

Pre-Finished Steel Siding Panels

Course Number EX402

Thursday, June 21, 2018 12:30 – 1:30 PM

1 Learning Units

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Speakers List

- Brad Newell – Product Training Manager
- Steve Spaulding – Product Manager
- Kristi Peterson – Marketing Manager

Course / Learning Objectives

- At the end of this course, you will be able to:
- Describe the history of siding, from the 1800s thru today and the variety of siding products available on the market.
- Understand the advantages and uses of steel siding, as compared to different types of siding.
- Identify the characteristics and advantages of pre-finished steel siding products.
- Dispel myths of installing steel siding and its costs.

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Section 1

The History of Siding: 1800s Through Today

History of Siding



- Siding is an integral part of the structure as it forms a protective barrier
- In the 19th century, wood siding grew in popularity
- Starting in the years around WWII, metal and other materials have increasingly been used

Siding in the Modern Era

- Wide variety of materials used for siding today
- Broad range of options in terms of aesthetics
- Wood and vinyl most popular



Evolution of Materials: Wood



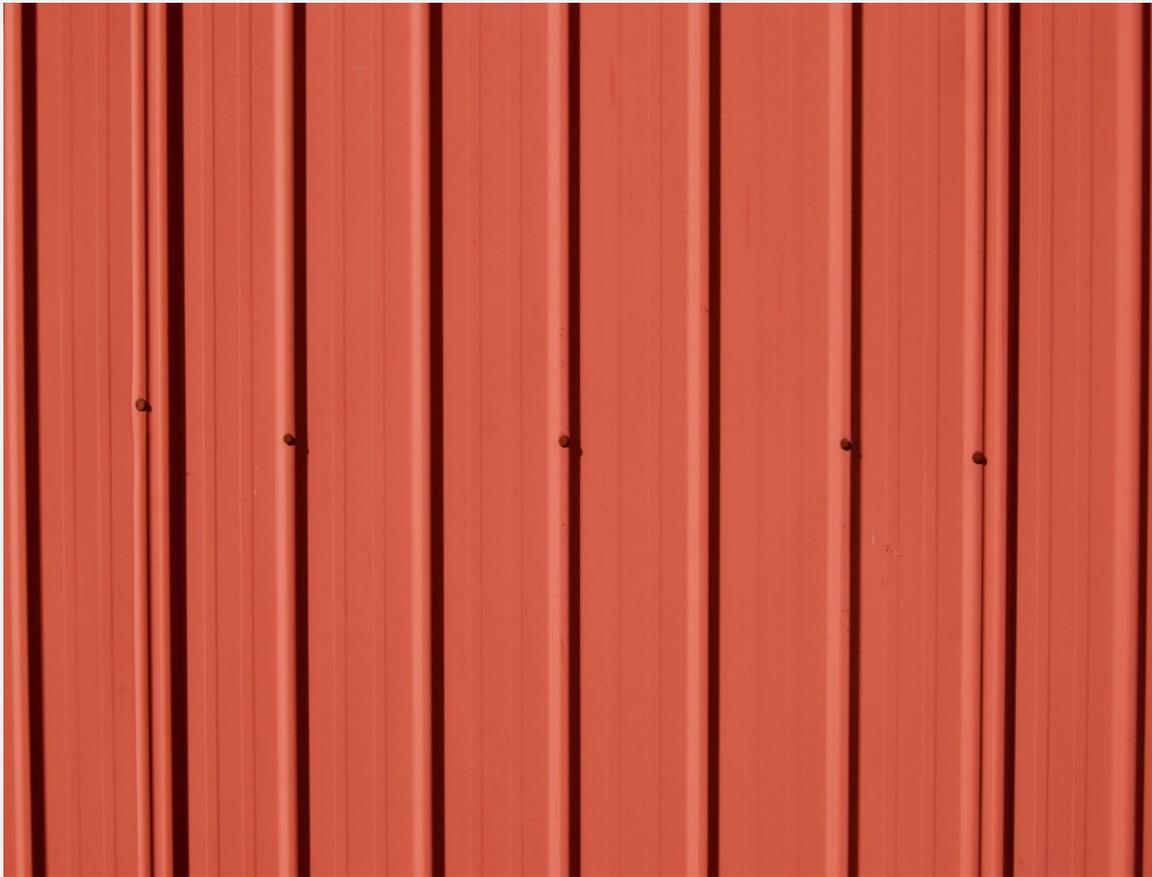
- Wood is a natural and abundant resource
- Only option for siding from the time of the early settlers until the early 1900's

Evolution of Materials: Steel

- Steel siding first patented around 1903
- Increased usage after developments in 1930's that mitigated problems of water penetration and rust
- Housing shortage after WWII created another boom in the steel siding industry
- Invention of seamless steel siding in the 1970's led to a steel siding resurgence



Evolution of Materials: Aluminum



- Starting in the 1940's, steel siding was replaced by aluminum
- Aluminum was lighter and did not rust
- Multiple colors and styles

Evolution of Materials: Vinyl

Along with aluminum, vinyl also made its appearance during the 1940's, but use was limited initially

The vinyl siding industry began to expand during the 1970's due to improvements in the process and quality

.

Definition of Terms

- Building Enclosure – the physical separator between the conditioned and unconditioned environment of a building including the resistance to air, water, heat, light, and noise transfer
- Siding – a type of building cladding material forming the exposed surface of outside walls of frame buildings (for these purposes, it is the same as cladding)
- Cladding – outermost layer of a building enclosure which provides skin or layer intended to control the infiltration of weather elements, or for aesthetic purposes
- Barrier – material that blocks or is intended to block passage (of air, moisture, heat, etc.) into or out of a space

Section 2

Steel Siding Advantages and Varieties



Multi-family Applications of Steel Siding



Residential Applications of Steel Siding



Steel Siding Advantages: Aesthetic Characteristics



- A wide variety of color choices
- Complementary color match on soffit, fascia, and gutter systems
- Nature inspired embossed textures
- Plain, center vented, and full vented soffit panels
- Custom color option

Steel Siding Advantages: Material Characteristics

- Non-hazardous
- Non-porous, resistant to moisture & mold
- 100% recyclable materials



Steel Siding Advantages: Installation & Maintenance

• Installation

- Won't snap or break when handled
- No special storage requirements
- No additional sealing and/or finishing required
- No joints to separate or fill

• Maintenance

- Durable finish won't peel, crack, or blister
- Virtually maintenance-free
- Energy efficient
- Durable, designed to withstand years of exposure to the elements

Siding Comparison Chart

STEEL VS. OTHER SIDING	SIDING PRODUCT COMPARISON	STEEL	FIBER CEMENT	VINYL	WOOD
	Environmentally Friendly	★	▼	▼	▬
	Resistance to fading	★	▼	▼	▬
	Range of pre-finished colors	★	★	▬	▼
	Ease of maintenance	★	▼	▼	▼
	Warranty coverage	★	▼	★	▼
	Moisture resistant (moss, mold, mildew)	★	▼	▬	▼
	Exterior appearance (texture & joints)	★	▼	▬	▼
	Ease of Install	★	▼	★	▼
	Resistance to chalk	★	▼	▼	▼
Health & Wellness	★	▼	★	▬	

Performance Key: ★ Superior ▬ Average ▼ Below Average ▼ Poor

Section 3

Pre-finished Steel Siding Panels



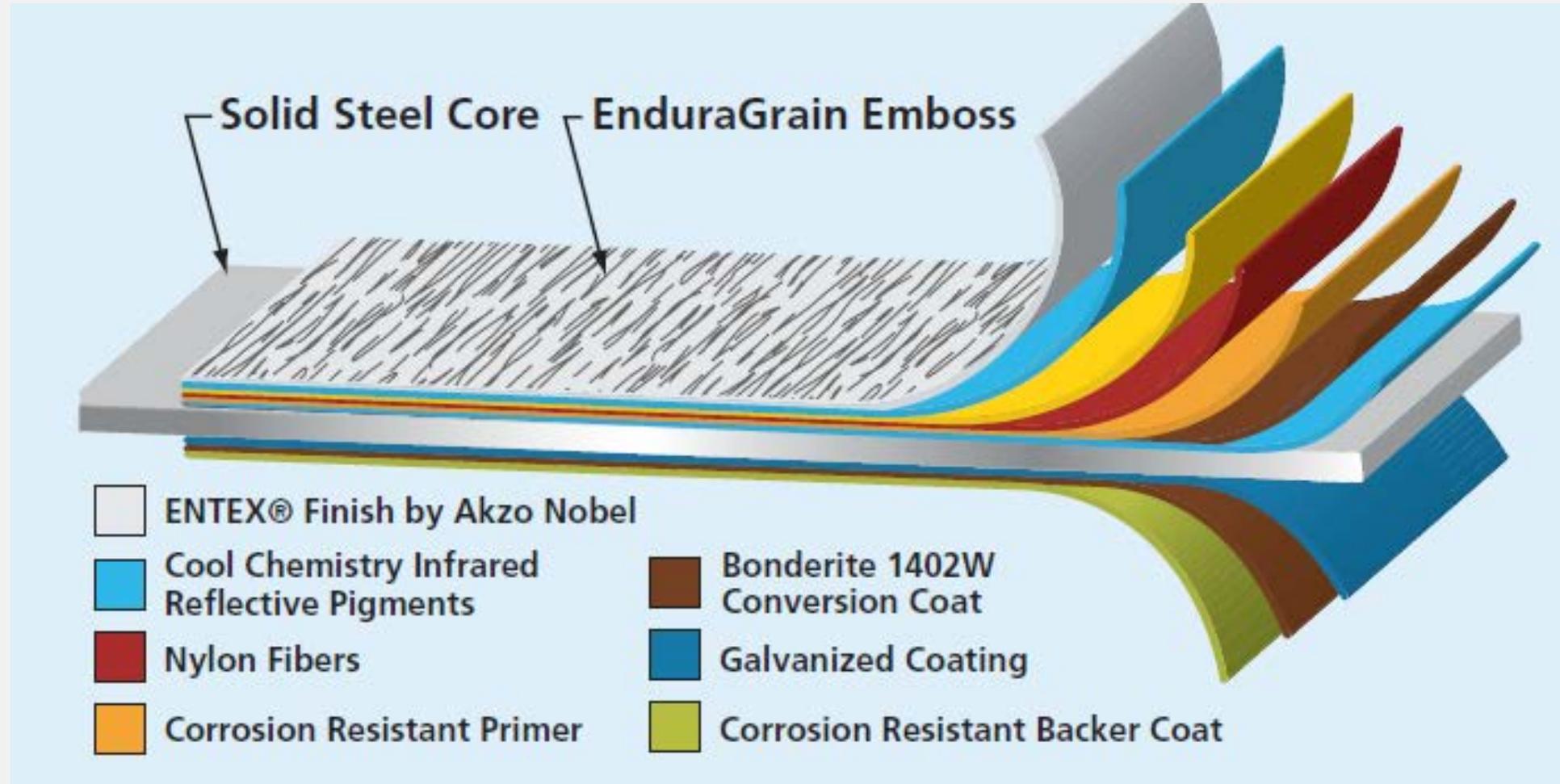
General Characteristics

- Sidewall installation / exterior applications
 - Residential or commercial
 - New Construction or Remodeling
 - Optional drop in insulation or underlayment

Steel Material Specifications

- CS Type B Steel
- Galvanized, zinc coated, continuous hot dip method
- Nominal thickness 28 gauge
- Tensile Strength 50,000 psi
- Yield Strength 35,000 psi
- ASTM A653/A653M-05

