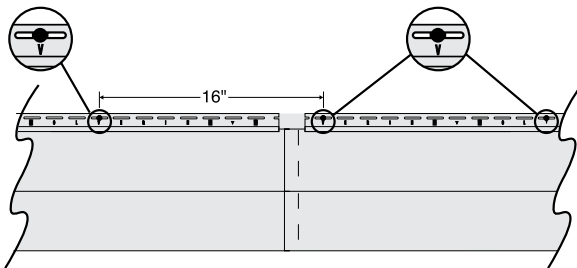
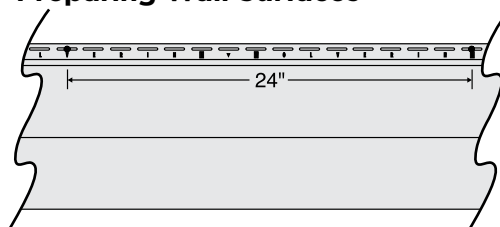
Standard 12' panels feature 10 nail slots every 16", with one of the 10 letters in the word "W-O-L-V-E-R-I-N-E-▼" centered directly under each slot. Locate the first stud and fasten the siding to it in the center of the nail slot. Notice which Wolverine Stud Locator letter appears below the slot.

Go to the next repeat of the letter to find the next stud. For example, if your first stud is at "V," succeeding studs in 16" o.c. applications will also be at "V" (every 10th slot).

When you apply the next panel, adjust the overlap as necessary to line up with studs and repeat the steps above, but be aware that the overlapping panels may not use the same letter as your initial panel.

In 24" o.c. applications with standard size siding panels, 2 letters will repeat every other stud (every 15th slot). For example, if the first stud is located at "V," then the next will be at "E," then "V," etc.

### Preparing Wall Surfaces



The key to successful vinyl siding application is proper preparation of the nailing surface. It is essential that you work over a smooth nailing surface. The more level and even the wall surface, the better the finished installation will look.

The steps involved in preparation differ for new homes and old, so choose the instructions (pages 19 to 25) that pertain to your project.

### Installing the first course

It's important to work with care and planning as you install siding panels. This is especially true when you're installing the first course of siding. (See pages 22 to 24 for fastening methods.)

For best results, follow these guidelines:

The key to creating a visually attractive installation is to lap away from areas where people normally walk or gather. For example, on the front wall, work from the corners to the entrance door (so overlaps face away from door).

On side walls, work from the rear corners toward the front. This approach minimizes the effect of lapping and produces the best appearance. Keep lap appearance in mind throughout installation.

**NOTE: Lap appearance is also improved when you avoid using panels less than 3' long.**

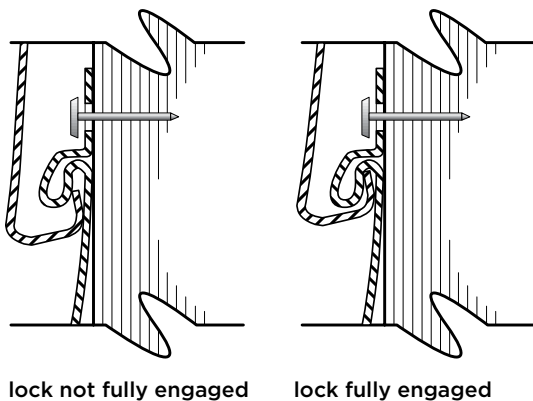
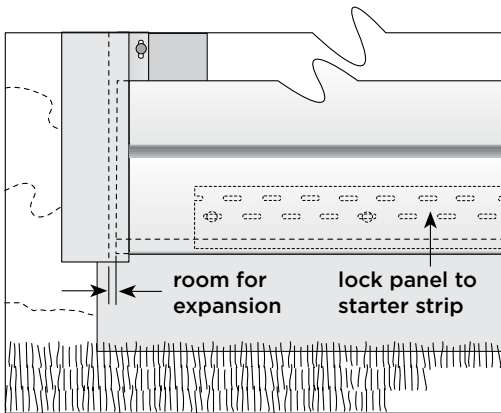
Slide the first panel into the cornerpost recess. Leave room for expansion (see pages 24 to 25 for spacing requirements).

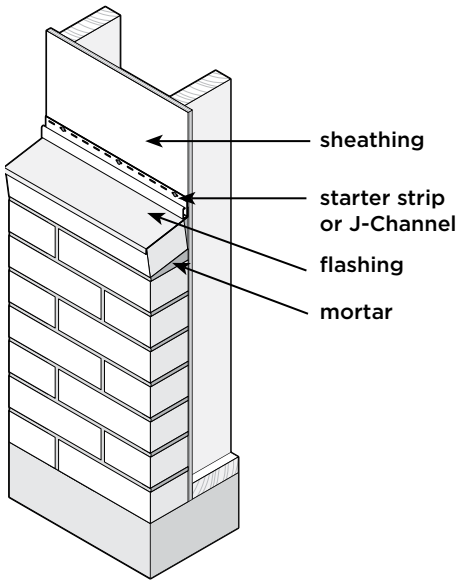
Hook the bottom lock of the panel into the interlock bead of the starter strip by applying upward pressure.

Before nailing, double check to make certain you've locked the panel along its entire length. A slight upward pressure may be required to snap the interlock securely. Don't force the lock too tightly, however. You may distort your laps. Nail properly. Also, make certain the panel can slide freely. Start at the center of the panel and work out. **Also see *Nail Spacing and Product Expansion and Contraction* on pages 24-25.**

Install the remaining starter course panels, overlapping panel ends (see pages 24 to 25 for overlapping requirements). The last nail should be at least 2" to 4" from the end of the panel to allow for a neat lap.

Remember to leave room for expansion when fitting panels into remaining inside and outside cornerposts.





### Transitioning from brick, stone, or stucco to vinyl siding

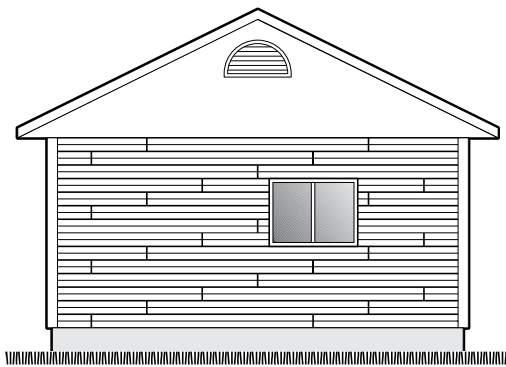
To transition from brick, stone, or stucco to vinyl siding:

- Caulk where the sheathing meets the brick, stone, or stucco. Caulk the flashing, and make sure a drip cap is in place.
- Use J-Channel or starter strip to receive the siding when installing horizontal siding. If you use starter strip, leave 3/4" clearance so that the siding can engage securely.
- When installing vertical siding, use J-Channel to receive the siding.

### Installing remaining courses

To ensure best appearance, position the laps to avoid unsightly joint patterns. The illustration at left shows a well-planned staggering of panel joints. Follow these guidelines:

- Separate joints by at least two courses.
- Avoid joints above and below windows.
- Leave at least 3' separating joints on successive courses.
- Use short cutoff lengths for fitting at narrow openings between windows.
- Follow the planned pattern when applying the next courses of siding.



### Fitting around windows

For best aesthetics, and to avoid potential panel-to-panel interference: separate the vertical alignment of joints by at least two courses, avoid joints directly above or below windows and leave at least 3" separating joints on successive courses.

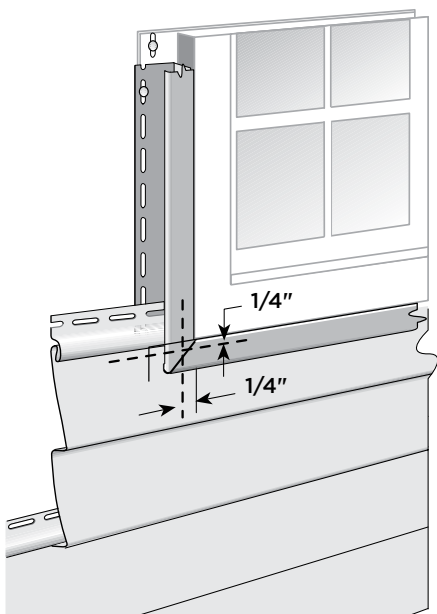
You'll probably have to cut panels to fit under windows. To make this task easier, plan panel positioning as shown at left so a single panel extends beyond both sides of window opening. Follow these steps to measure and cut panels:

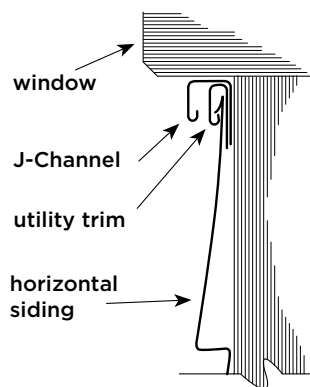
Hold the panel in place and mark the width of the window opening. Add 1/4"-3/8" to both ends to allow for expansion. The resulting marks show the location of vertical cuts. Extend the marks onto the panel using a square.

Create a template for the horizontal cut using a small piece of scrap siding. Lock this piece into the lower panel and mark 1/4" below the sill height. This provides clearance for utility trim. Repeat the procedure on the opposite side of the window. (You can't assume windows will be perfectly level.)

Transfer the marks from the template to the panel. Connect marks using a straightedge.

Cut the panel, using tin snips to make vertical cuts and a utility knife to make the horizontal cut.





### Install panel

If necessary to maintain the slope angle, install furring under the sill as described on page 20.

Use a snap lock punch to raise tab faces on the outside of the panel. Punch out a tab every 6".

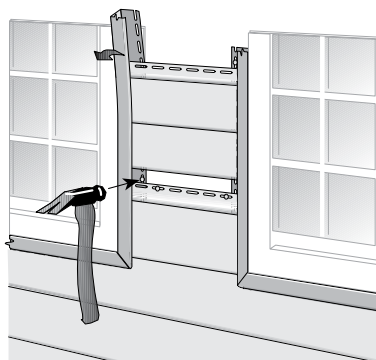
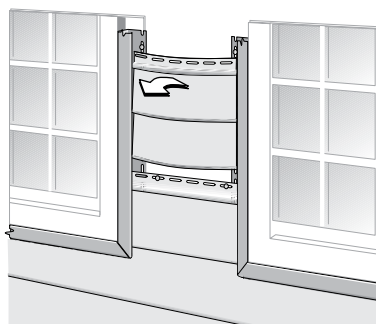
Push the horizontal edge of the cut into utility trim. Slide vertical edges of cut into J-Channels at window sides. Make certain the installed panel locks into the panel below.

### Fitting over windows and doors

The procedure for cutting panels for installation over windows and doors is similar to that explained earlier.

If necessary to maintain the slope angle, install furring above the window or door as explained on page 21.

Drop the panel into position, making certain it fits into the utility trim and J-Channel at the top and J-Channel at the sides. Interlock the panel with the siding panels below.