Pre-finished Steel Siding Component Layers



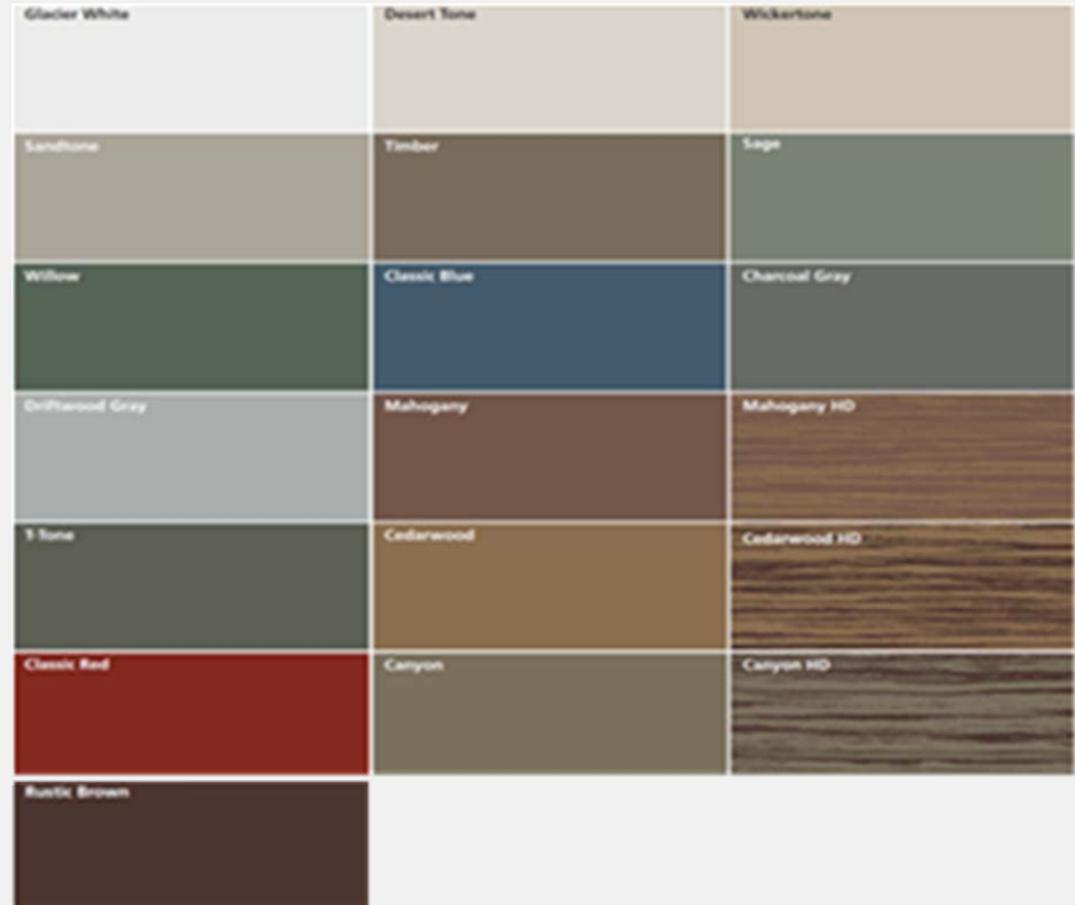
Pre-finished Steel Siding Finishes

- Solid Color
 - E.g. Blue, Red, Sandstone
 - PVC Paint or EnergyStar pigments available
- Multi-tone
 - Cedarwood HD, Mahogany HD, Canyon HD



Color Chart

Stock Color Offering:



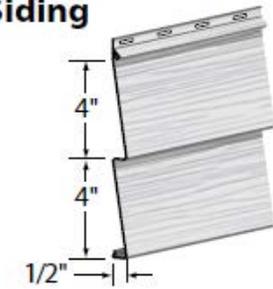
Types of Pre-finished Steel Siding Products

- Single 6" Siding
- Double 4" Clapboard Siding
- 8" Clapboard Siding
- Double 5" Dutchlap Siding
- 12" Vertical Siding

Single 6" Siding



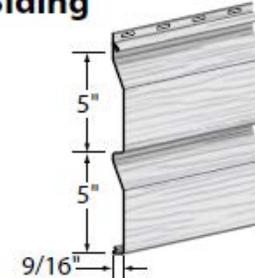
Double 4" Clapboard Siding



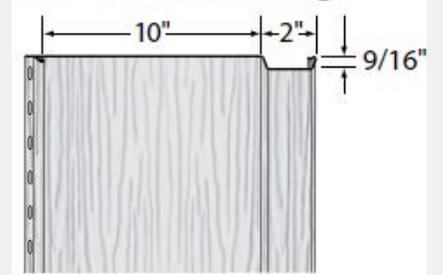
8" Clapboard Siding



Double 5" Dutchlap Siding

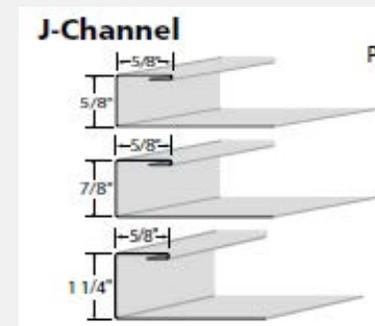
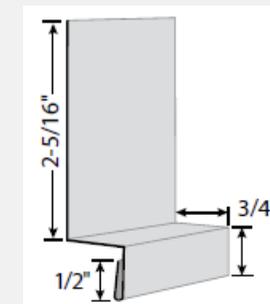
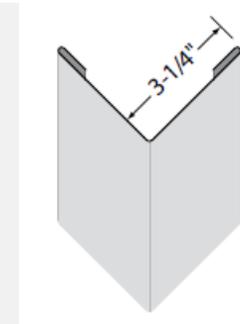
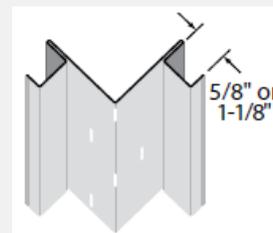
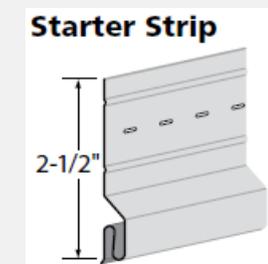
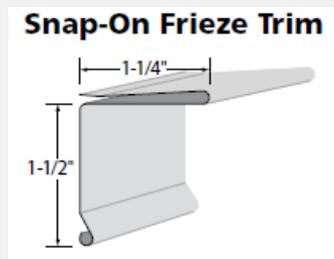


12" Vertical Siding



Pre-finished Steel Siding Accessories

- Snap-on Frieze Trim
- Undersill Trim
- Starter Strip
- Snap-on Corner Substrate
- Snap-on Outside Corner Post Cap
- Z-Flashing for Vertical Siding
- J-Channel



EnergyStar Pigments

- Reflective pigments reflect solar radiation in the infrared spectrum
- Reduce heat gain in the material leading to less heat transfer into your home and lower cooling bills

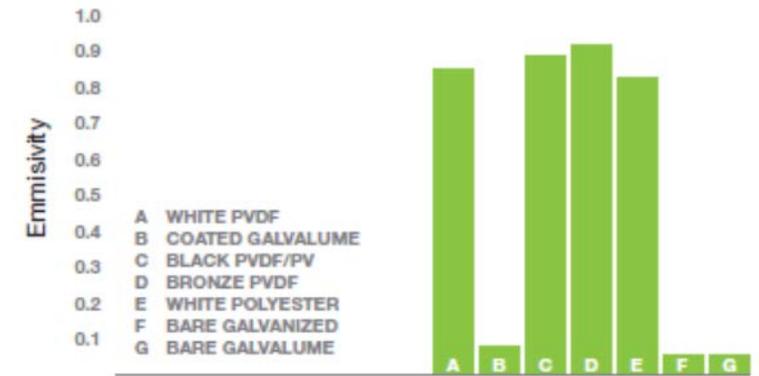
EnergyStar Pigments

Important Definitions:

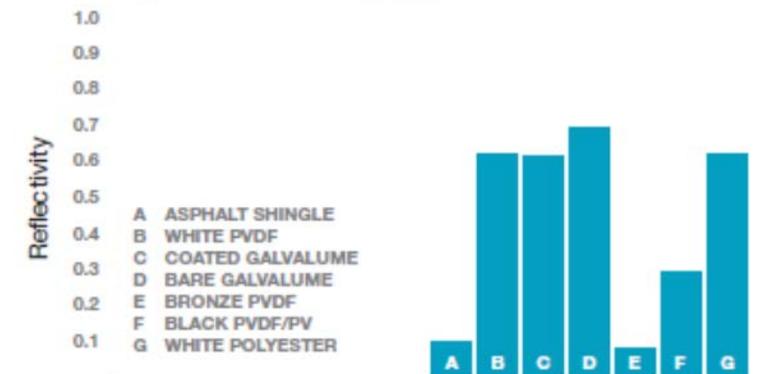
Total Solar Reflectance (TSR) – Amount of infrared radiation reflected from a surface, expressed in terms of % or decimal.

Thermal Emittance (TE) – Percentage of radiation emitted from a heated body, compared to a perfect black body expressed in terms of % or decimal.

Emmissivity is influenced by the coating



Reflectivity is influenced by pigmentation



Differences in Pigment Types

- Organic Pigments
- Inorganic Pigments
- Ceramic Pigments
- Solar Reflective Pigments

Section 4

Design and Installation of Pre-finished Steel Siding



Surface Preparation

- How good the finished job looks depends on how well the applicator prepared the wall system.
- Applicator should check for:
 - Low spots
 - Loose or rotted boards
 - Buildup of paint or caulking
- If any of these problems are found they should be corrected before the siding and accessories applied.
- Remove: Downspouts, lights, shutters and other items that may interfere with installation
- Tie back vegetation



Surface Preparation

- Building out any low spots with shims, wood lath or wood furring strips.
- Furring strips appropriate for vertical and horizontal siding.
- Run strip perpendicular to siding.
- Wood furring strips 1"x2" or 1"x3" at 16" to 24" on center.

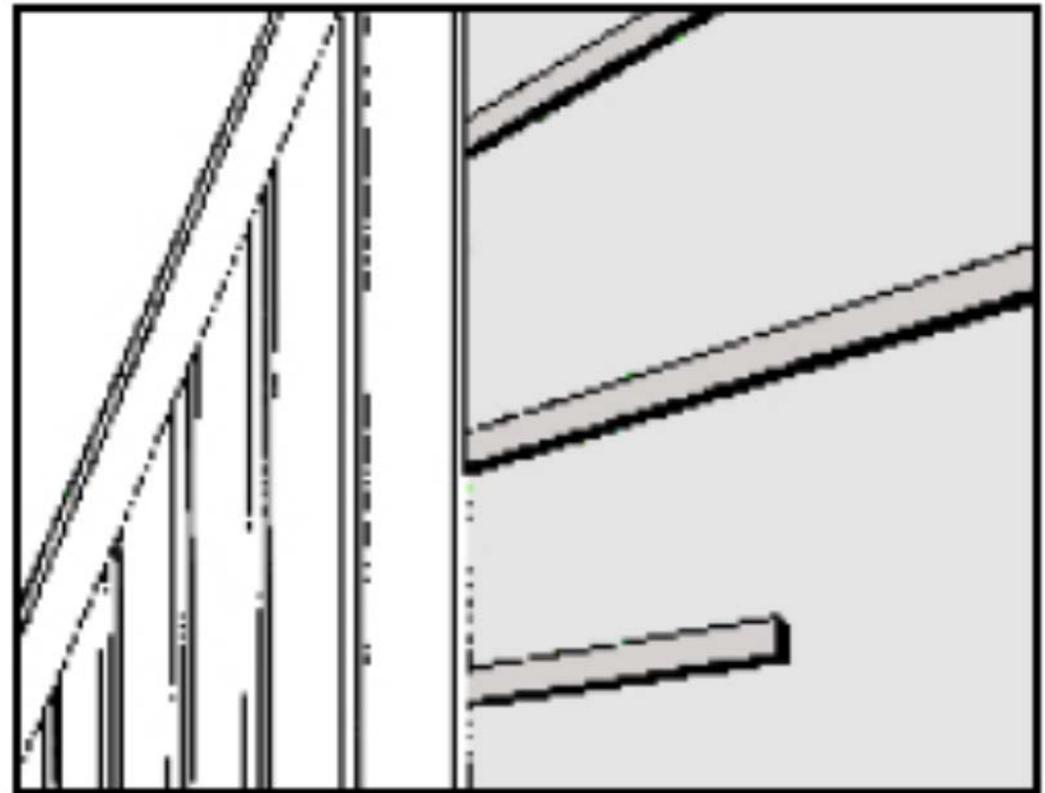
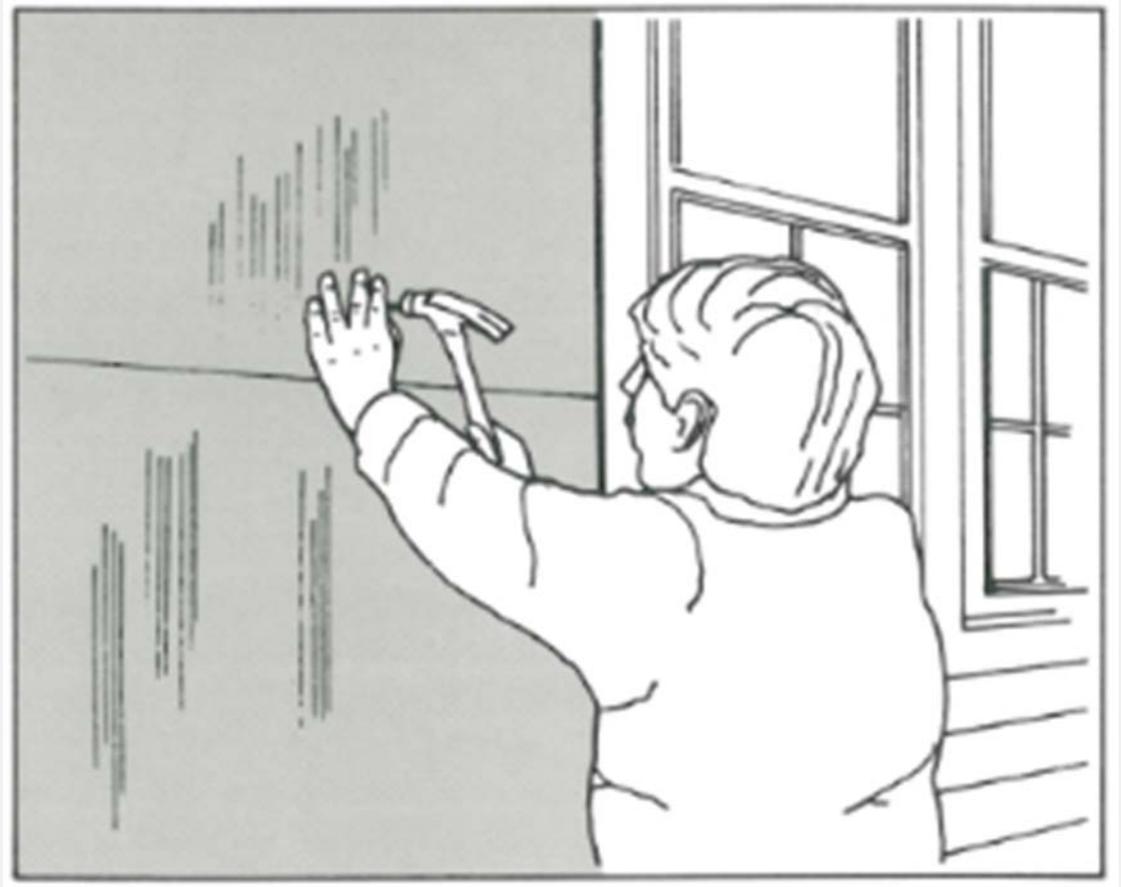


FIG. C

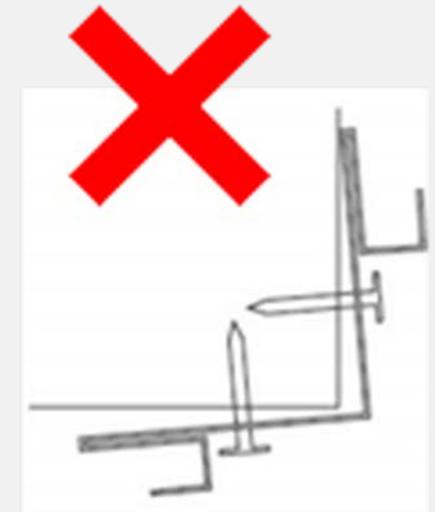
Surface Preparation

- Insulating Sheathing can be applied:
 - Between wood furring strips
 - On top of wood furring strips
 - Underneath wood furring strips
- Types of Insulating Sheathing
 - Fanfold
 - Sheet type
- Barriers
 - Housewrap or water resistive barrier
 - Underneath siding
- Reduces moisture intrusion, allows moisture evaporation, reducing mold



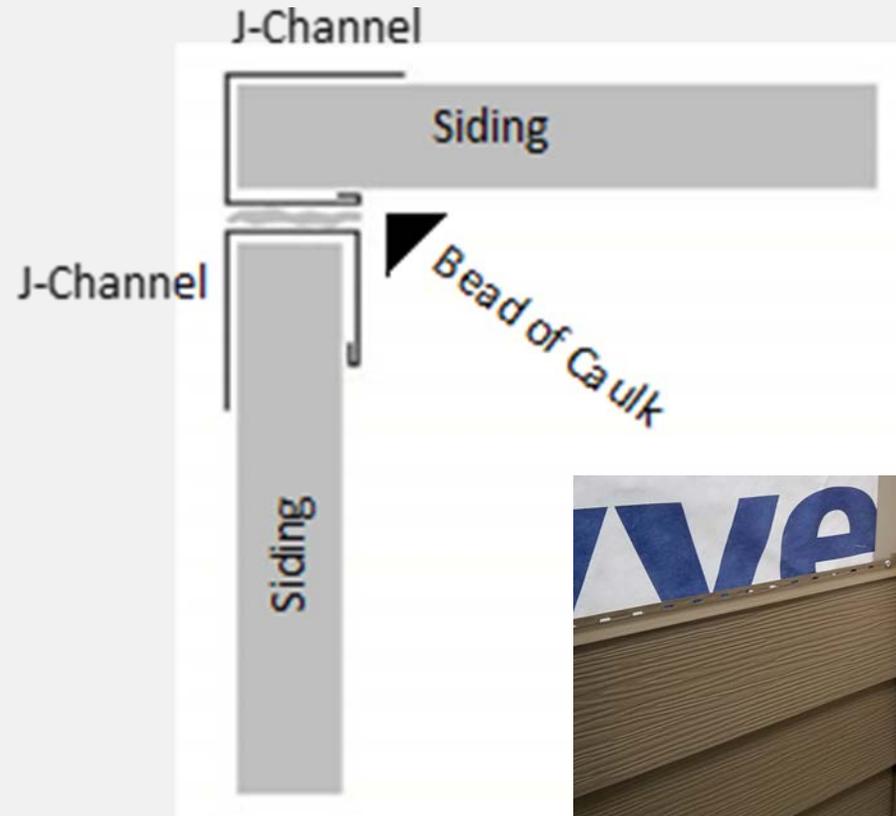
Starter Strip and Corners

- 2 piece corner system
 1. Install substrate first
 2. Install siding
 3. Install snap-on corner cap
- Avoid twisting substrate
- Hold substrate $\frac{1}{4}$ " higher than the bottom of starter strip on center
- Nail substrate every 12" with steel nails on both flanges.



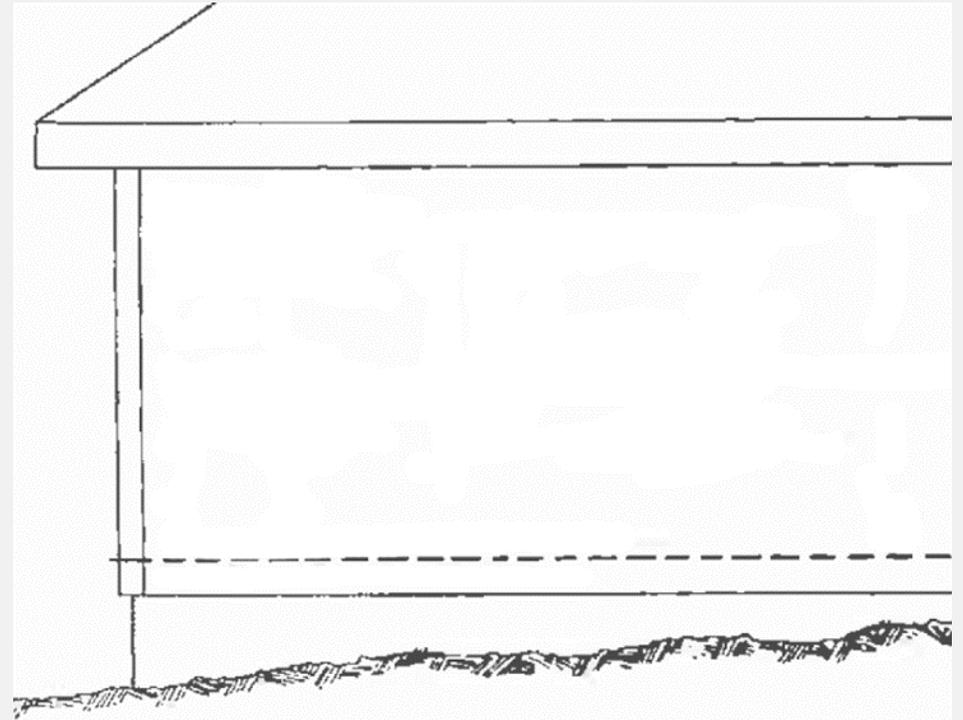
Starter Strip and Corners

- Inside corners require two pieces of J-Channel, installed face to back.
- Channels held $\frac{1}{4}$ " above bottom of starter strip
- Nail J-Channel at 16"



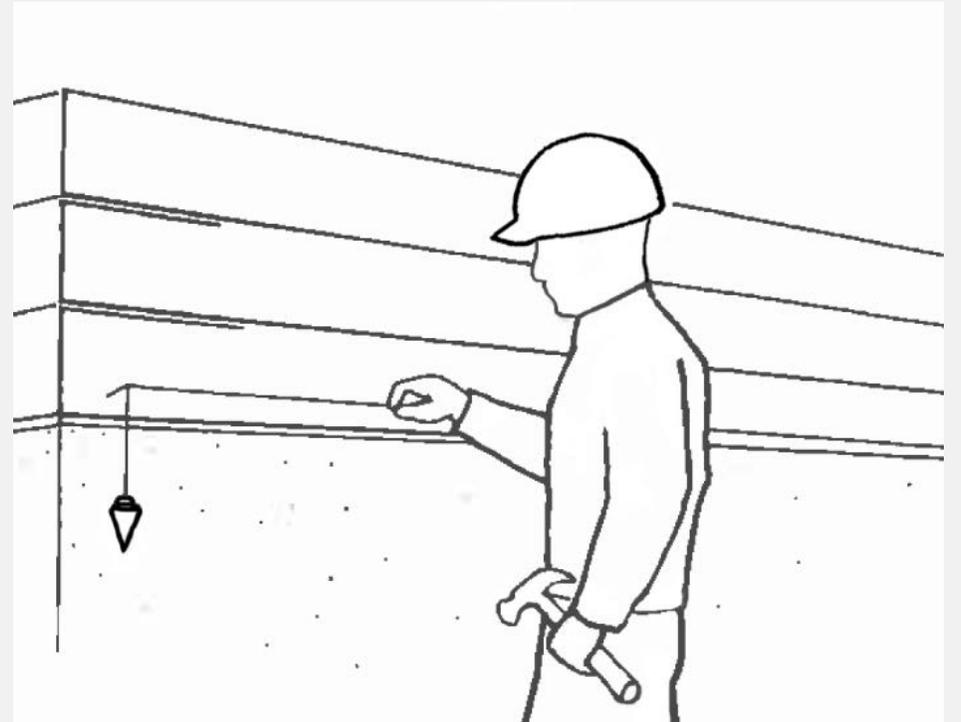
Starter Strip and Corners

- Install starter strip after corner bases installed
- Ensure straight, level line as reference is established.
- Place chalk line at the same level as top edge of start strip



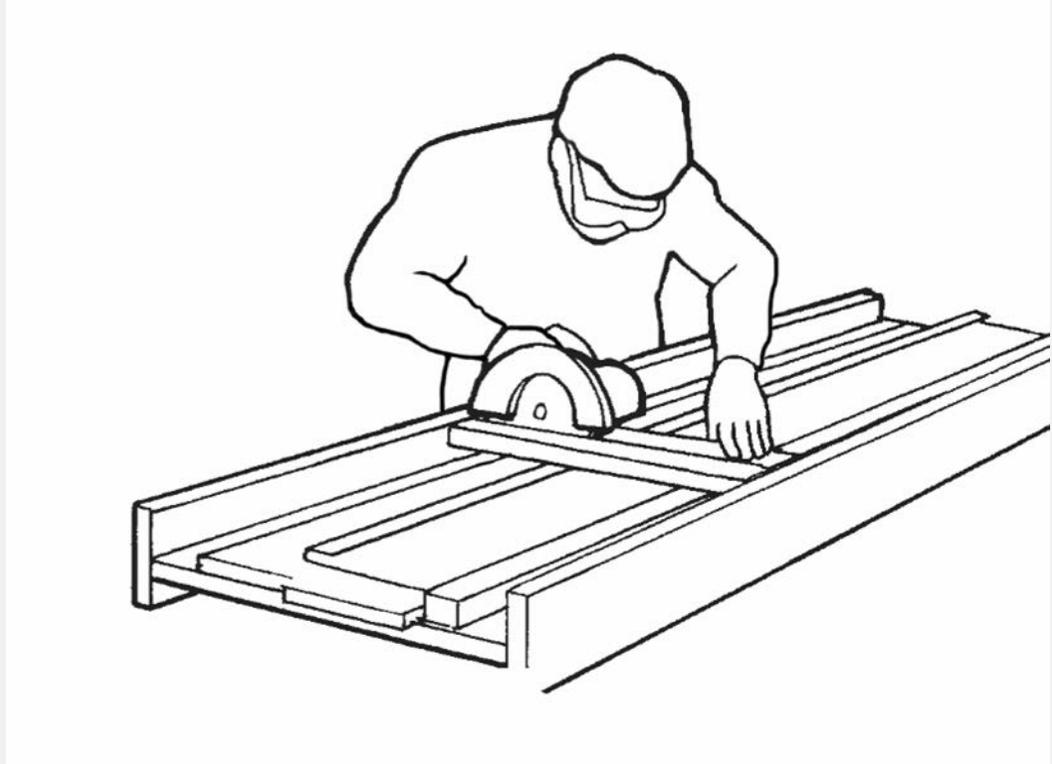
Starter Strip and Corners

- Nail start strip 12" on center, galvanized nail
- Use chalk line as guide
- Cut strips with tin snips as required
- Leave 1/8" gap between starter pieces
- Do not over nail!