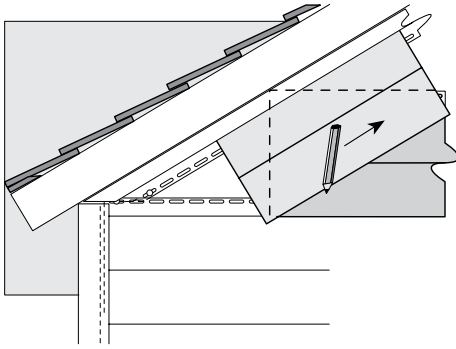


### Fitting at narrow openings between windows

To simplify installation in areas such as that shown in the illustration, install J-Channel on both sides of opening.

Bow the panel toward you and slip it into the channel, or slide them down from the opening at the top of the windows.

If the area is very narrow, leave one J-Channel unnailed except at the lowest point (as shown). Bend this channel out slightly to insert panel. When the panel is in place and nailed, nail the J-Channel immediately above the panel and repeat the procedure. Be sure to leave adequate tolerances for expansion and contraction.



### Fitting at gable ends

Make a pattern duplicating the gable slope. Use this pattern to guide the cutting of panels to fit gable ends.

To make pattern:

Lock a short piece of siding into the panel gable starter course as shown in the illustration.

Hold a second piece of siding against the J-Channel at the slope.

Run a pencil along edge of this piece, transferring the slope angle to the first piece of siding.

Cut along the line using a power saw or tin snips. Use the resulting pattern to mark siding panels before cutting.

**NOTE: Double-check the angle on the pattern at every course. If necessary, cut a new pattern.**

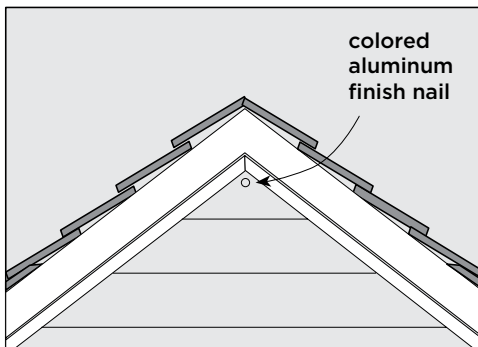
To install cut panels:

Slip the angled end of the panel into J-Channel along the gable edge. Leave space for expansion.

Interlock with the siding panel below.

If necessary to securely fasten the last panel at the gable peak, face nail as shown in illustration. This is the only place you will face nail. Use a 1-1/4" to 1-1/2" aluminum nail with painted head.

**NOTE: Do not cover louvers in gables.**



### Fitting under soffit

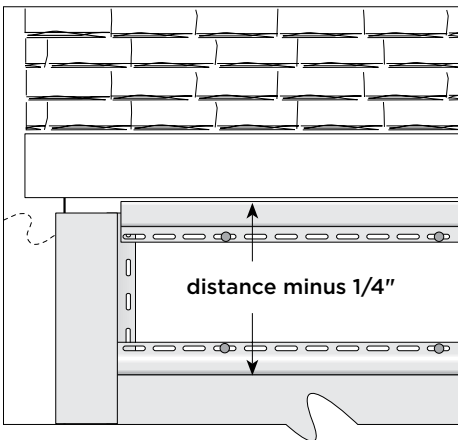
When you reach the last course of siding, you will probably have to rip cut panels lengthwise to fit under soffit.

**NOTE: If necessary to ensure proper panel slope angle, make certain to furr out this area.**

To cut and install this last course:

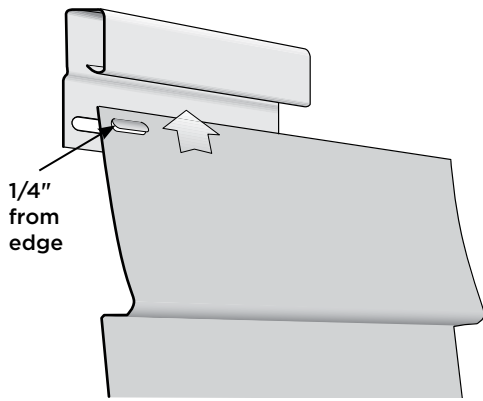
Install J-Channel and utility trim.

**NOTE: When applying one accessory over another, align accessories to line up nail slots, or make new slots to avoid pinning the underlying accessory.**



Measure from the soffit to the base of upper lock on the previous course of panels. Subtract 1/4". Mark this dimension on the panel to be cut, taking the measurement from the bottom edge of panel. For a more precise cut, repeat this procedure at several other points along the span to be covered by the panel.

Using a square or straightedge, draw a pencil line connecting these points. Then score along the line with a utility knife. Bend the panel back and forth until it snaps. Use a snap lock punch to create tabs on the outside face of the panel, 1/4" below the cut edge. Space tabs every 6".



To install, lock the bottom of the cut panel into the panel below. Push the top edge into J-Channel or utility trim. Tabs will catch in the trim and hold the panel firmly in place.

**NOTE:** *Since you will not nail this last course, it is important that the tabs fit properly in the trim to provide support while allowing movement for expansion.*

## Completion

### Attaching objects to siding

All external products (downspouts, shutters, and lights, for example) are attached to walls after you've applied the vinyl siding.

**NOTE:** *All external fixtures must be attached to a solid backing (such as exterior grade plywood) to provide a secure mounting surface. Never attach a fixture directly to vinyl siding.*

When installing external products, you must allow for expansion and contraction of siding.

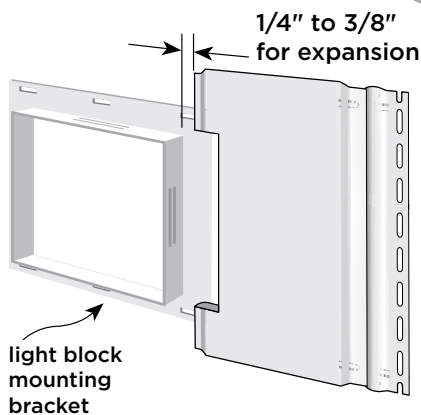
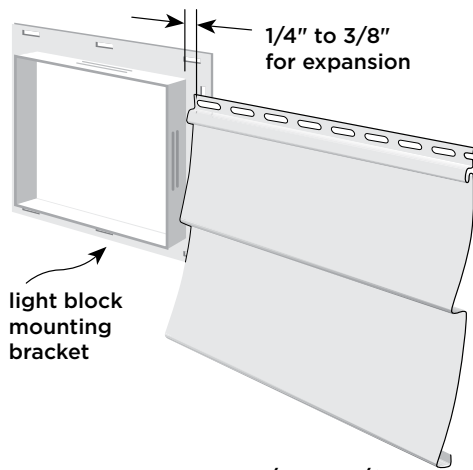
You can allow for this movement in two ways:

The most convenient way to attach light fixtures is with light blocks. Because they contain receiving channels to hold siding panels, light blocks provide a simple way to allow for expansion.

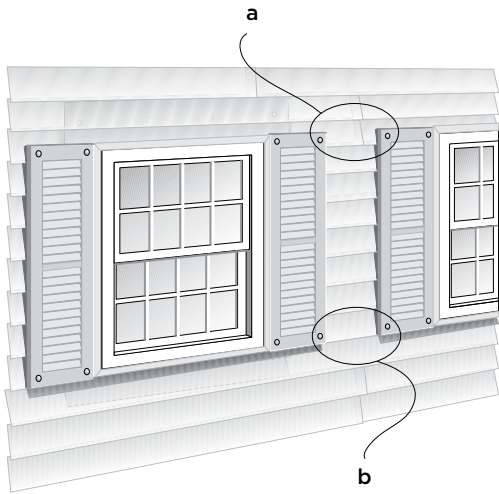
When attaching other fixtures, drill holes in the siding 1/4" larger than the diameter of screws, bolts, or nails being used to fasten objects. This provides adequate clearance so the siding can move freely underneath attached objects. When attaching objects, do not fasten tightly. It is also recommended that you apply caulk around the screws.

### Fitting at light blocks

When cutting panels to fit at a light block, be sure to allow for expansion. Allow 1/4" to 3/8" for expansion for horizontal siding. For light block with vertical siding, it should be 1/4" to 3/8" at the side and 1/2" on top of the block.







## Shutter Installation

The ideal application (a) has a joint between the two shutters where the shutters are secured to the home. In this way, the siding panel is not pinned between the two shutters and the siding is allowed free movement.

When there is no joint between the shutters and when the shutters are secured to the home (b), the shutters' fasteners do not allow the siding panel to move. The siding panel then fails to perform because it cannot expand or contract with the temperature changes.

To prevent this, enlarge the holes in the siding for securing the shutter—the hole should be 1/4" larger than the shank of the fastener.

If possible, stagger the screws securing the shutter so that they do not line up on the same panel. It is also a good idea to apply caulk around the screws.

**NOTE:** See page 45 for fitting siding into narrow openings.

# SECTION 9 — INSTALLING BOARD & BATTEN VERTICAL SIDING

## Single 7" Board & Batten

### Preparing Wall Surfaces

For the most part, the wall preparation instructions given for horizontal siding also apply to vertical applications. The key requirement, of course, is that you start with a smooth, level and rigid substrate (plywood, wood composite, rigid foam or fiber sheathing).

**NOTE: Never install vinyl siding over open furring strips or studs. Always check with your local building code official.**

With vertical siding, however, you may have to complete an extra step to provide solid nailing points along the vertical edge of the siding panel. The need for this added step depends on the type of substrate used and the nature of the construction project.

With new construction or remodeling using plywood or wood composite, (7/16" min. thickness) there are no additional steps. You can nail into plywood and wood composite substrates at any point as long as you do not exceed 12" on center.

In new construction using rigid foam or fiber sheathing, you must install solid wood nailer strips horizontally to studs **before** applying sheathing. Use 1" x 3" wood furring positioned 12" o.c.

When remodeling over existing wood siding, you must apply rigid foam or fiber sheathing, shimming if necessary to create a level surface.

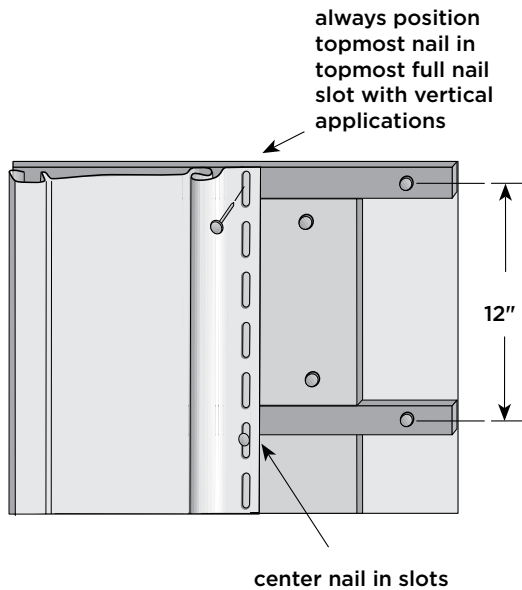
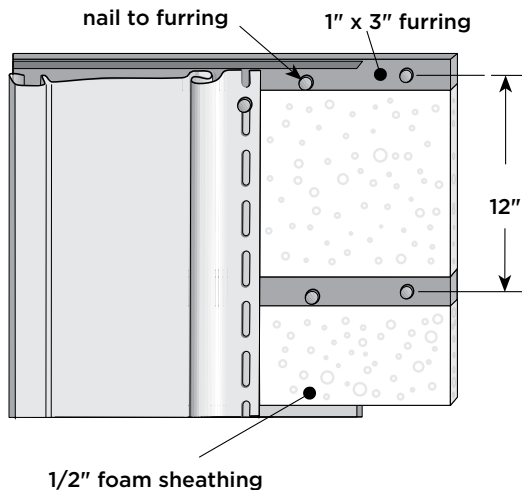
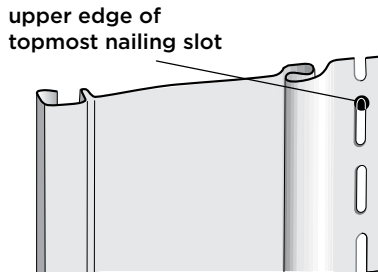
When remodeling over brick, block, stucco or irregular wall surfaces, apply furring strips horizontally to create a level surface; then apply rigid foam or fiber sheathing. See "Tips for applying wood furring" on pages 20-21 and "Applying over stucco" on page 21. When reviewing the illustrations for those sections, remember that furring strips must be applied horizontally.

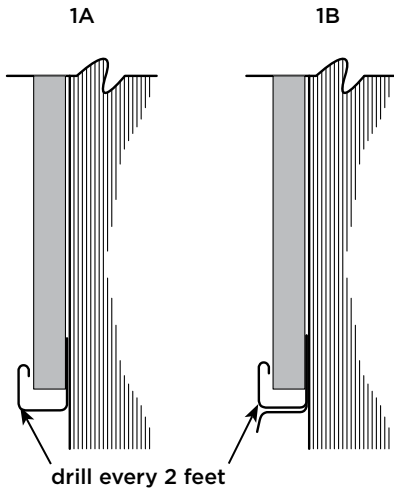
**Also see Nail Spacing and Product Expansion and Contraction on pages 24-25.**

### Marking a base line

The procedure is virtually the same as that described earlier. However, instead of snapping a chalk line 2-1/4" above the low point, snap it 1" above the low point.

**NOTE: When installing vertical siding in high wind areas, position the fasteners at the top two nail slots of the panel.**





### Cornerposts

Install outside and inside cornerposts using dimensions and procedures described on pages 40-43.

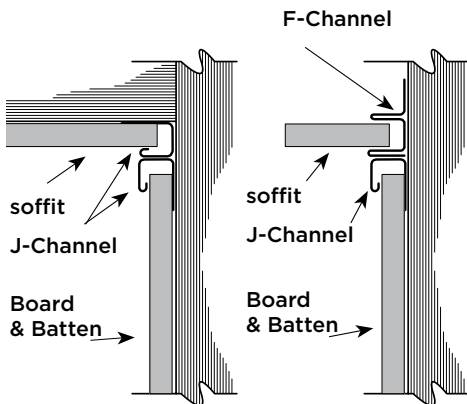
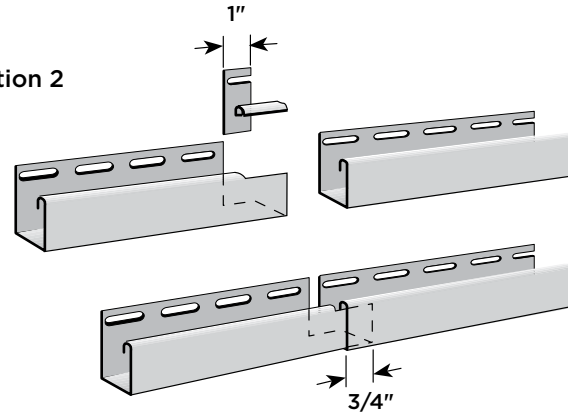
**NOTE:** Unlike the preparation for horizontal siding, do not install a starter strip for vertical siding.

### Top and Bottom J-Channel

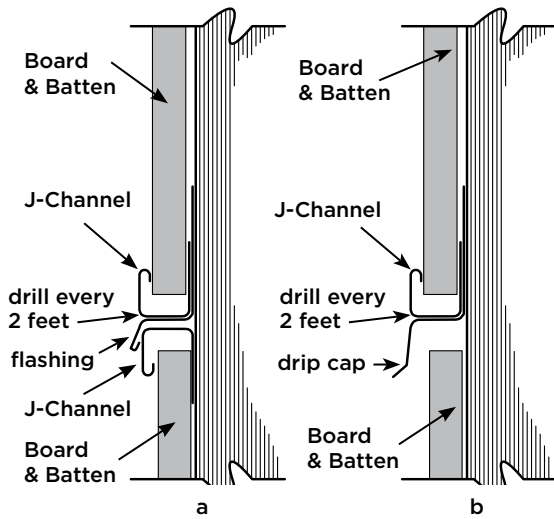
Snap a base line 1" above the low part of the house. Apply J-Channel along the top and bottom of the walls to receive the siding panels. Drill drainage holes every 2 feet along the face of the bottom J-Channel prior to installation. Install the bottom J-Channel (illustration 1A). Overlap J-Channels 3/4". To do this, cut out a 1" section of the nailing flange and face return (see illustration 2).

If you prefer to use drip flashing with the J-Channel along the bottom of the wall, fabricate the lengths you'll need from aluminum coil stock of a color to match the siding (see illustration 1B).

Illustration 2



Install inverted J-Channel along the top of the wall, under the eave. Here again, leave a 1/4" gap between J-Channel and cornerposts. Overlap J-Channels 3/4" to allow for expansion. When positioning the upper J-Channel, be sure to allow for expansion of the siding panel. In most cases, position the J-Channel at a point equal to the length of the panel plus 5/8" (1/4" for upper expansion and 3/8" for lower expansion)..



### If using J-Channel

Snap a chalk line parallel to the bottom J-Channel, at a height equal to the length of the lower panel plus an allowance for expansion. For example, if the lower panel is 120" long and you're adding 1/2" for expansion (because the temperature is above 40°F), you strike a line 120-1/2" from the bottom J-Channel. Nail inverted J-Channel along this line to receive panels from below. Leave a 1/4" gap between J-Channel and cornerposts. Overlap the J-Channels 3/4".

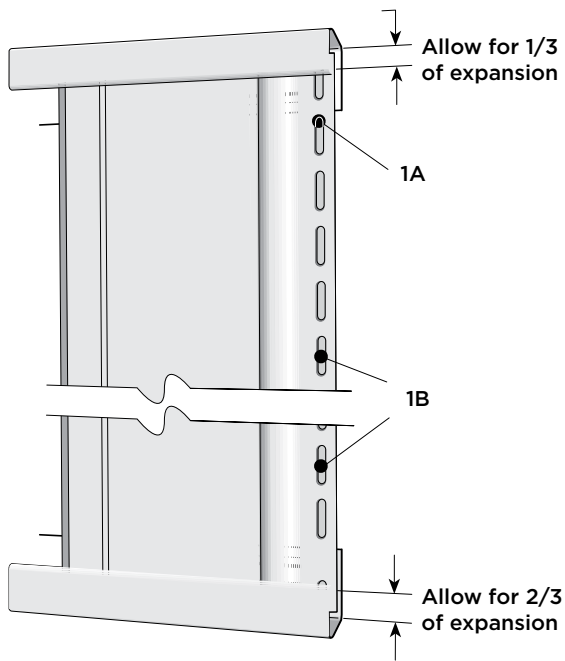
Prepare for the second course by applying head flashing above the just-installed J-Channel. Then nail J-Channel over the flashing to receive the upper panel.

**NOTE: Some installers prefer to use formed aluminum flashing in place of vinyl drip cap as the receiving channel for the lower panel. This is an acceptable approach.**

### Plan the panel layout

Correctly installed vertical siding should have a balanced appearance. This means that if you were to draw a vertical line down the center point of a wall, you'd have an equal number of panels to the right and left. If you had to trim panels to fit, the end-most panels would be of identical width.

To create this pleasing appearance, divide the space to be covered by a partial panel over both ends of a wall. For example, if a wall required 25 full panels plus 10", you would rip cut two 5" lengths of panel to create the end pieces.



## Expansion and contraction

**In a vertical siding installation, most of the expansion is downward. So instead of allowing equal space for expansion at both ends of a vertical panel, leave more space at the lower end: allow for 1/3 of the total expansion at the top of a panel and 2/3 of the total expansion at the bottom.**

For example, if the total expansion equals 3/4" (3/8" + 3/8"), allow 1/4" at the top and 1/2" at the bottom. If the total expansion equals 1/2" (1/4" + 1/4"), allow 3/16" at the top and 5/16" at the bottom.

**NOTE: Always position top most nail at the top of the top most full nail slot (1a). Center the remaining nails in the slots (1b). When installing siding or accessories vertically, make sure the bottom of the panel can expand downward without interference.**

Cut the first of the partial panels (if partial panels are necessary). Mark the cut line by measuring from the nail hem edge. Rip cut the panel. Do not cut off the nail hem. Use a snap lock punch to create locking tabs along the cut edge. Space the tabs 6" apart.

Before installing this partial panel into the outside cornerpost, provide additional support at the cut edge to compensate for the locking channel that was trimmed off.

To do this, insert furring into the channel of the outside cornerpost and nail it to the substrate. After furring, insert a length of utility trim into the cornerpost and nail it to the furring. Finally, slide the cut edge of the panel into the utility trim, making sure to engage the snap locks (see illustration).

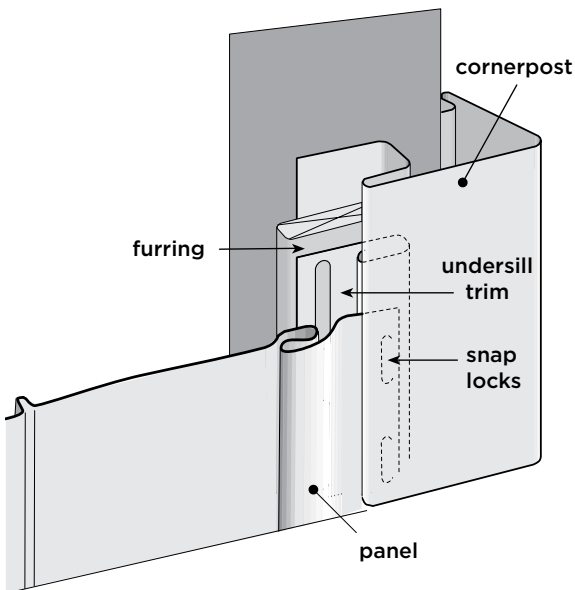
**NOTE: When applying overlapping materials, you may have to make new slots to avoid pinning the underlying accessory.**

Using a level, make certain this panel is plumb. Nail every 12". Follow the same nailing procedures described for horizontal siding.

Install the next panel. Lock the panel into the preceding panel, then nail every 12". Continue with succeeding panels.

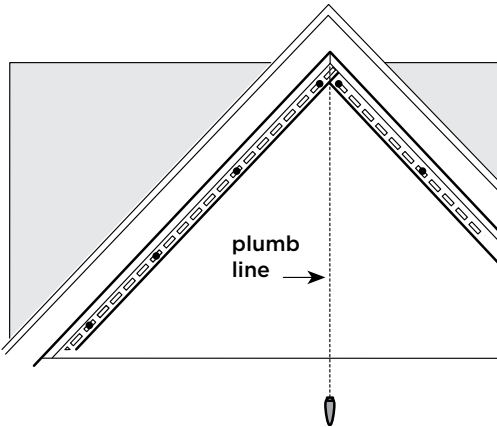
When necessary, cut panels to fit around doors and windows. When marking the cut, remember to allow for expansion.