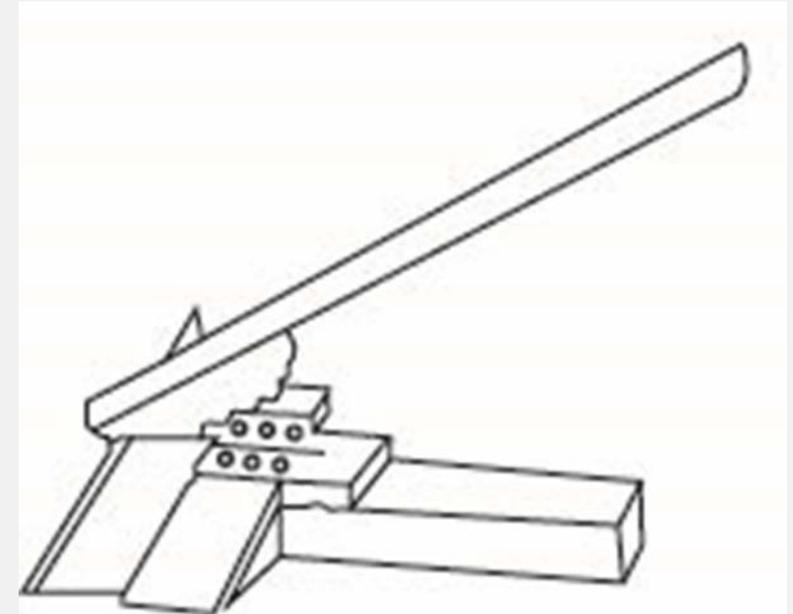
Cutting Panels

- Cutting Panels
 - Cut panels to size to fit at ends of building sides and at windows and doors
 - Stagger laps
 - Double check measurements before cutting!
- Power Saw
 - Do not cut with heat generating device—may destroy protective galvanization
 - Power saw using approved Tenryu saw blade
 - Consult manufacturer if uncertain



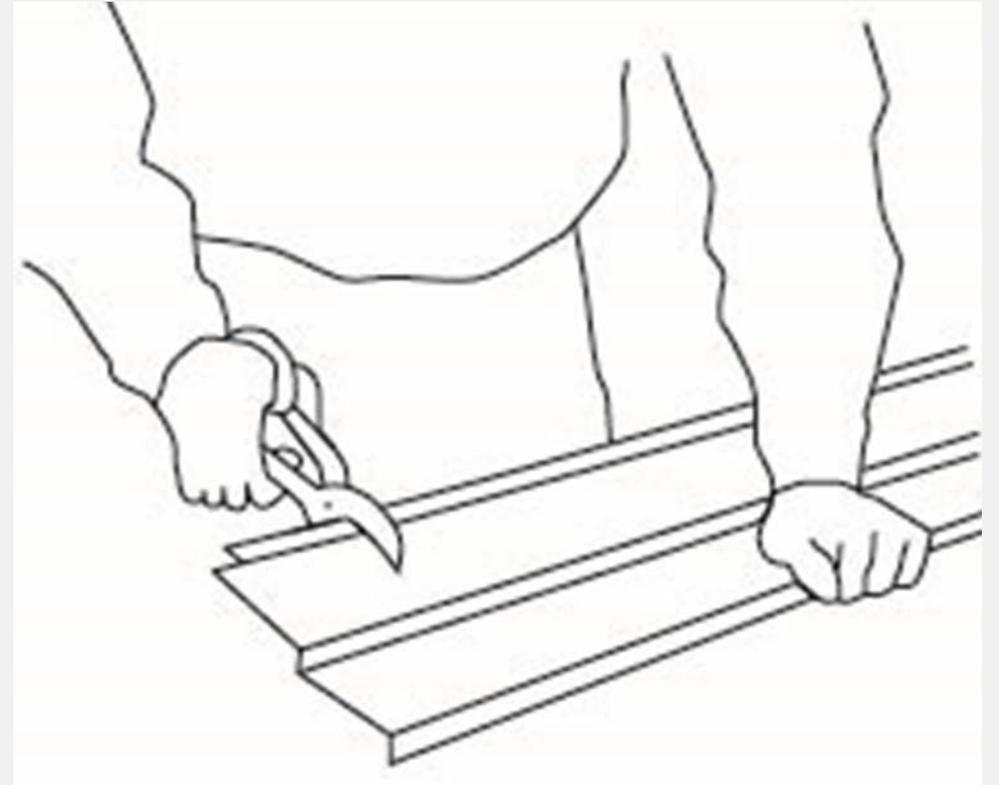
Cutting Panels

- Guillotine Cutter
 - Allows for clean, accurate cuts
 - Does not damage galvanized coating
 - Only for cuts across the panel
 - Check to make sure the blade is sharp!



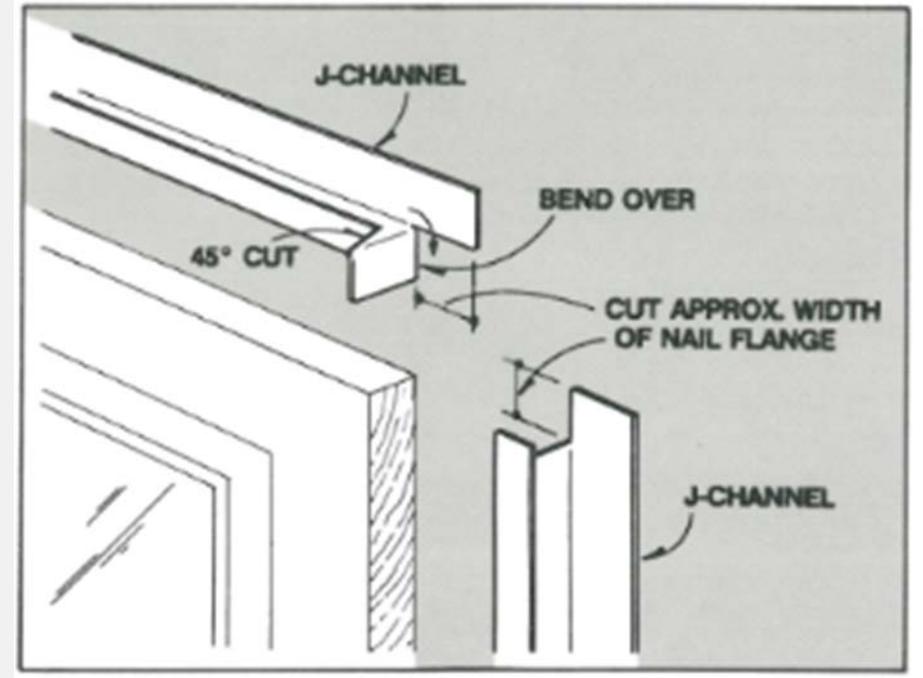
Cutting Panels

- Tin Snips
 - Good for any type of cut
 - Necessary for gable ends at angles
 - Draw an outline of cutout on panel first to use as a guide
 - Cut from the top of the panel
 - If locking lip gets flattened during cutting, use a screwdriver blade to reopen when finished
- Electric Shears
 - Good for long horizontal cuts
 - Quicker than tin snips



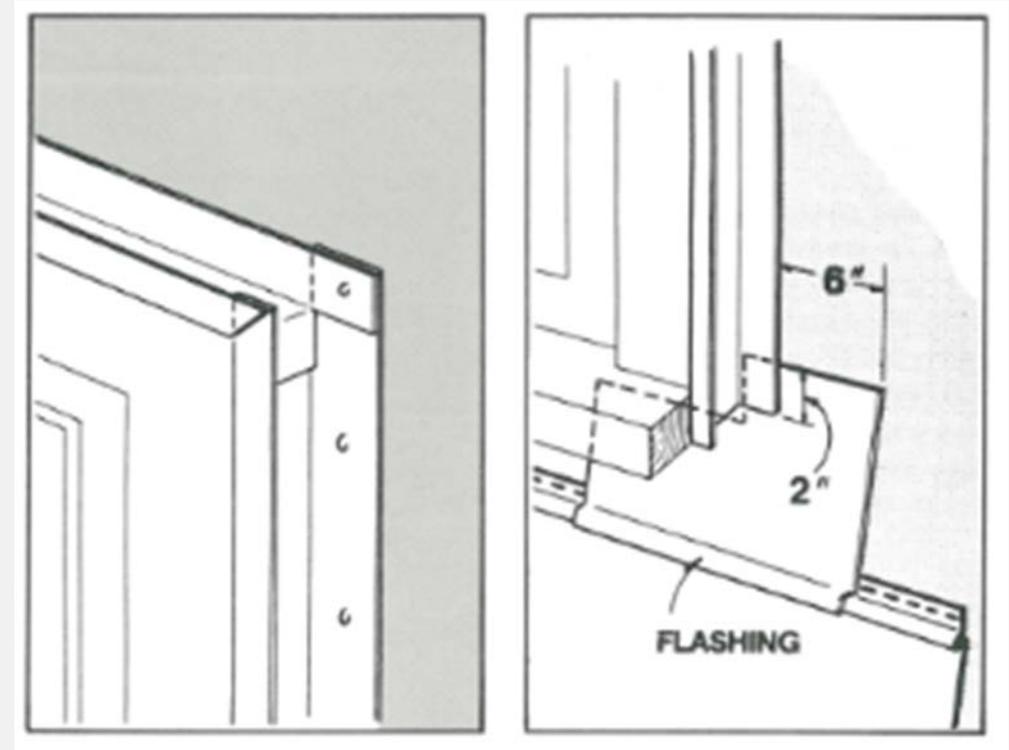
Trimming Windows and Doors

- J-Channel used around windows and doors to receive siding
- All exposed cuts should be neat and clean
- Also used at bottom of windows, install first, cut $1 \frac{1}{4}$ " wider than window sill
- Side J-Channel installed after bottom, cut square at the top.



Trimming Windows and Doors

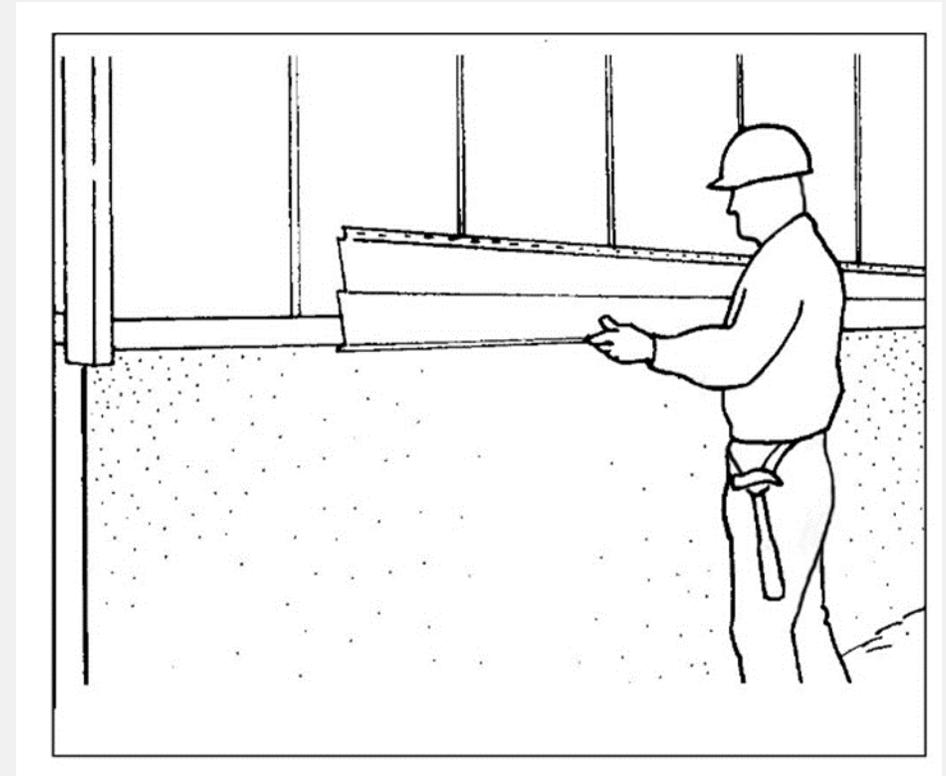
- After cutting J-Channel for side of window, notch the piece at the bottom so channel flap can be folded up under window sill.
- Nail channel in place with galvanized nails at 16"
- Bend the face around the bottom J-Channel if the J-Channels are to be wrapped together
- Top of window to be flashed with a pre-fabricated drip cap, cut 1 ½" longer than width of window.
- Ensure all penetrations through underlayment and/or housewrap are properly sealed in accordance with local building codes.



Installing Steel Siding

First Course

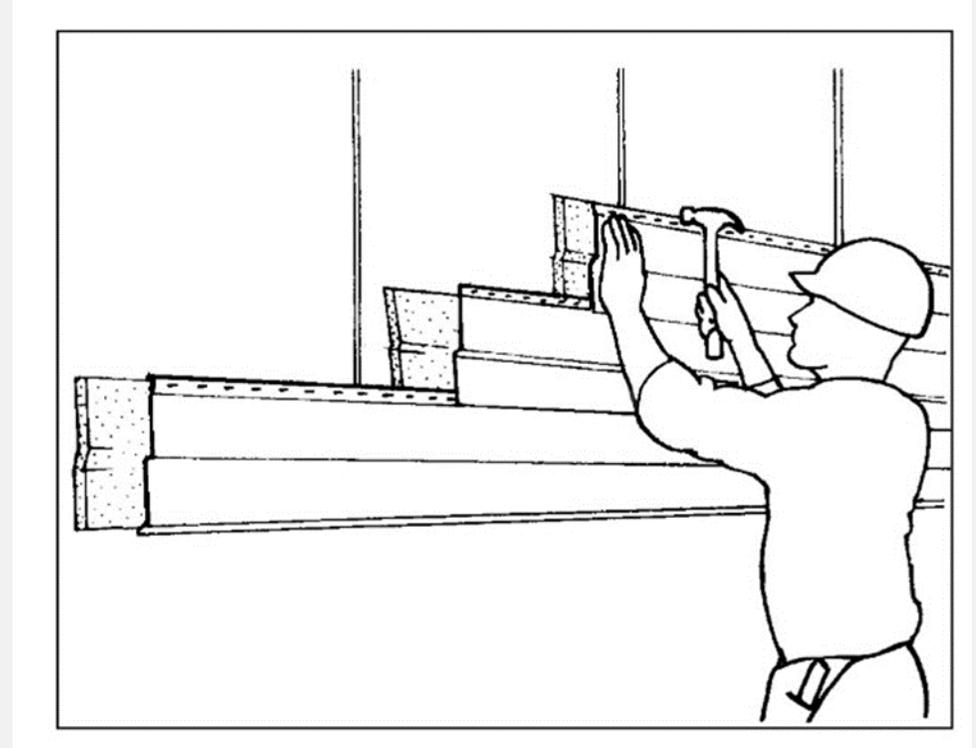
- Apply first panel by hooking bottom lock of panel into the interlock bead of the start strip.
- Make sure panel is properly hooked into starter strip.
- Do not force the panel into place
- Take care to ensure the first course is placed properly as all following courses may be impacted



Installing Steel Siding

Using Foam Backer

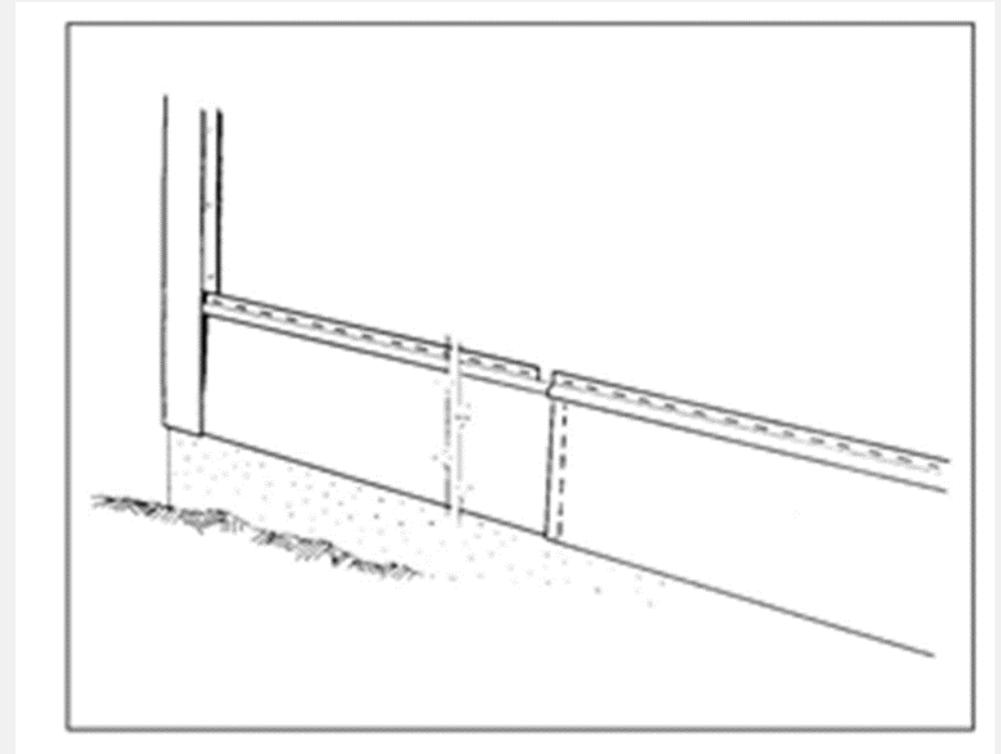
- Siding panel must be locked into start strip first and then foam drop in back installed, if foam drop in back is part of design.
- Lock panel into place and tilt top of panel away from building.
- Drop or insert foam pieces before nailing



Installing Steel Siding

Lapping

- After the first panel has been properly fastened in place, the second and subsequent panels can be installed
- Make sure that the laps are not visible from the prominent view
- Make sure that the laps are lying flat
- Factory cut laps should be lapped over top of field cut laps



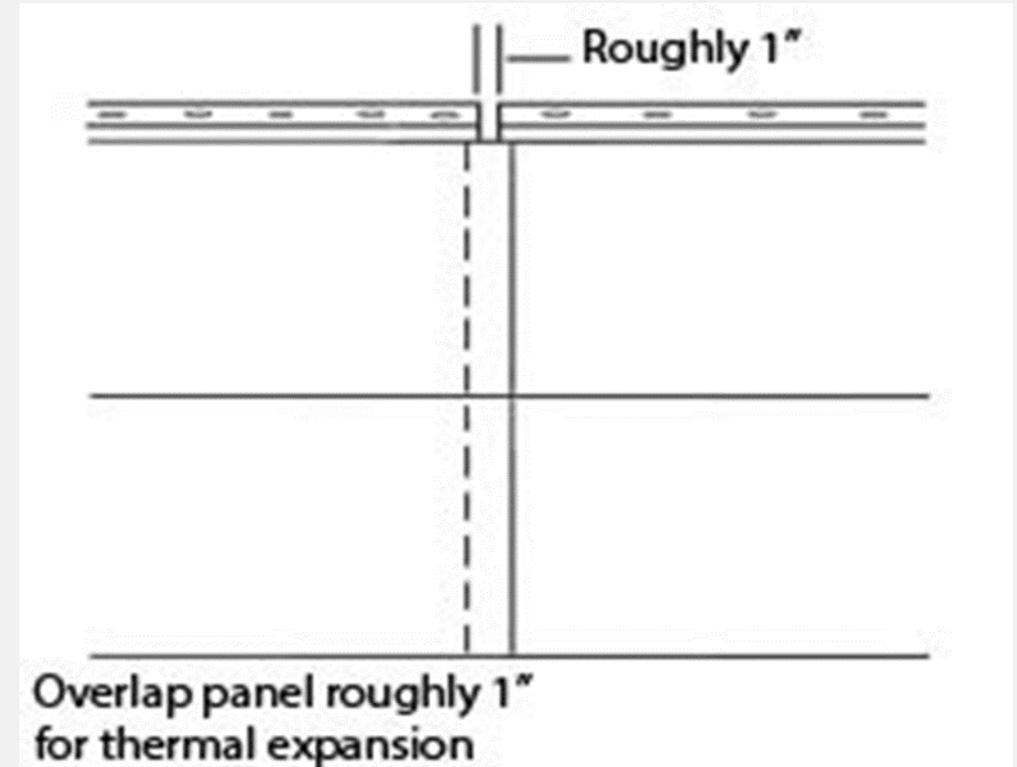
Installing Steel Siding

Overlapping

- Panels should be lapped with roughly 1" between the nailing flanges
- Avoid using short pieces as they sometime get out of level and then the laps might not lay flat together

Proper Staggering of Panels

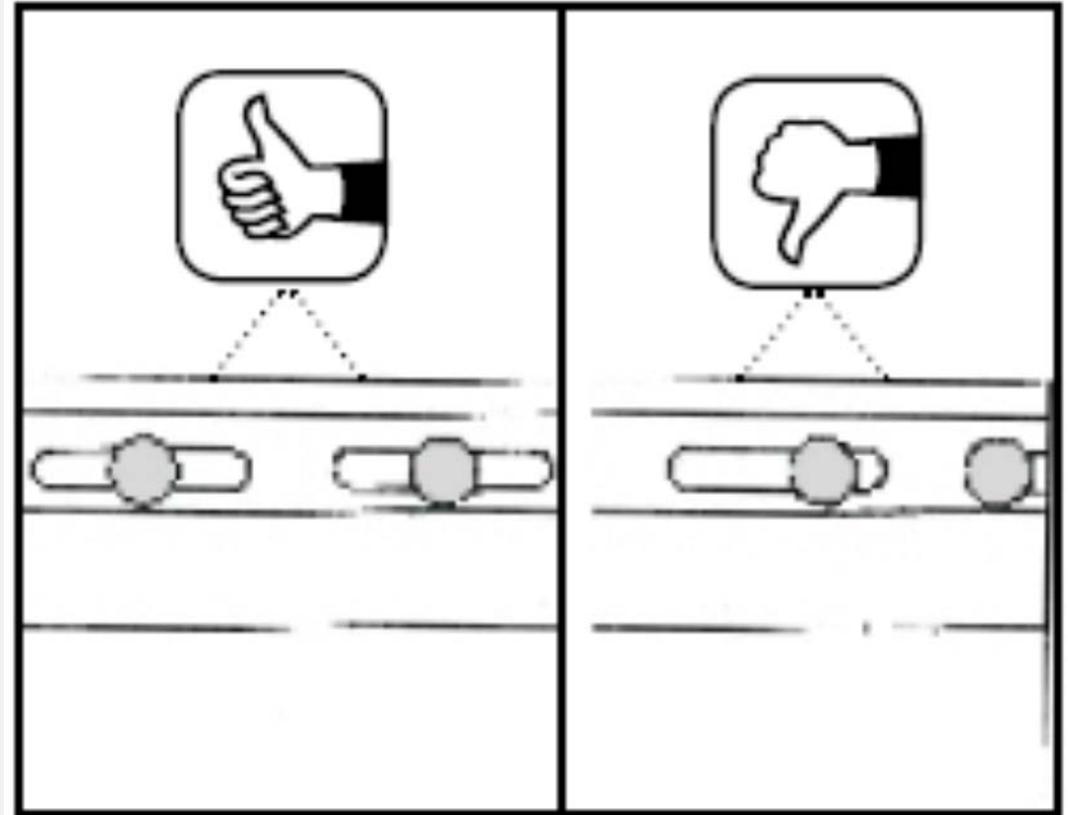
- Laps that are in a line vertically should be separated by two or more courses of siding
- Separate laps from one course to the next by at least 16".
- Joints above and below windows or doors should be avoided.