The method used to install panels around doors and windows is determined by the need to cut a panel and the position of that cut. If a cut was made next to a remaining V-groove, insert the panel into the J-Channel. If a cut removes the support provided by a V-groove, use the procedure described above to provide support for the trimmed edge.



To finish the first course of a wall, cut the final panel to size and install it in an outside cornerpost, using the method described above.

**NOTE: The cutting and supporting procedure described above is also used when fitting panels into inside cornerposts.**



### Installing Gable End Panels

When installing vertical or Board & Batten siding on a gable end wall, you should try to create a balanced appearance.

There are two ways to do this:

You can start from the center of the wall and work toward the sides. Begin by finding the center point of the wall (beneath the peak) and draw a plumb line. Nail two lengths of J-Channel, back to back, along this line. Be sure to flash underneath the J-Channel to help prevent water damage due to water between the J-Channels. Cut the upper end of the first panel to the proper height and slope. Remember to allow for expansion.

**NOTE: To guide the cutting of the upper end of the panel, make a pattern duplicating the gable slope.**

Insert the panel into the J-Channel along the gable slope.

Use a level to make certain the panel is plumb. Nail every 12". Continue cutting and installing panels. Then repeat the procedure on the remaining half of the gable end.

If you want to work from one end of the wall to the other, begin by centering a panel under the center of the peak. Mark the position of the panel on the wall, then measure the distance from the left (or right) cornerpost to mark for the left (or right) edge of the center panel.

If you need a partial panel, cut it and install it at the cornerpost. Cut the upper end of the panels to proper height and slope, following the procedure described above. Remember to allow for expansion.

## SECTION 10 — INSTALLING HEARTWOOD PRO SINGLE 7" SHINGLES

### Heartwood PRO Single 7" Perfection Shingle Siding

**NOTE:** This product is not designed for roof application. It is designed solely for installation on vertical surfaces. Panels must be installed with nails over a solid substrate with nail holding strength such as plywood, oriented strand board, or existing wood siding (minimum 7/16" (1.11 cm) thick). This product cannot be installed with staples.

#### Panel Spacing at Different Temperatures

Heartwood PRO expands and contracts with changes in temperature. For this reason, it is important that you space the panels according to the panel temperature at the time of installation. Failure to provide the proper spacing according to these temperature ranges may result in gaps that are too large or too small, thereby creating the potential for panel distortion, or buckling. Spacing of panels previously installed at a different temperature does not require adjustment.

Each panel has a PanelThermometer™ that displays panel temperature and indicator lines that serve as guides for proper spacing between the panels. The PanelThermometer is located on the upper right-hand corner of the panel; the indicator lines are on the upper left-hand corner (Figure 1). Note that the panel temperature may change throughout the day. Space the panels according to the panel temperature at the time of installation. The cells on the PanelThermometer will change color to indicate the temperature of the panel.

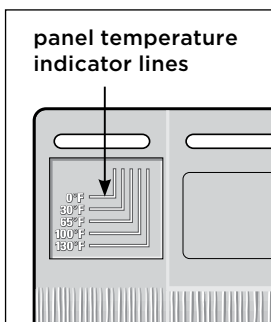


Figure 1

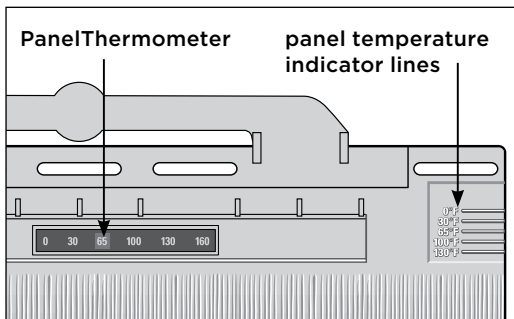


Figure 2

#### PanelThermometer Temperature Reading Indicator Lines

0 Set to 0 line	100 Set to 100 line
30 Set to 30 line	130 Set to 130 line
65 Set to 65 line	160 Butt panels tight

#### First Course

Installation is made simpler with these easily identifiable features marked on the front the shingles.

1. Use a full panel to start your first course.
2. Starting on the right side of the wall, hook the bottom locking leg of the panel into the starter strip and slide panel into the cornerpost or receiving channel (Figure 3). Leave 1/4" (0.64 cm) space between the panel and the corner for expansion. If you are planning to install the Mitered Cornerpost, space the panel 3" (7.62 cm) from the corner.

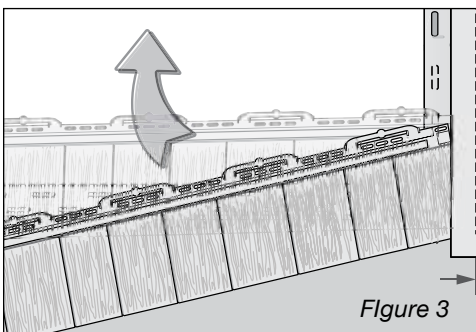
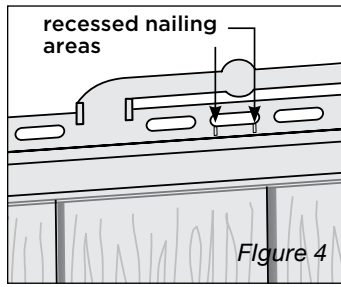
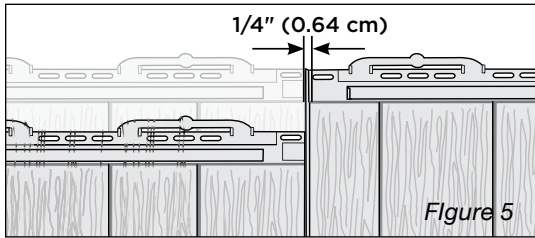


Figure 3



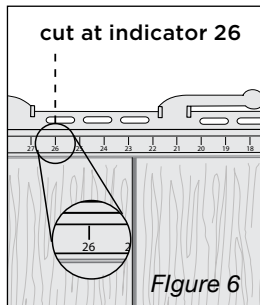
3. Fasten the panel to the wall by first nailing through the round center hole in the nailing hem at the top of the panel. Continue nailing the panel with 5 nails: one in the right-end nail slot and one at each of the recessed nailing areas (*Figure 4*). Leave 1/8" to 1/16" (0.32 cm to 0.16 cm) between the nail heads and the panel to allow freedom of movement during normal expansion and contraction.



4. Install the next panel by positioning it below the starter strip and next to the first panel. Push in and up to lock the panel into the starter strip, as shown in figure 5. Space the second panel according to the panel temperature at the corresponding temperature indicator lines (*Figure 1*). Gently tap the outside of the HammerAssist™ Pads to properly position the panel left or right.

5. Nail the panel into position starting with the round center hole and then placing the next nail in the right-end nail slot (which overlaps the previous panel's left-end slot) so that the nail goes through both panels' nail slots simultaneously. Continue nailing the rest of the panel using the procedure in step 3.

6. Continue to install remaining panels of first course as described in steps 3 through 5.



### Second Course

7. Cut 26" (66.04 cm) off of the right side of the S7 panel at indicator 26, which is located on the hanger below the nail slots, cutting straight through the panel (*Figure 6*). Drill a 3/16" (0.48 cm) hole in the center of the nail hem and nail siding through this hole to control direction of expansion and contraction.

8. Set the spacing using the PanelThermometer and temperature indicator lines. Another option is to nail each end of a nail slot located at the center of the panel and repeat steps 4-6.

### Third Course

9. Cut 50" (127 cm) off of the right side of the S7 panel at indicator 50, which is located on the hanger below the nail slots, cutting straight through the panel. Drill a 3/16" (0.48 cm) hole in the center of the nail hem and nail siding through this hole to control direction of expansion and contraction. Another option is to nail each end of a nail slot located at the center of the panel.

Continue to stagger panel courses according to steps 1 and 9, repeating the same process of 1st course, 2nd course, 3rd course to ensure a random shingle pattern up the wall (*Figure 7*).



Figure 7

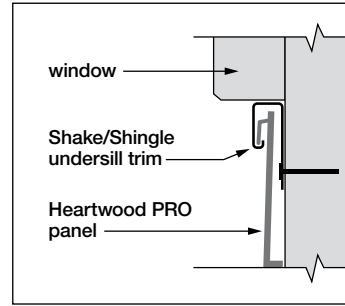
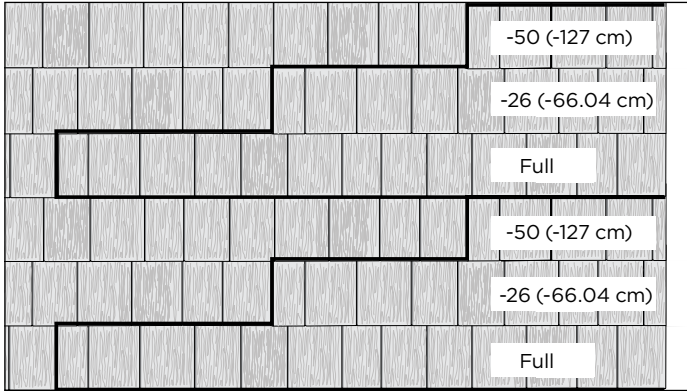


Figure 8

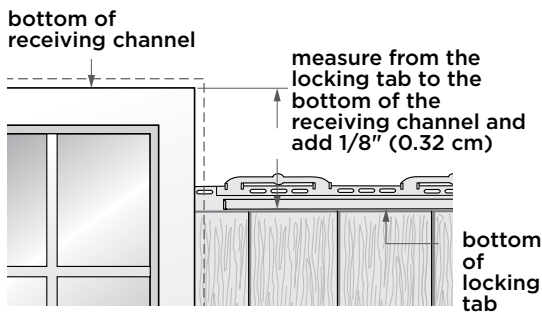


Figure 9

### Installing Under a Window or Opening

Install undersill trim. Cut the panel to fit under the window. Drill a 3/16" (0.48 cm) hole in the center of the nail hem. Using a snap lock punch, raise tab faces on the outside of the panel 1/4" (0.64 cm) from the trimmed edge, 6" (15.24 cm) apart. Lock the panel into the previous course, and center nail the siding through the 3/16" (0.48 cm) hole drilled earlier. (Center nailing controls the direction of the panel's expansion and contraction.) Lock the panel into place (Figure 8).

**NOTE: Care must be taken to not align the shingle separation when installing on a gable end. Do not follow the full, -26" (-66.04 cm), -50" (-127 cm) pattern in the gable.**

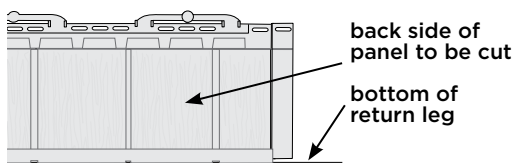


Figure 10

### Installing Over a Window or Opening

Cut the panel to fit over the window by measuring from the locking tab of the previous row to the bottom of the receiving pocket (Figure 9). Add 1/8" (0.32 cm) to this measurement. Turn the panel over and, using this measurement, measure from the bottom of the return leg (Figure 10).

Cut the panel to this dimension. Install the cut panel by positioning the panel over the window and into the receiving pocket. Lock the cut panel into the previous course by pushing in and up. The cut edge should be 1/4" (0.64 cm) below the top of the receiving pocket.

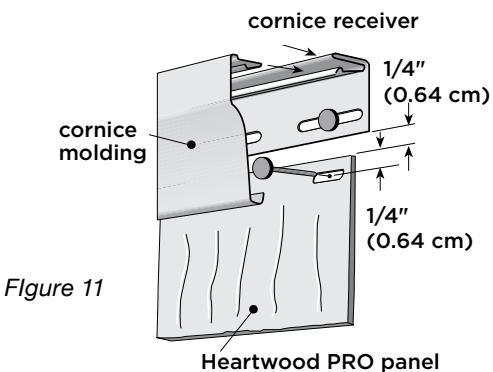


Figure 11

### Finishing the Top Course

To finish the top course of siding, attach cornice receiver to the top of the wall under the eave or soffit. Trim the top panel to within 1/4" (0.64 cm) of the cornice receiver. Using a nail slot punch, punch nail slots 1/4" (0.64 cm) from the trimmed edge, 16" (40.64 cm) apart. Nail off the top course and snap the cornice molding into the cornice receiver (Figure 11).

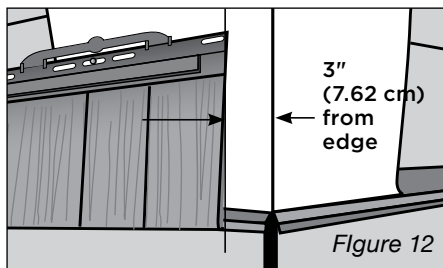


Figure 12

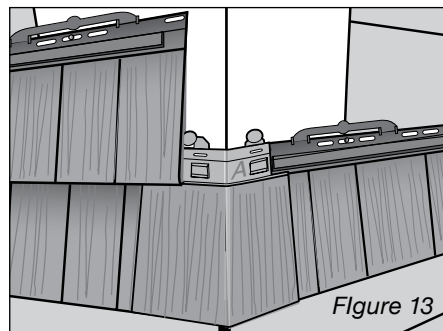


Figure 13

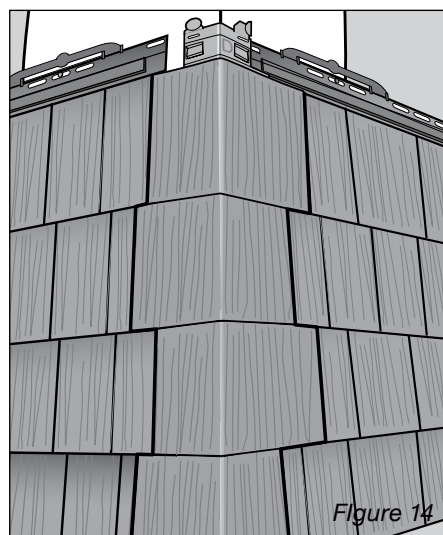


Figure 14

### Installing Mitered Offset Cornerpost

Before applying siding and accessories, make certain the substrate is watertight. To be properly protected from precipitation, make sure you have properly flashed the substrate so that it sheds water outside the siding. The siding and accessories alone are not meant to be a watertight barrier.

For the best appearance and easier installation, we suggest you install the Mitered Offset Cornerpost as you move up the wall. If you prefer, you can install Mitered Offset Cornerposts after the siding has been installed.

1. Install the first Heartwood PRO panel 3" (7.62 cm) from the edge of the outside wall (Figure 12).
2. Once the panel has been fastened, hook the corner "A" over the siding, making sure the corner piece is locked into the starter strip (Figure 13).
3. Nail through the top two holes of the cornerpost.
4. Continue installing the corner pieces as you move up the wall. Following the pattern of A, B, C, D and then repeat (Figure 14).
5. When you reach the top panel, cut the corner piece to length and nail it with a color matched finish nail. Leave 1/4" (0.64 cm) between the top corner piece and the cornice receiver. If a course of siding ends at an outside corner that has a Mitered Offset Cornerpost installed, you will have to cut the Heartwood PRO panel to fit.
6. Measure from the edge of the last installed panel to the edge of the Cornerpost.
7. Add 1-1/2" (3.81 cm) to this dimension and cut the panel to length.
8. Angle the panel into the Cornerpost and slide it to the left.
9. Then, slide the panel to the right until the correct temperature marks line up.
10. Fasten the panel to the wall.

Similar to the top course under a soffit or window, cut shingles to appropriate angle, pre-drill and fasten using at least two staples or nails. Apply a trim board over the shingles to conceal the fasteners.

## SECTION 11 — INSTALLING HEARTWOOD SINGLE 7" SHINGLES

### Heartwood Single 7" Perfection Shingle Siding

#### Overview

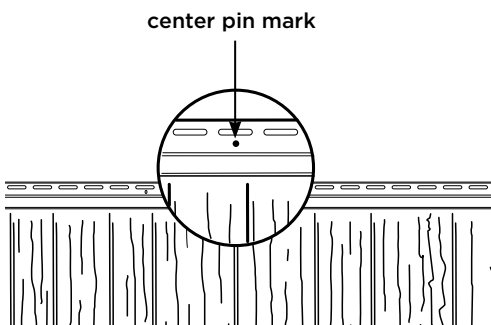
The installation of a Heartwood Shingle panel is unique in that the lap joint is hidden in the ribs between the shake or shingle pattern. Positioning the laps in the rib area requires that special installation procedures be followed to maintain product performance and aesthetics.

Panels must be installed from right to left. The left panel will overlap the right panel.

#### Factory laps

All lap joints are cut at a predetermined point on the panel during the manufacturing process. All male laps must be factory cut. Female laps may be field cut using the gap. However, do not cut along the edge of the gap; leave 3/16" of the gap for the overlap.

**NOTE: Do not drive center-pin nails tight. Leave 1/8"-1/16" between the nail head and the panel to allow the panel to move freely during normal expansion and contraction.**



#### Center pinning

Vinyl siding expands and contracts as the temperature of the panel changes. To maintain the proper rib width at the lap joint, you will have to limit the movement of the panels. To do this, you must center pin each panel. Center pinning prevents the rib width at the lap joint from becoming too wide or too narrow.

#### Center pin each panel regardless of length

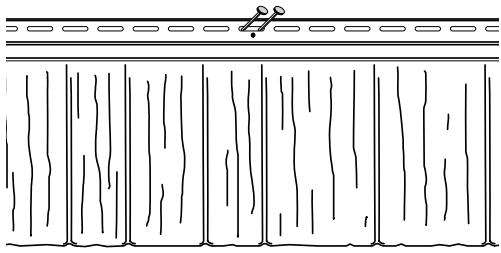
Install the siding according to one of the following methods, depending on whether the substrate is or is not fully nailable.

**NOTE: The siding must be applied over a rigid sheathing that provides a smooth, flat surface or an underlayment (such as wood, wood composition, rigid foam or fiber sheathing) that is no more than 1" thick. Do not apply siding directly to studs.**

Lock the right side panel into place on the starter strip. Allow room for expansion and contraction in all accessory pockets:

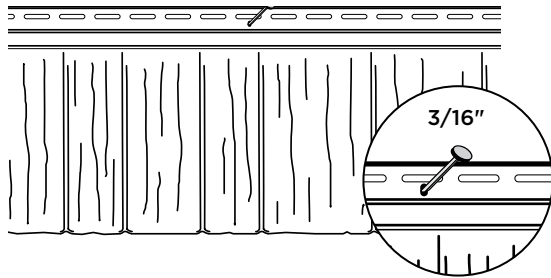
- 1/4" if the ambient temperature is above 40° F.
- 3/8" if the ambient temperature is below 40° F.

**Also see Nail Spacing and Product Expansion and Contraction on pages 24-25.**



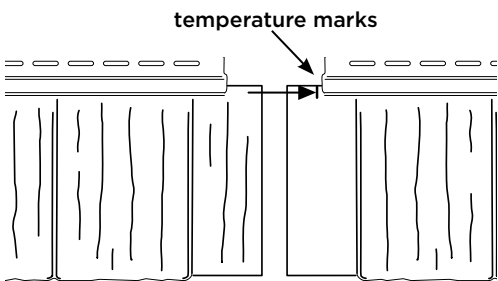
Locate the mark at the center of the panel. Use the nailing slot closest to this mark. Center pin the panel in this location using one of the following options:

1. Install a nail on both ends of the same nail slot.
2. Drill a 3/16" diameter hole through the nail hem and substrate, and place a single fastener through this newly drilled hole.

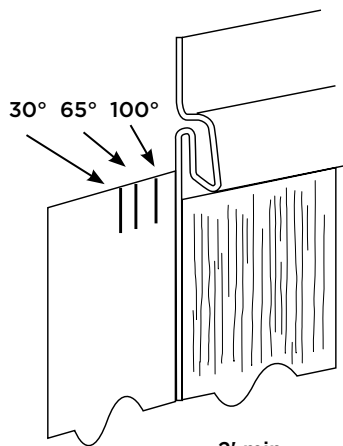


Apply fasteners at nail slots aligned with studs a maximum of 16" apart. Leave adequate room between the fastener head and the nail flange for expansion and contraction (approximately 1/16" to 1/8").

**Do not hard nail these fasteners.**



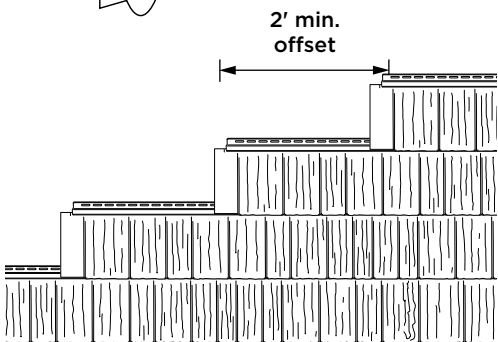
Install the next panel to the left of the installed panel. Lap this panel over the installed panel, positioning the right edge of the panel to the appropriate temperature mark, which is located in the factory notch area.



If the ambient temperature is less than 45°F, lap the panel to the first (30°) mark.

If the ambient temperature is between 45°F to 80°F, lap the panel to the second (65°) mark.

If the ambient temperature is greater than 80°F, lap the panel to the third (100°) mark.



Fasten the panel according to the procedure described earlier.

Continue the first course of siding, remembering to center pin every panel.

Start the next course of siding from the right side, repeating the earlier steps. Offset the laps from course to course a minimum of 2 feet.

## SECTION 12 — PORCH CEILINGS, SOFFIT, FASCIA

### Requirements for Proper Soffit Ventilation

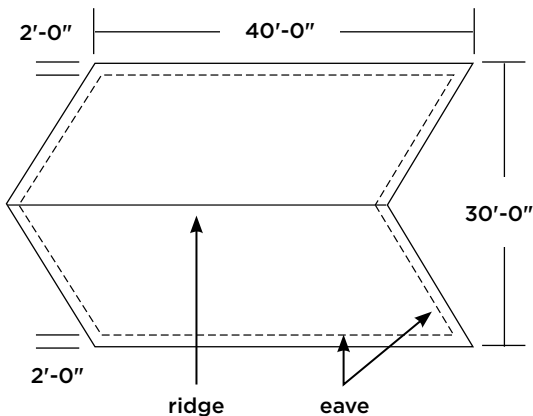
Proper attic ventilation is important for any home. The International Building Code (IBC) Section 1202 Ventilation furnishes a basic guide for determining proper ventilation for any home. The information provided here may under certain circumstances not result in enough ventilation. Therefore, the calculation provided should be used as a guide only.