Installing Steel Siding

Hanging the Siding

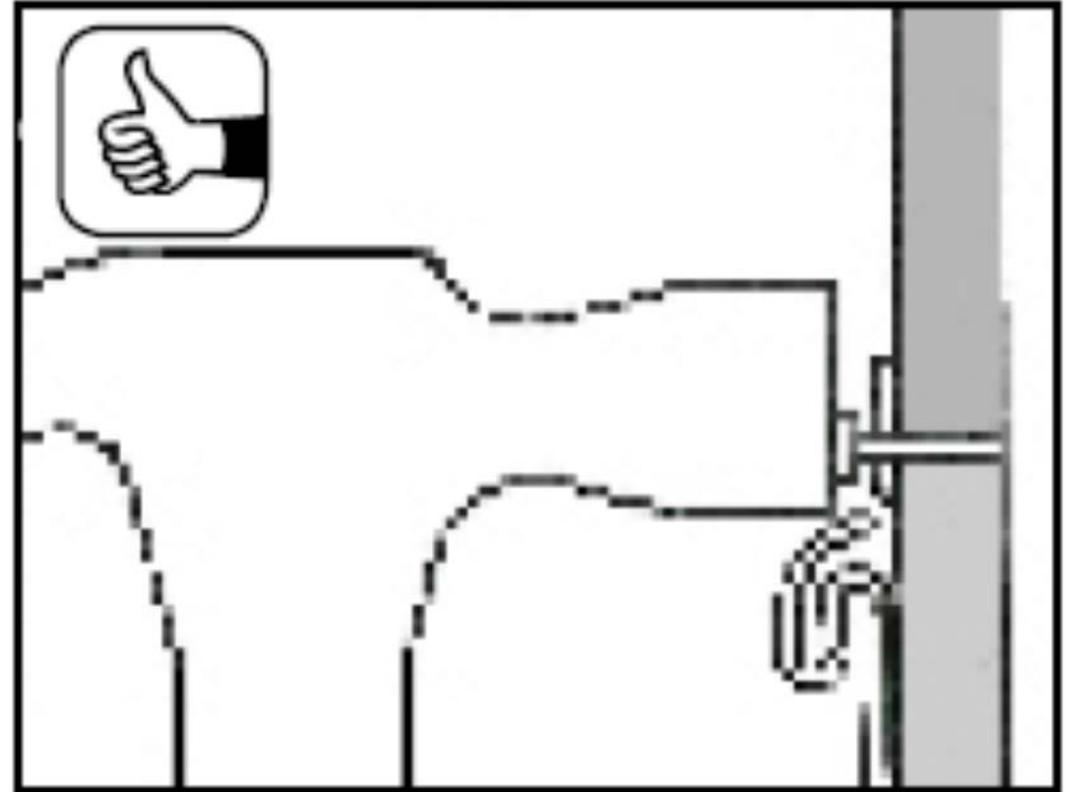
- Panels are to be hung so that there is room for expansion and contraction of the panels
- Allows for the panels to “float” or smooth out any irregularities in the wall surface by not driving fasteners tight
- Leaving a gap of no less than 1/32" between the head of the nail and the metal nailing flange will allow the panel to move freely



Nailing and Stapling

Fastening Rules

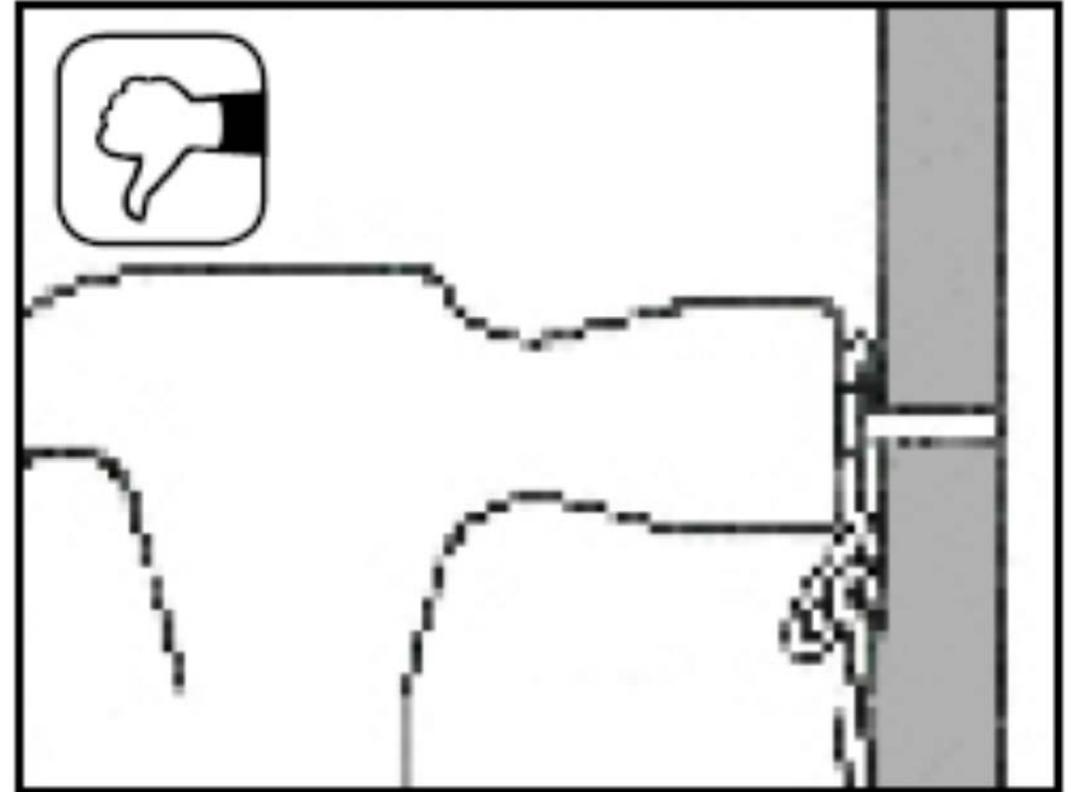
- Fasteners should be spaced 16" on center and driven straight and level and not slanted up or down as this may distort the panel
- Fasteners should not be driven closer than 6" from the end of the panel as this may distort the panel and cause the laps to be unsightly
- Don't overdrive the fasteners



Nailing and Stapling

Nails

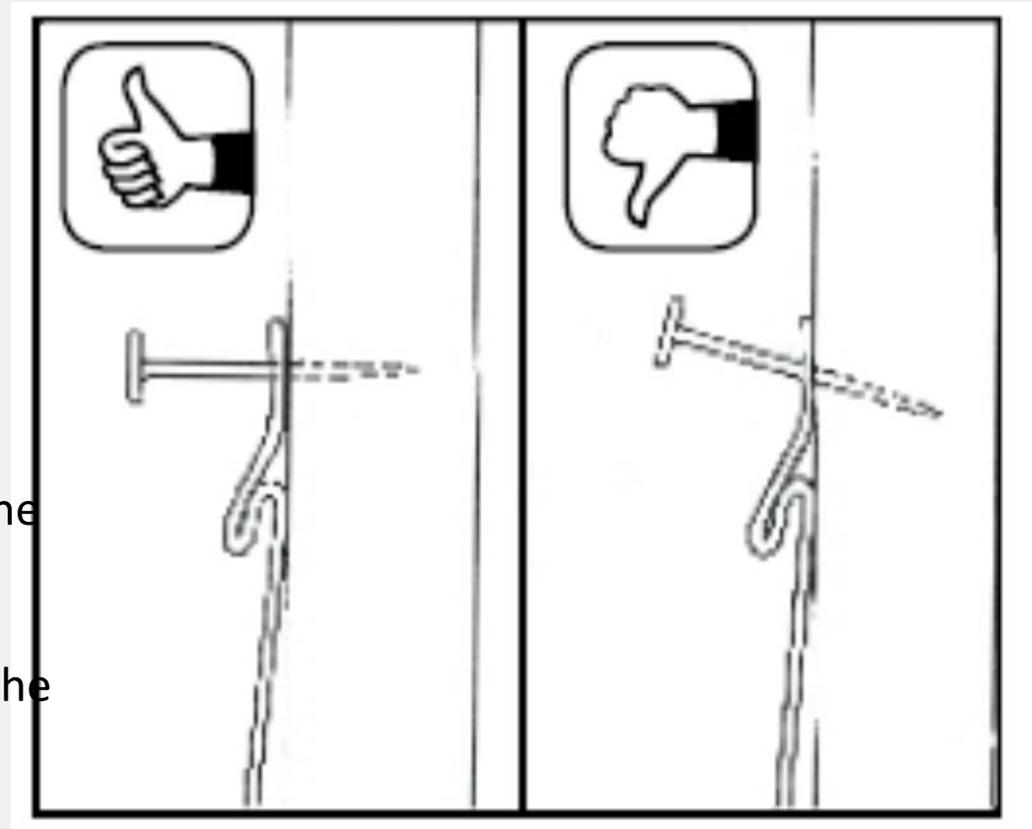
- Use 2" galvanized nails (or longer) when installing siding with drop-in backer or over a fanfold type underlayment
- Use 1 ½" galvanized nails (or longer) for installations without insulation
- Make sure that the nails are penetrating at least ¾" into the stud for proper holding strength
- If face-nailing is necessary be sure to use painted trim nails that match the siding color



Nailing and Stapling

Pneumatic Staplers / Nailers

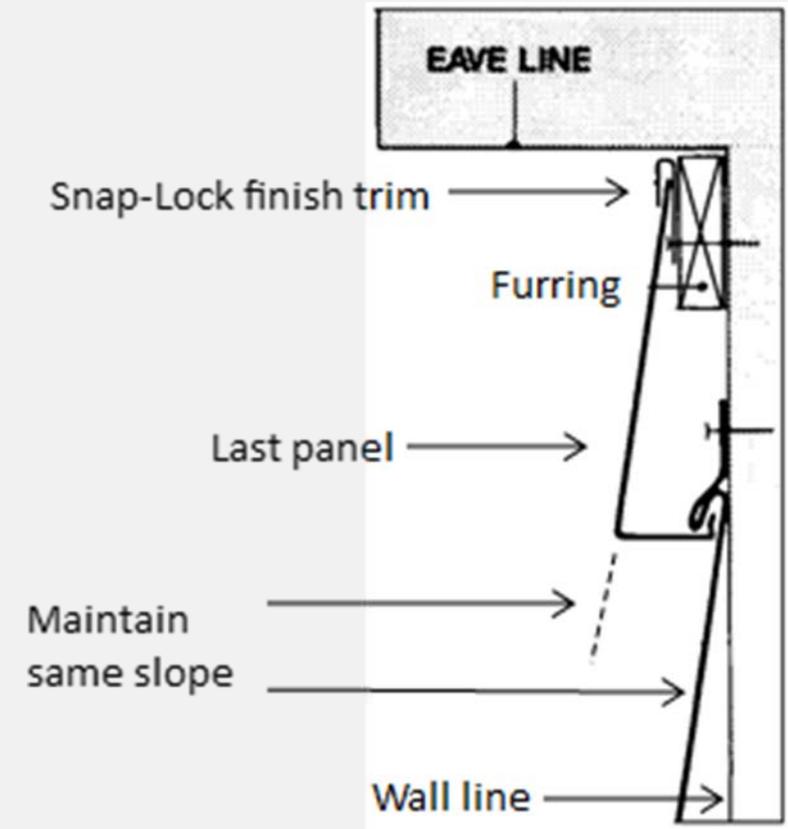
- Powered fasteners are an acceptable method of installing steel siding
- Follow the same procedures such as driving the fasteners level and are not overdriven
- Make sure that the fasteners are corrosive resistant, such as cadmium-coated or galvanized steel
- The leg of the fastener should be long enough to penetrate into the stud at least $\frac{3}{4}$ " and the width of the crown must be at least $\frac{3}{8}$
- Check the air pressure of the gun and adjust accordingly so that the fasteners are being driven to the correct depth
- Follow safety precautions when driving any fasteners whether they are power driven or driven by hand



Finishing Row/Gables & Dormers

Finishing Touches

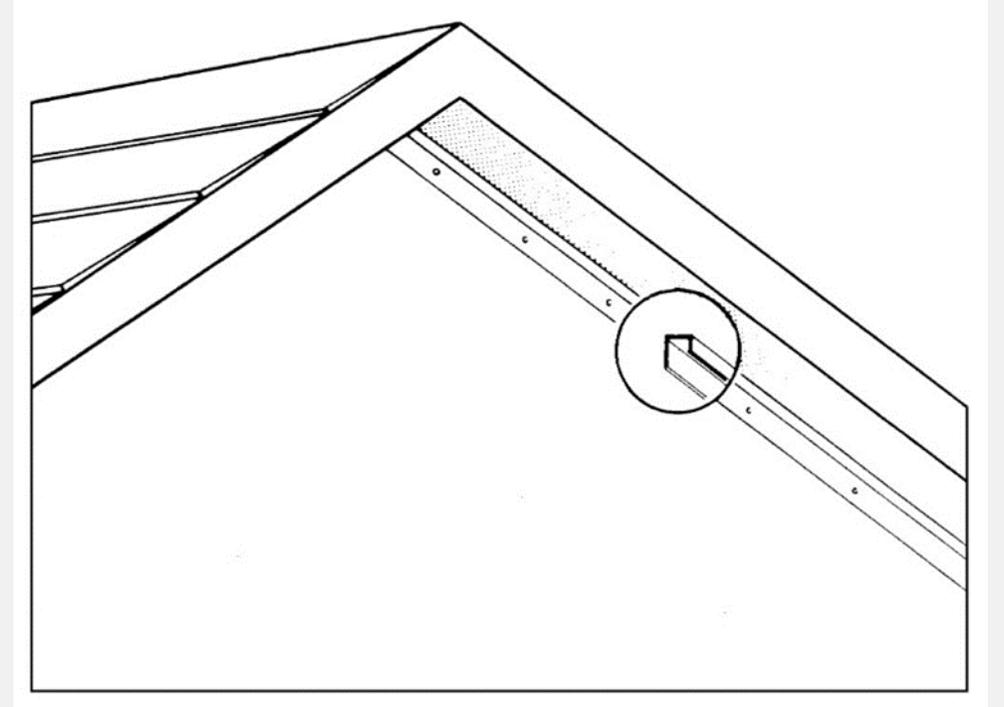
- Plan ahead for how the panels are going to lay out as work proceeds up the wall towards the soffit area
- Install some furring strips along the horizontal soffit in order to achieve the proper slope with the last panel
- Slope cut panel to match the panels below and then measure the distance between the wall and the top of the panel
- The cut edge of the panel should be covered with a piece of undersill trim