The IBC guideline requires that any attic or space between the top floor, ceiling and roof must be ventilated. It requires one square foot of ventilation area for every 150 square feet of attic space.

If a vapor retarder of less than one perm has been installed on the warm side of the ceiling or if at least 50% of the required ventilating area has already been provided by gable and vents or ridge vents, you need add only one-half of the ventilation area that would otherwise be required. The requirement would then be one square foot of ventilation area for every 300 sq. ft. of attic space.

### How to determine soffit ventilation

- Determine the local code requirement for total attic ventilation.
  - 1:150** requires 1 sq. ft. of ventilation for every 150 sq. ft. of attic space.
  - 1:300** requires 1 sq. ft. of ventilation for every 300 sq. ft. of attic space, if a vapor barrier having a transmission rate not exceeding 1 perm is installed on the warm side of the ceiling.
- Determine the total area of the attic (sq. ft.) to be ventilated.  
40 ft. x 30 ft. = 1,200 sq. ft.
- Total free area of ventilation required for the attic.  
 $1,200 \text{ sq. ft.} / 150 = 8.0 \text{ sq. ft.}$
- Convert square feet into square inches (sq. in.).  
 $8.0 \text{ sq. ft.} \times 144 = 1,152 \text{ sq. in.}$
- Location of vents.
  - 50% at ridge, roof vent or gable vent =  
 $1,152 \times .50 = 576 \text{ sq. in.}$
  - 50% at soffit/eave =  $1,152 \times .50 = 576 \text{ sq. in.}$
- Total soffit ventilation area required.
  - Area of the soffit available for ventilation:  
80 lineal ft. x 2 ft. soffit depth = 160 sq. ft.
  - Ventilation area required per sq. ft. of soffit =  
 $576 \text{ sq. in.} / 160 \text{ sq. ft.} = \mathbf{3.6 \text{ sq. in. /sq. ft.}}$
- Soffit product selection.
  - Compare the soffit ventilation area required to the manufacturer's soffit product literature.
- If the roof pitch is 9/12 or higher, add 30% more ventilation to accommodate the higher volume of air moving through the air.



## New construction projects

Begin by installing receiving channels on all four sides of the porch. If you are using F-Channel, nail it to existing walls. If you are using J-Channel, you will have to install a nailing base.

If you plan to use light blocks to attach external light fixtures, install them to adequate backing.

Plan the layout of the ceiling panels to achieve an even balance or to align with adjacent work. If the ceiling panels will run parallel to the ceiling joists, you will have to install additional 1" x 3" wood furring nailing strips. Install these nailing strips perpendicular to the ceiling joists, nailing according to the schedule below.

Invert J-Channels and nail them to the underside of the wood strips along the perimeter of the ceiling area.

Install the first panel into the channels at one end of the porch. Be sure to leave room for expansion. Nail according to the schedule below, positioning the nails in the centers of slots. Do not nail tightly. Install remaining panels. When cutting the last panel of the first course, be sure to allow room for expansion.

### Nailing schedule for soffit

For areas where more than one panel length is needed, use a double channel lineal.

If necessary, rip cut the final panel and use a snap lock punch to create tabs every 6" along the cut edge. Attach utility trim and insert the panel into the receiving channel.

***NOTE: For best results, ensure you have adequate ventilation.***

T3-1/3	Fasten every 16" to 24" (as allowed by local building code)
All other Wolverine soffit panels	Fasten every 16"

## Remodeling projects

Check to be sure the existing ceiling can serve as a solid nailing base. If the existing ceiling is solid, remove all existing moldings and fixtures from the ceiling and begin by nailing inverted J-Channel along the perimeter of the ceiling area.

If you plan to use light blocks to attach external light fixtures, install them to adequate backing.

Plan the layout of the ceiling panels to achieve an even balance or to align with adjacent work.

Use the existing ceiling as a nailing base for the panels. Install the first panel into the channels at one end of the porch. Be sure to leave room for expansion. Follow the nailing schedule on the previous page, positioning the nails in the centers of the slots. Do not nail tightly. Install the remaining panels. When cutting the last panel of the first course, be sure to allow room for expansion.

For areas where more than one panel length is needed, use a double channel lineal.

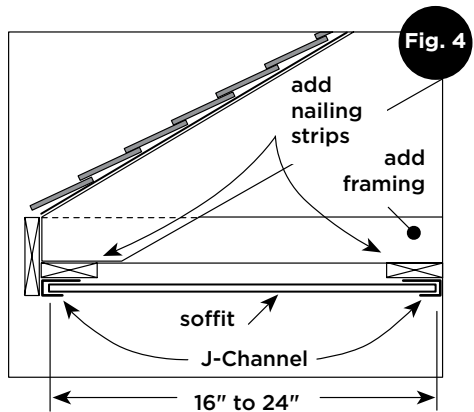
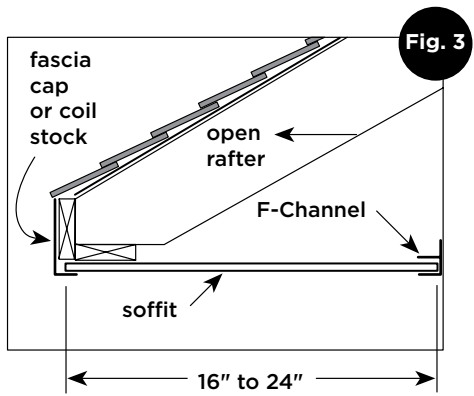
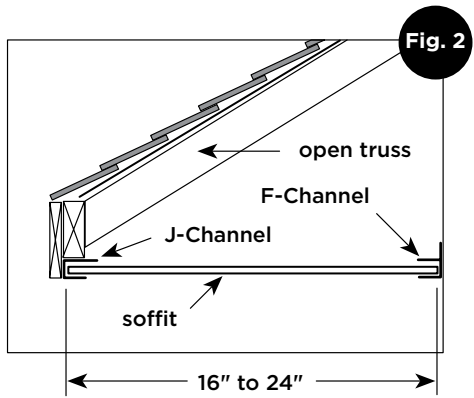
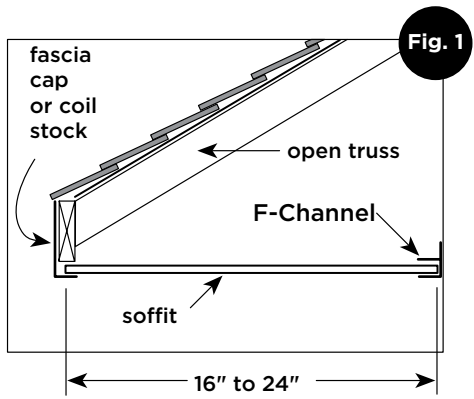
If necessary, rip cut the final panel and use a snap lock punch to create tabs every 8" to 10" along the cut edge. Attach utility trim and insert the panel into the receiving channel.

If the existing ceiling is not solid, install nailing strips to provide a secure nailing base. Then install J-Channel.

If the ceiling panels will run parallel to the ceiling joists, you will have to install additional 1" x 3" wood furring nailing strips. Install these nailing strips perpendicular to the ceiling joists, placing a strip every 1" to 16".

Invert the J-Channel and nail it to the underside of wood strips along the perimeter of the ceiling area.

Install the panels as explained above.



To determine the maximum permissible span, consult local building codes.

## Soffit

You can use solid vinyl panels or perforated vinyl panels for soffit installations. Perforated panels provide ventilation, which helps to reduce heat buildup in the summer and ice dams in the winter. In buildings with roof ridge vents, you should install ventilated soffit. Check local building codes to determine the amount of ventilation required. In high windload areas, you should also check local building codes to determine if the application methods that are required differ from those described below.

The procedure used to install soffit depends on the construction of the eaves:

- **Open eaves**—eaves with exposed rafters or trusses—are typical of new construction. You will also have to use open eave installation procedures if you have to remove damaged soffit at a remodeling project.
- **Enclosed eaves**—eaves with soffit in place—are typical of remodeling projects.

### Installation over open eaves

The first step in installing soffit is to install the proper receiving channels. You have several options for receiving channels. You can use accessories such as F-Channel or J-Channel, or you can make channels using coil stock. The best approach is to select a method that works most effectively with the construction techniques used to create the eave. Examine figures 1 to 4 and find the one that most closely resembles the construction methods used on your particular project.

If no F-Channel is available, J-Channel can be modified to create F-Channel. Simply cut slots in the nail flange area where it would be nailed to the wall. After cutting the nail flange, bend the flange back and nail it to the wall.

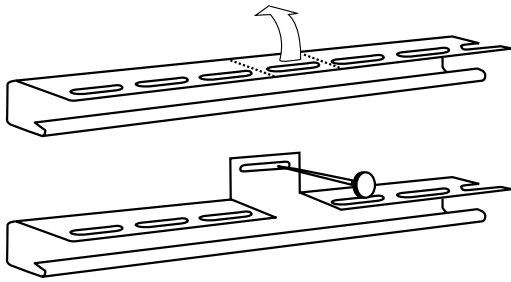
### Installing receiving channels

Install the receiving channels following the details shown in figures 1 to 4. Nail the channels every 16", positioning the nail in the center of the slot. Do not nail tightly.

If the eave span is greater than 16", you will have to install nailing strips (as shown in figure 4) and install the receiving channels on the nailing strips.

If the soffit will turn a corner, cut and install the channel so there is 1/4" for expansion at each of the adjoining walls.





**NOTE:** If you don't have the proper receiver for the soffit, you can modify J-Channel to create an F-receiver. Simply cut slots in the nail flange area where the receiver will be nailed to the wall, bend back the flange, and nail the flange to the wall.

### Installing soffit

Measure from the wall to the fascia board. Then subtract 1/2" to allow for expansion. Mark this dimension on a soffit panel and cross cut the panel using a power circular saw with a reversed fine-tooth blade. Cut one or two panels at a time, carefully advancing the saw through the vinyl.

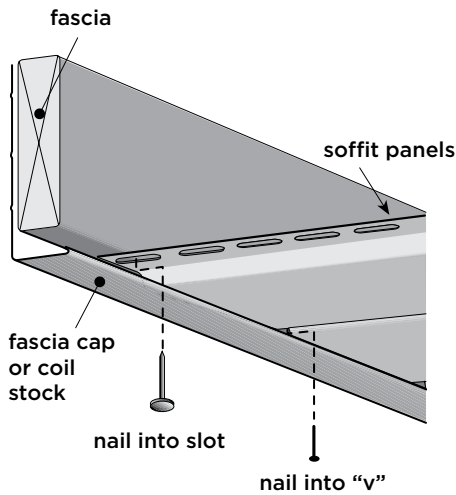
Insert the panel into the channel on the wall, then into the channel at the fascia board. You may have to flex the panel slightly to insert it into the second channel. Make certain the panel is perpendicular to the wall, then nail. Depending on the installation method you're using, you'll nail either to a nailing strip or to the fascia board.

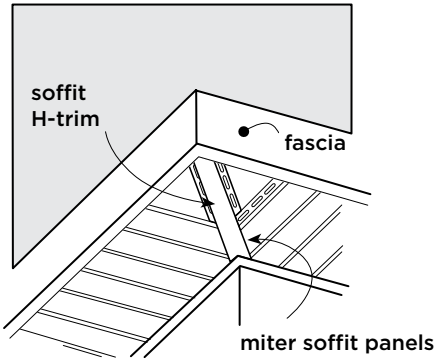
If you're nailing to the fascia board, use small-headed nails. Drive the nail through the nail flange and "V" groove.

This is one of the rare instances when face nailing is permissible. Once a soffit panel is face-nailed, it will expand only in one direction—in this case, toward the receiving channel. Be sure to leave space for the full expansion allowance in the receiving channel.

If you're using a nailing strip, do not nail tightly—allow movement for expansion.

Continue installing the panels by locking and nailing the soffit in place. Make certain soffit panels are fully locked along their entire length.



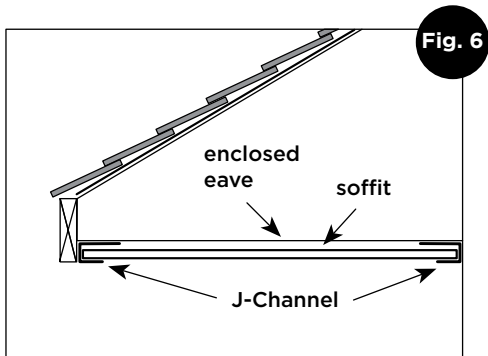
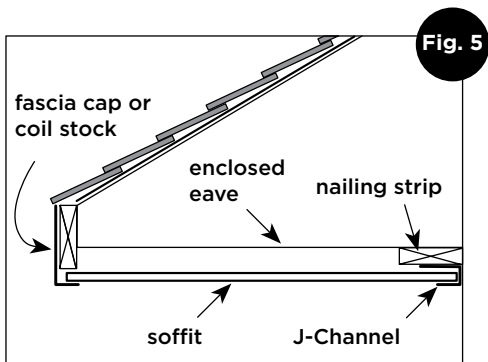


### Turning a corner

To turn a corner, measure from the channel at the wall corner to the channel at the corner of the fascia board. Subtract 1/4" for expansion. If necessary, install nailing strips to provide backing for the lineal. Cut and install soffit double channel lineal or H-Trim. Miter the corner soffit panels and install as described earlier.

### Completing the installation

To complete the installation, apply utility trim and fasten aluminum fascia cap or formed aluminum coil stock with painted trim nails. If you must face nail fascia, drill holes for the trim nails to allow for expansion and to reduce denting of the aluminum.



### Installation over enclosed eaves

If the existing soffit is rotted or damaged, it's best to remove it completely before installing vinyl soffit. Then use the instructions for open eaves.

If you're installing perforated soffit panels and the existing soffit doesn't have openings for ventilation, cut an adequate number of openings. Then complete the installation as described for open eaves.

The procedure used to install soffit over an enclosed eave is almost identical to that used for an open eave. The major difference is the installation of the J-Channel. Determine the method you'll use to install soffit at the fascia board (see figures 5 and 6). When installing J-Channel at either the wall or the fascia board, nail the J-Channel every 12" to 16".

### Turning a corner

If the soffit is to turn a corner, cut and install J-Channel so there is 1/4" for expansion at each of the adjoining walls and adjoining fascia boards. Miter the corner soffit panels and install as described earlier.

## Triple 3-1/3 Soffit Panels

### Installation over open eaves

In most situations, T3-1/3 Soffit should be installed like our standard soffit products. However, when it is installed over open eaves, follow these installation techniques.

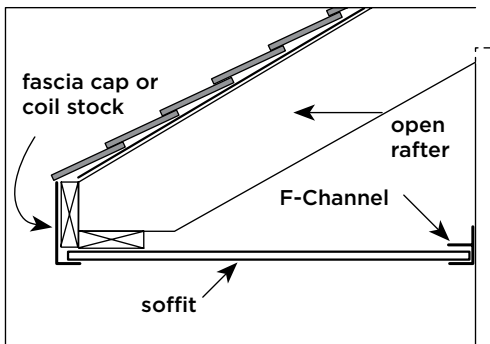
#### Install receiving channels

There are two ways to install receiving channels for soffit. The best approach is to select a method that works most effectively with the construction techniques used to create the eave. Examine the illustrations, and find the one that most closely resembles the construction methods on your particular project.

Use either 3/4" J-Channel or 1/2" F-Channel, or make receiving channels using coil stock. Install the receiving channels following the details shown in the illustrations.

Nail the channels every 12" to 16", positioning the nail in the center of the slot. Do not nail tightly.

**NOTE: If you are concerned about excessive insect infiltration with Triple 3-1/3" Soffit, cover the opening with corrosion-resistant mesh or other screening before installing the soffit.**



#### Install soffit

Nail the soffit every 16" or 24", depending upon local building codes and stud spacing. T3-1/3 soffit will span up to 24" without additional nailing strips.

#### Installation over existing soffit

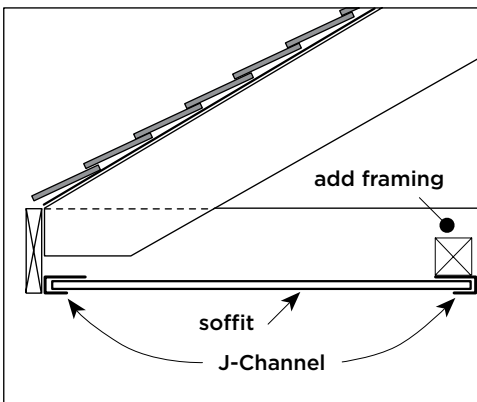
When installing Triple 3-1/3" Soffit over an existing solid wood soffit, you must cut openings into the existing soffit to provide adequate airflow through the soffit. The goal is to have at least 9 square inches of net free air per lineal foot of soffit. Removing a center portion of the existing soffit will provide the desired airflow.

Using a saw, cut along the length of the existing soffit. Leave 2" to 3" from both the wall and the fascia so that you will have enough wood surface to securely fasten the soffit.

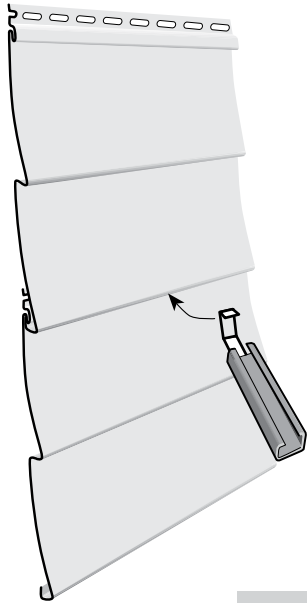
Remove the center portion of the existing soffit.

Install the soffit as described above.

**NOTE: Leaving solid areas of existing soffit intact reduces ventilation and must be considered when calculating total ventilation.**



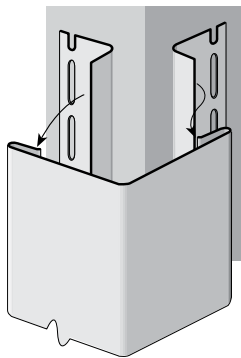
## SECTION 13 — REPAIR



### Replacing a Damaged Siding Panel

To remove a damaged panel, insert the hook end of a zip tool between the damaged panel and the panel above. Pull downward. This will allow access to the damaged panel's nail flange. Remove the nails securing the panel.

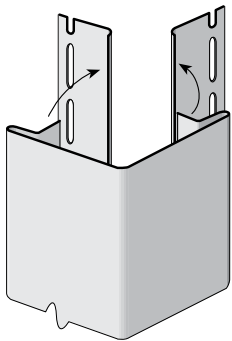
The nails may be allowed to stay in the wall if they are driven flush with the substrate after the damaged panel is removed. Remove the damaged panel and install a new panel. Then use the zip tool to lock the new panel into the panel above.



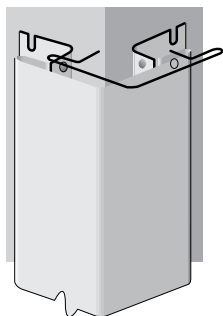
### Replacing a Damaged Outside Cornerpost

Remove the face portion of the damaged post by scoring along the outside corner of the receiving channel with a utility knife. It may be easier if you first cut away part of the face of the outside cornerpost to get better access to make these cuts.

Remove the nailing flanges from the new cornerpost by scoring and bending until the flanges snap off. Be sure to score along the inner corner of the receiving channel.

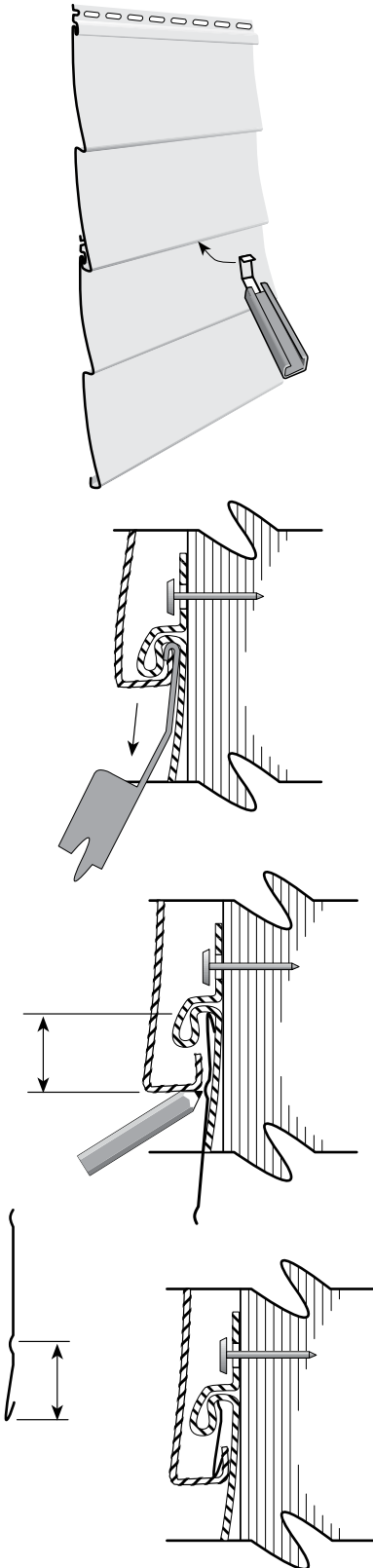


Lap the partial receiving channel of the new post over the partial channel on the remaining nail flange. Pop rivet the two receiving channel legs together as needed.



## Repairing Buckled Siding at the Joist

Vinyl siding sometimes becomes buckled between the first and second floors of a newly built siding installation due to settling and shrinkage of wet lumber and some framing practices. Using “engineered” lumber for the joist greatly reduces the chances of shrinkage and settling and can help prevent buckling of siding. If, however, you do have a building with this situation, here is a way to correct the problem using aluminum starter strip.