Finishing Row/Gables & Dormers

Gable Ends

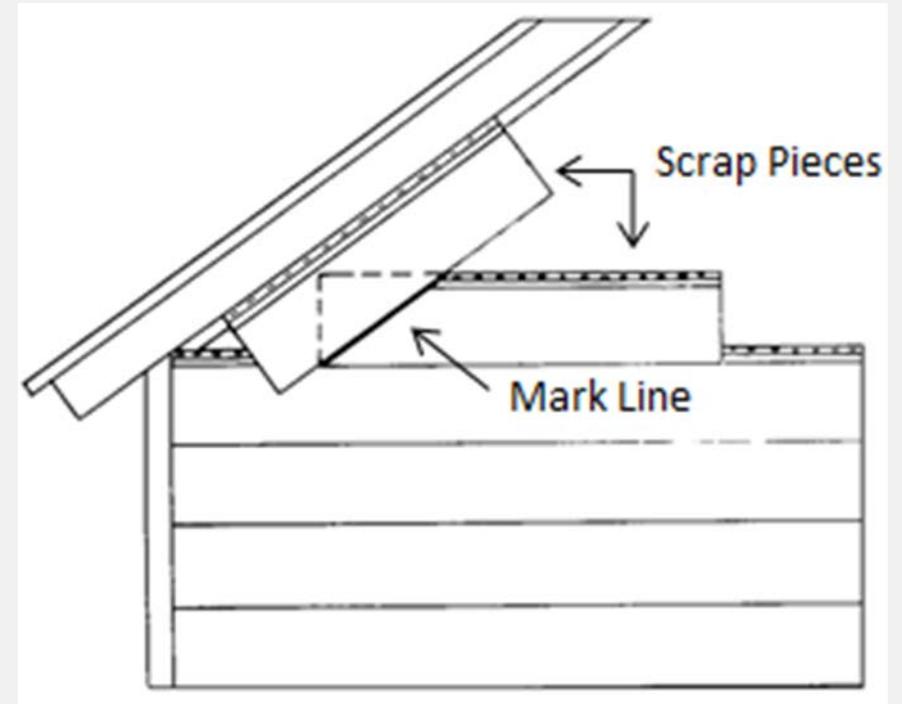
- Before applying siding in the gable end J-Channel should be applied to receive the siding panels
- Start by running J-Channel up one side of the gable and cutting the J-Channel so it will butt into the soffit at the top
- Next run another J-Channel up the other side until it meets the first J-Channel and then trim the face for appearance



Finishing Row/Gables & Dormers

Gable Ends

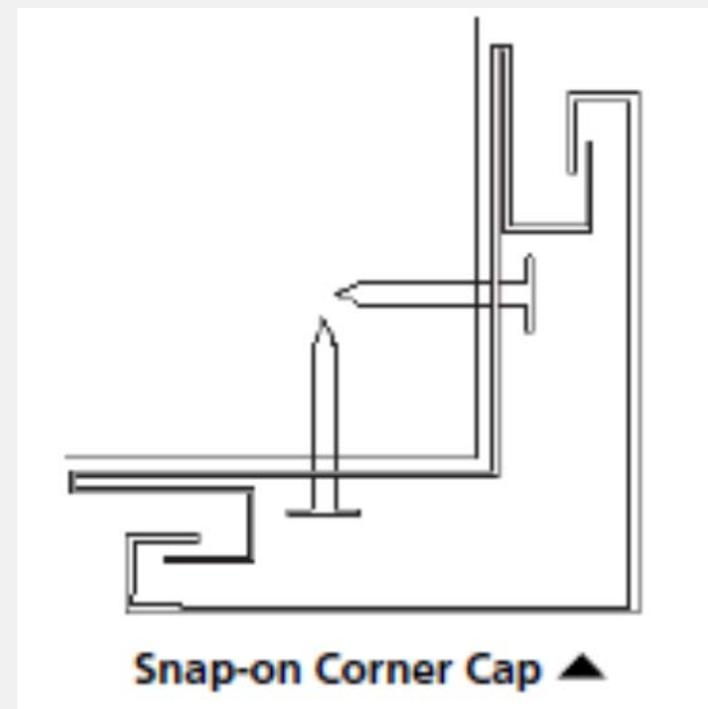
- After walls complete, start installing the panels in the gable end
- The ends of these panels will need to be cut at an angle to match the slope of the soffit
- To get the correct angle use two pieces of scrap siding as seen in the illustration to make a cutting template
- Slide the angled end of the cut panel into the J-Channel and lock into place
- Nail and repeat the cutting and installation of panels
- The last panel will need to be properly nailed in place with a colored nail



Finishing Up – Corner Caps

Snap-on Corner Cap

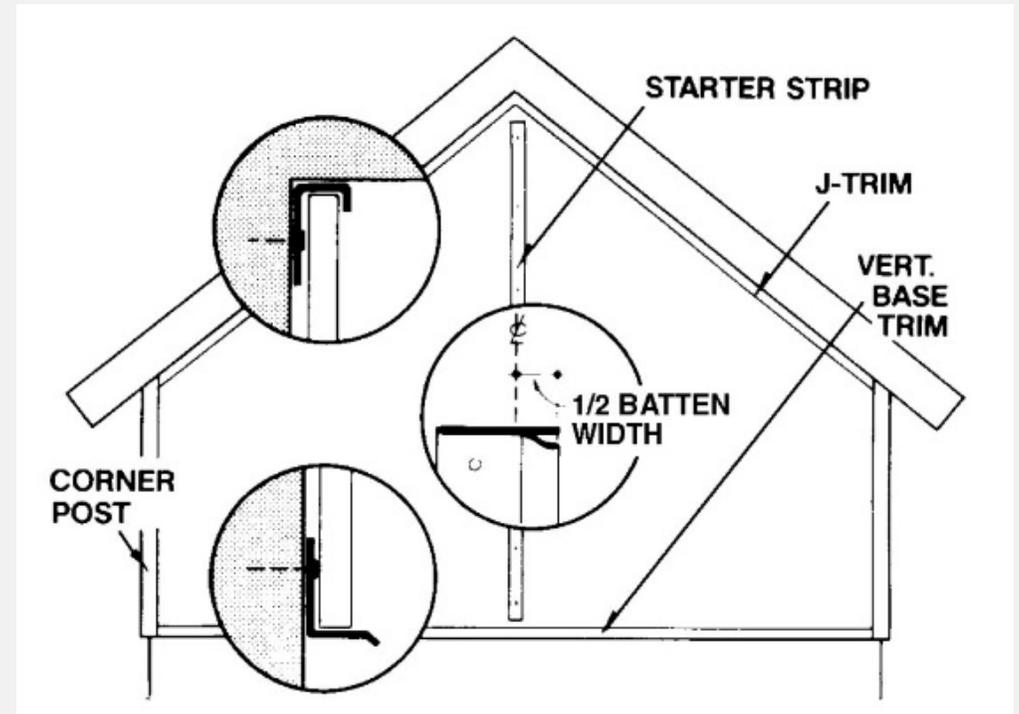
- After all of the siding panels have been installed on the walls the Snap-on Corner Caps can be installed
- Before installing the Snap-On Corner Cap, fold over a flap so that the bottom and top are closed off
- Snap-on Corner Caps can then be installed by hooking one of the edges onto the flange of the previously installed Snap-on Corner Substrate
- Stretch the Snap-on Corner Cap and catch it on the other edge of the substrate
- If the wall is taller than the length of the Snap-on Corner Cap notch the second post and lap over on the face of the lower corner cap



Vertical Siding

Application

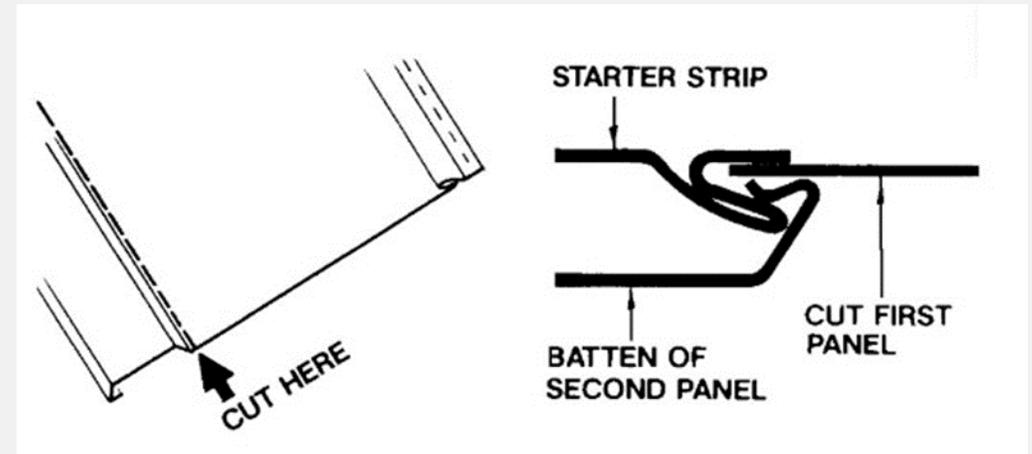
- Vertical Siding can be used as an accent panel in gable ends or for the whole exterior
- Most procedures for installing Vertical Siding will be the same as for horizontal siding
- One exception is how the panels are started
- When starting, install a piece of Z-Flashing horizontally along a line at the lowest point of the area that will have Vertical Siding installed
- The Z-Flashing will provide a straight edge for the Vertical Siding to sit up and it will also close off the open area of the battens on the siding



Vertical Siding

Application

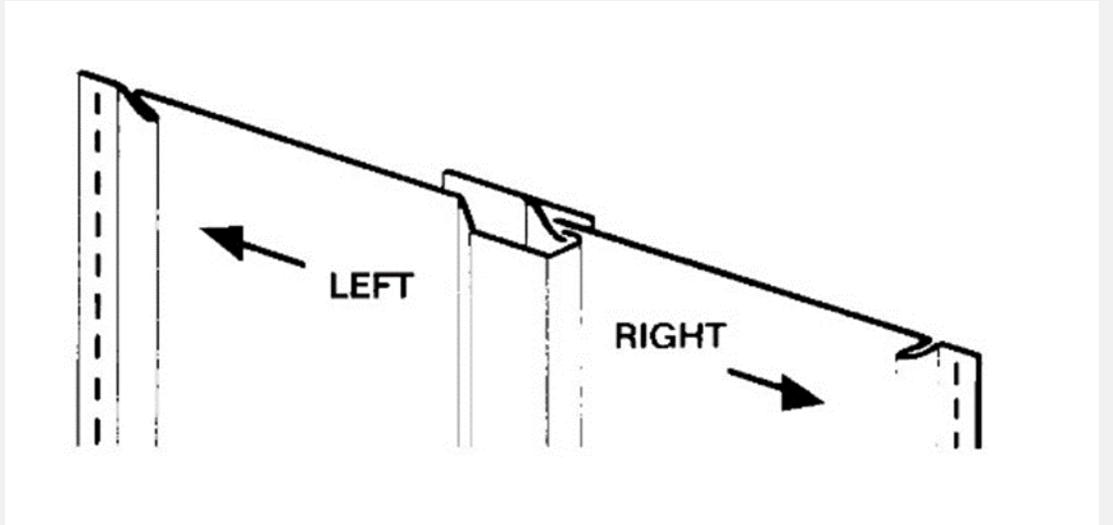
- After the Z-Flashing has been installed, start installing the vertical panels
- Wood lath may be required behind the panel to minimize oil-canning on irregular surfaces