With a zip-lock tool, unlock the buckled panel from the panel below by inserting the hooked end of the tool behind the return leg of the buckled panel until the hook catches.

Pull down and “unzip” the panel.

Insert an inverted scrap piece of starter strip into the exposed receiving lock of the lower panel.

With the scrap piece inserted into the lock, lay the upper panel over the starter strip. The starter strip should be visible behind the upper panel. Mark a line on the scrap piece where the return leg of the upper panel meets the scrap piece.

Trim the starter on this line, saving the portion with the locking edge.

**NOTE: Cut the starter strip in short lengths to ease handling and relocking.**

Insert the trimmed edge into the lock of the lower panel.

Begin at one end and, using a zip-lock tool, pull the return leg of the upper panel down to engage the upper panel with the aluminum starter strip.

## SECTION 14 — MISCELLANEOUS

### Cleaning Vinyl Siding

Vinyl siding resists most common household stains, but it will become dirty like any product exposed to atmospheric conditions. In areas not exposed to direct sun and rain, periodic washing with a soft bristle brush and clean water from a garden hose may be necessary to remove surface dirt. Chalk may also accumulate on the surface. This is a normal condition for pigmented materials exposed to the elements.

For the best appearance, clean vinyl siding at least once a year.

To remove soil, grime and chalk from siding, use a garden hose, a soft bristle brush, and a bucket of soapy water. (You can also use the solution described below in the section about mildew.) To minimize streaking, wash the house from the bottom up.

Thoroughly rinse the siding with clean water from a garden hose. Avoid prolonged or high pressure rinsing of open ventilated areas. Keep cleaning solution off surrounding fixtures and surfaces not scheduled for washing.

***NOTE: We do not recommend power washing vinyl or polymer siding as it can cause moisture intrusion, damage, and/or discoloration.***

### Stubborn stains

If you can't remove especially stubborn stains using normal household detergents, request a cleaner from your siding contractor or your local building materials retailer. Always test any cleaner on an inconspicuous area before full use.

### Mildew

Mildew may be a problem in some areas, especially warmer climates with consistently high humidity. Mildew appears as black spots on surface dirt and is usually detected in areas not subjected to rainfall, such as under eaves and porch enclosures. To remove mildew, prepare a solution as follows:

1/2 cup detergent (Tide, for example)  
2/3 cup trisodium phosphate (Soilax, for example)  
1 quart 5% sodium hypochlorite (Clorox, for example)  
3 quarts water

***CAUTION: Greater concentration may cause damage to the siding and soffit.***

If the above solution does not readily remove mildew spots, ask your siding contractor or your local building materials retailer for a mildew cleaner.

## Siding over Asbestos

### Vinyl siding retrofit over asbestos

This is a recommendation from the Vinyl Siding Institute after discussions with Federal EPA officials. Because local regulations supersede federal regulations, local EPA officials should be contacted in the area where the work is being done.

The most desirable practice is not to disturb the existing siding on the home. Apply sheathing over the existing asbestos siding, and then apply vinyl siding over the top of the sheathing. The sheathing will serve to flatten the wall and also retain any breakage of the cement asbestos siding. Nails should be long enough to penetrate through the sheathing and existing asbestos siding and into the wall studs.

If there is a need to level or flatten a wall, apply furring strips over the sheathing.

In the case where the homeowner wants the existing cement asbestos siding removed completely, removal should be done by a professionally trained asbestos removal crew.

Please note that some jurisdictions require all asbestos removal to be performed by a trained asbestos removal crew.

## Historic Restoration

### Vinyl Siding Institute recommended guidelines

If a building is in an historic area or has been designated an historic building, be certain that approval for the use of vinyl siding has been obtained from the local historic society. This applies to building additions as well.

Before proceeding to re-side an historic building, the building should be examined for moisture, insect infestation, structural defects and other problems which may be present. These problems should be addressed and the building pronounced “healthy” before re-siding with any material.

Do not damage or remove the original siding. If at all possible, do not alter the original structure so that the application of vinyl siding is reversible (i.e. the original would remain intact and some time in the future, if desired, the vinyl siding could be removed). Exception: “In cases where a non-historic artificial siding has been applied to a building, the removal of such a siding before the application of vinyl siding would, in most cases, be acceptable.” (Preservation Briefs, Number 8 - U.S. Dept. of the Interior—1984)

Exercise every care to retain architectural details wherever possible. Do not remove, cover, or add details until you have the building owner's written approval. Determine that the owner has consulted the local historic society regarding the foregoing.

Use siding which closely approximates the appearance of the original siding in color, size and style.

### **Lead Renovations**

Many houses and apartments built before 1978 have paint that contains high levels of lead (called lead based paint). Lead from paint, chips, and dust can pose serious health hazards if not taken care of properly. You can find out about other safety measures by calling 1-800-424-LEAD. Ask for the brochure "Reducing Lead Hazards When Remodeling Your Home." That brochure explains what to do before, during, and after renovations.

### **Caulking and Sealants**

When installing vinyl siding, the use of caulking and other sealants is minimal. Do not caulk panels where they meet the receiver of inside corners, outside corners, or J-Channels. Do not caulk the overlap joints. Do not caulk vinyl accessories where they butt up against adjacent materials, such as window and door jambs.

### **For More Information**

These instructions will enable you to successfully complete a siding, soffit, or porch ceiling installation. However, no set of instructions can answer every question or problem that might come up during a project. So if you are in doubt about how to complete a specific procedure, we suggest you try two avenues of help:

First, call or visit your building materials supplier. You should be able to find someone with the know-how and experience to answer your question or solve your problem.

Second, if you need additional help, call us at 1-800-233-8990. Our Customer Experience Team is always ready to help you.

This installation manual is updated periodically. The most current information will always be posted on our website: [www.wolverinesiding.com](http://www.wolverinesiding.com)





## GLOSSARY

Because this manual was written for building professionals, we have freely used the language and jargon of the siding industry. To avoid confusion, we thought it a good idea to share our understanding of each of these terms with you.

- Band Board**—A decorative piece of horizontal trim placed between two floors along the rim joist.
- Bevel**—A cut, usually 45°, made at the end of a piece of molding or board that is used to form a mitered joint.
- Casing**—Molding of various widths used to trim door and window openings at the jambs; also referred to as lineal, window, or door surround.
- Center Pin**—Nailing a panel at the hole that allows for even expansion and contraction.
- Clapboard**—The most popular style of siding, that is a long, panel with edges horizontally overlapping in series of courses on a wall.
- Contraction**—Commonly refers to building products contracting due to outside temperature changes.
- Course**—A row of siding panels running the width of the wall.
- Dormer**—A gabled extension built out from a sloping roof to accommodate a vertical window.
- Drip Cap**—A horizontal flashing placed over exterior door or window frames to divert rainwater.
- Dutchlap**—Refers to a drop-style panel that was popularized by early American settlers in the seaboard states; lap siding panel with a horizontal bevel at the top of the panel that sits just below the bottom of the next course of siding.
- Eave**—The overhang of a pitched roof at the bottom edge, usually consisting of a fascia board, a soffit for a closed cornice, and appropriate moldings.
- Expansion**—Commonly refers to building products expanding as outside temperature changes.
- Exposure**—The width of the exposed face of each panel of siding; also referred to as reveal.
- Face**—The side of the siding, trim, or soffit that is exposed to view after the product has been installed.
- Fascia**—A flat, horizontal band that covers the rafter tails and runs along the bottom edge of the roof line.
- Flashing**—A thin, impervious material, usually metal, placed around openings to prevent water penetration or to direct the flow of water over the cladding.
- Frieze**—The horizontal trimboard connecting the top of the siding with the soffit.
- Furring/Furring Strip**—Long, thin strips of wood or other materials used to build out the fastening surface of a wall; commonly used to correct imperfections in wall surfaces, to establish a rainscreen, or to re-establish a structural fastening surface on the exterior of nonstructural products such as foam insulation.
- Gable**—The triangle formed on the side or the front of a building by a sloping roof.
- Hanger**—Also known as lock, the area of a siding panel protruding underneath of the nail hem which creates a locking engagement with the return leg of the panel being installed above.
- Horizontal Siding**—A type of siding that features long boards applied horizontally.
- Hot-dip Galvanized**—The process of dipping metal into molten zinc to apply a protective coating that prevents corrosion; hot-dipped galvanized iron and steel are corrosion resistant.
- Keyway**—A recess or groove in a manufactured shake or shingle siding panel.
- Lap**—Where two siding panels join horizontally, one over the other.
- Ledger Board**—A level surface that is used as a straight reference guide for positioning of the starter course of siding before applying.

**Lineal**—Molding of various widths used to trim door and window openings at the jambs; also referred to as casing, window, or door surround.

**Miter Cut**—A beveled cut, usually 45°, made at the end of a piece of molding or board that is used to form a mitered joint.

**O.C.**—On center; a measurement of the distance between the centers of two repeating members in a structure, usually studs.

**OSB**—Oriented Strand Board.

**Panel Projection**—The distance that the bottom edge of the siding projects from the wall.

**Profile**—The contour or outline of a siding panel as viewed from the side.

**Rainscreen Wall**—A method of constructing walls in which the cladding is separated from a membrane by an airspace that allows pressure equalization to prevent rain from being forced in. It consists of an exterior cladding, a cavity that is typically created through the use of furring strips behind the cladding, and an inner wall that incorporates a weather-resistant barrier.

**Rake**—Trim members of a gable roof that run parallel to the roof slope from the eave to the ridge.

**Rigid Sheathing**—Plywood, OSB, or foam sheathing.

**Rim Joist**—The board that the rest of the joists are nailed to. It runs the entire perimeter of the house.

**Rip Cut**—A cut made lengthwise on a piece of siding or trim.

**Kick-Out Diverter Flashing**—A flashing piece located where sloped roofs meet vertical walls; designed to divert water into a gutter.

**Sheathing**—Sheets of plywood, exterior gypsum board, or other material nailed to the outside face of studs as a base for exterior siding.

**Shim**—A building material, usually wood, used to even a surface.

**Shingle**—A style of siding replicating pieces of cedar that are cut on both sides using a saw. The end of the cut, or butt, is thinner than a shake.

**Skirtboard**—Treated lumber or PVC trimboard installed horizontally; used as a transition from foundation to siding or as a starter strip.

**Soffit**—The underside of an overhanging eave.

**Square**—Unit of measure for siding; equal to 100 square feet of exposure (e.g. a 10-ft. by 10-ft. wall section = 100 square feet = 1 Square).

**Starter Strip**—An accessory used to engage the locking leg of the first course of siding.

**Structural Member**—A support that is a constituent part of any structure or building.

**Structural Sheathing**—The layer of boards, wood or fiber materials applied to the outer studs, joists, and rafters of a building to strengthen the structure and serve as a base for an exterior cladding.

**Substrate**—A layer of material applied over the studs at the exterior walls of a building.

**Vertical Siding**—A type of siding that features long panels applied vertically.

**Weather-Resistant Barrier**—A building membrane that protects building materials from exterior wind and water penetration.

**NOTE:** When the terms “recommend” and “should” are used in this manual, the step is optional for installing vinyl and polymer siding products. However, it is included because the step represents best practice. When the terms “required” and “must” are used, the step is a necessary part of the installation process and must be adhered to.