Vertical Siding

Gable Ends

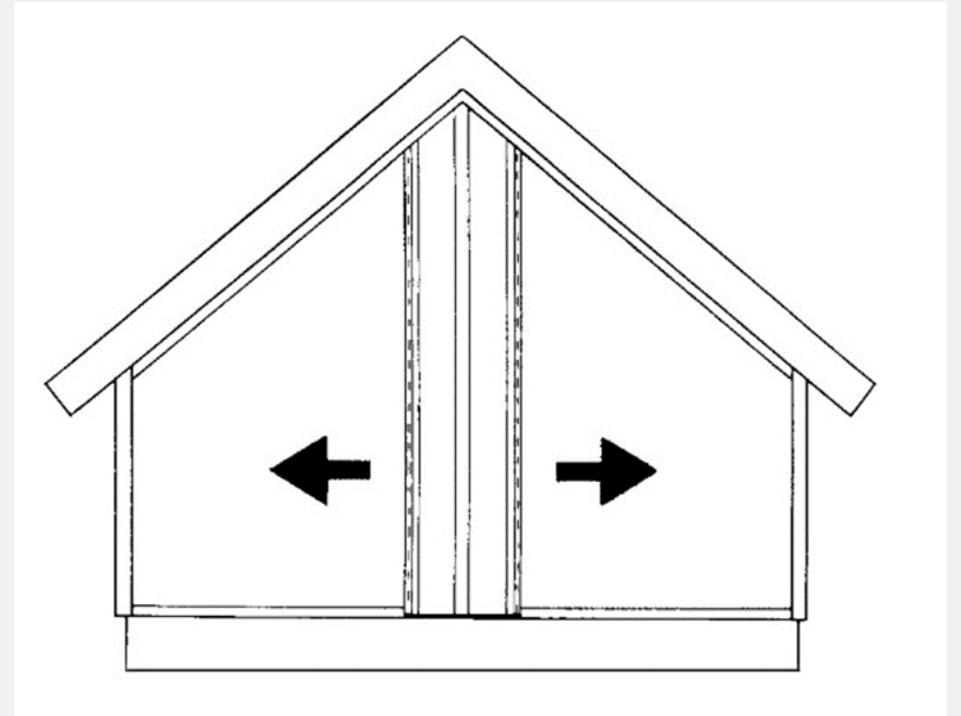
- For vertical siding at gable end, install the starter strip vertically approximately in the center of the gable



Vertical Siding

Gable Ends

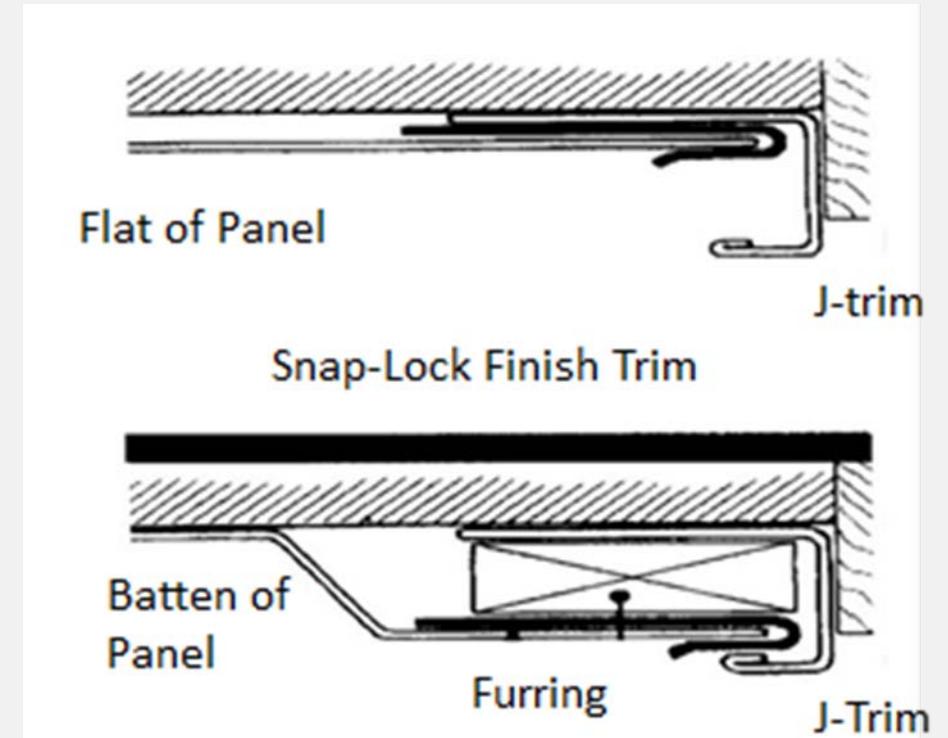
- Next, take a panel and cut off the batten part of the panel
- The cut edge will be inserted into the starter strip and nailed in place
- After the cut panel has been secured in place, cut another panel to length and slope to hook into the other side of the starter strip
- Proceed to side the rest of the wall by cutting and installing panels into both corners



Vertical Siding

Walls or between windows

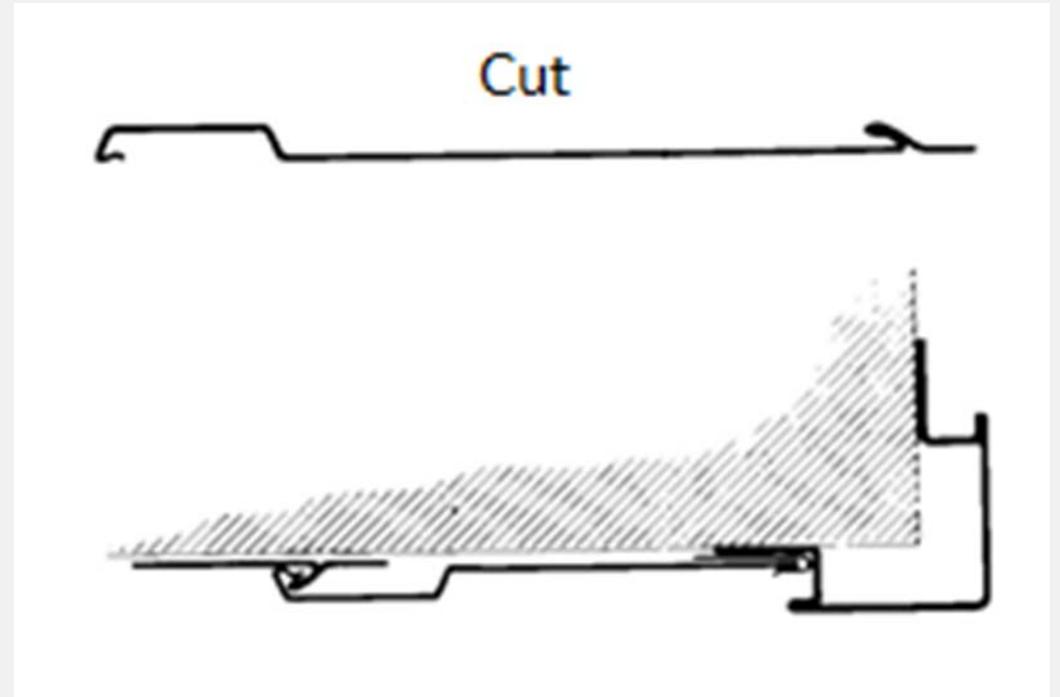
- After the Z-Flashing has been installed. Outside Corners should be installed
- Next, J-channel needs to be installed around the window and door openings
- Cut the first panel to length and insert it into the pocket of the outside corner post
- Finish siding the wall with panels cut to fit



Vertical Siding

Walls over 10' High

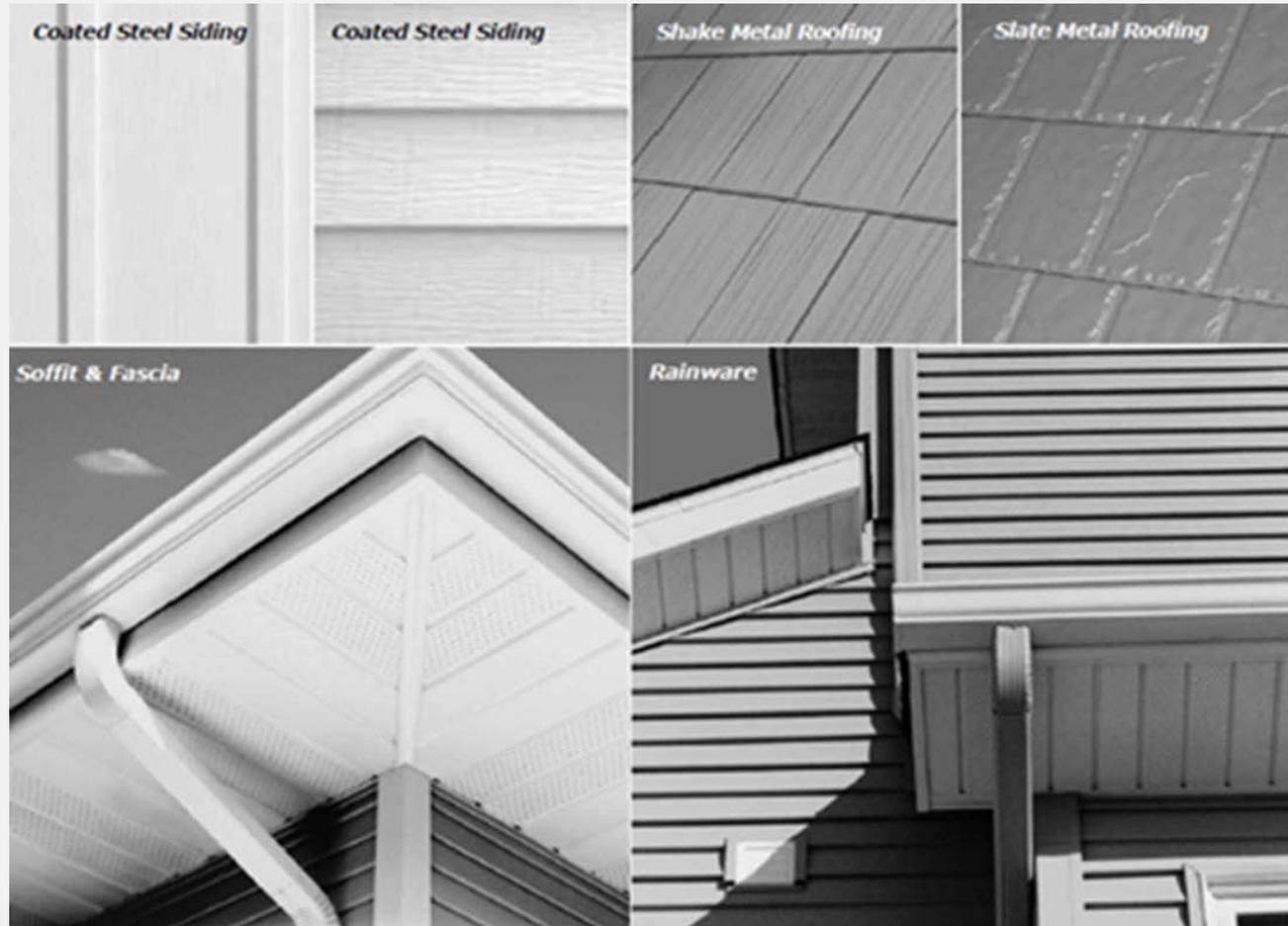
- For walls over 10' high, finish off the top edge of the lower panels with Z-Flashing



Tools & Equipment

1. Cutting Tools
 1. Power Saw with metal cutting blade (pg.5)
 2. Guillotine cutter
 3. Snips (Aviation or Duckbill)
 4. Power Shear
 5. Hack Saw with fine tooth blade
2. Portable Metal Bending Brake
3. Ladders and Ladder Jacks
4. Scaffolding
5. Planking
6. Hammer - 16 oz. Claw or Framing
7. Level - 24" minimum length
8. Chalkline or Dryline - 100'
9. Tape Measure - 25'
10. Caulking Gun
11. Scratch Awl
12. Sawhorses or Cutting Table
13. Framing Square
14. Crosscut Hand Saw
15. Protective wear
16. Hand Brake

Images of Finished Details



Section 5

Conclusion and Assessment





Questions?

This concludes the American Institute of Architects
Continuing Education System Program.

About EDCO

- Founded in 1946, 3rd & 4th generation family ownership
- 100% U.S. sourced materials
- Vertically Integrated
 - Purchase mill direct from U.S. Steel
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- 59 years Soffit & Fascia
- 38 years metal siding
- 17 years metal roofing
- 70+ years of PASSION!



Thank you!