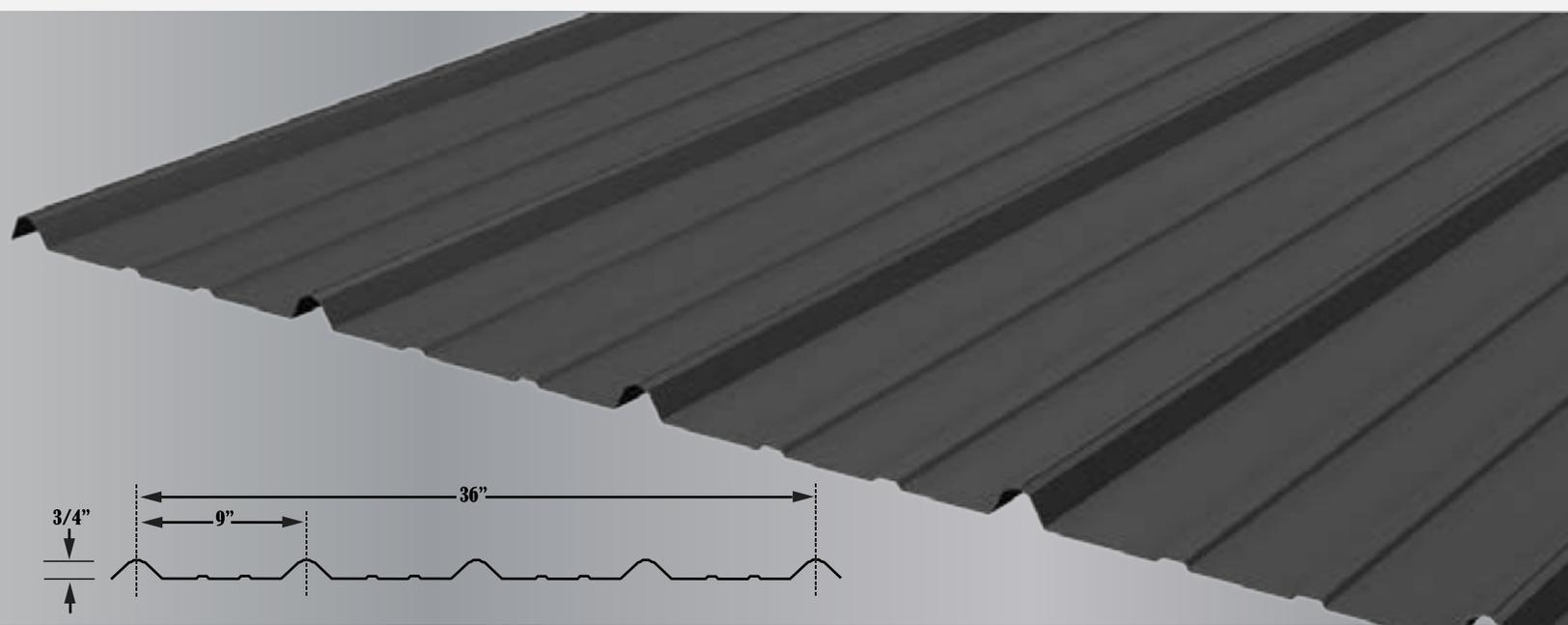


TRI COUNTY METALS



AVAILABLE IN



ENERGY STAR PARTNER
CORE DEFENDER
paint system[®]

GALVALUME[®]

www.TriCountyMetals.com

ULTRA RIB INSTALLATION MANUAL

TABLE OF CONTENTS

Important Notice/Safety/Storage/Tools.....	1
Product Information.....	2
Roofing Anatomy/Side Trim	3
Measuring Your Roof.....	4
Roofing Installation/Felt/Cutting Panels.....	5
TCM Radiant Barrier.....	6
Purlin Installation	7
Drip Edge Installation	8
W Valley Installation	9
Fastening Schedule/Proper Screw Installation	10,11
Pre-drilling Panels/Overlapping Panels.....	12,13
Squaring Panels.....	14
Transition Flashing Installation	15
Endwall Installation.....	16
Sidewall Installation.....	17
Gable Trim Installation	18
Hip Cap Installation.....	19
Ridge Cap Installation.....	20
Roof Boot Installation.....	21
Special Trim Information.....	22
Care and Maintenance.....	23
Policies.....	24
Order Form	25

IMPORTANT NOTICE/SAFETY/STORAGE

IMPORTANT NOTICE

- This manual is to aid the installer with the installation of the Ultra Rib panel. Due to the different complexities of roofs and roofing situations, it is difficult to create a manual that covers every situation that the installer may encounter.
- This manual is to serve as a guideline to properly installing the Ultra Rib panel.
- Check with local building codes prior to installing metal roofing.
- Any questions you may have regarding proper installation of the Ultra Rib panel should be directed to a Tri County Metals representative.

TOOLS RECOMMENDED

Variable Speed Drill or Screw Gun, Snips, Magnetic Bit, Extension Ladder, Turbo Shears (we stock these for purchase), Tape Measure, Hand Bending Tools, Chalk Line, String Line, Drill Bits, Tool Belt, and Utility Knife

SAFETY

- Failure to observe proper roofing safety can result in serious injury or death. Extreme caution should be used at all times when installing metal roofing. The information in this manual is to show the correct placement of the metal roofing parts. It is the responsibility of the erector to perform the placement of these parts in a safe manner. Refer to OSHA guidelines for applicable safety requirements.
- Never walk on a wet metal roof.
- Never walk on an unfastened roof panel.

STORAGE/HANDLING

- **Important:** Moisture trapped between stacked sheets may cause water stains or white rust to form under the paint, which can affect the life and service of the metal.
- If metal is not used immediately, store in a well ventilated dry location.
- Any outdoor storage is at the customer's own risk! If outdoor storage cannot be avoided the likelihood of damage may be reduced by protecting the metal using a canvas of waterproof paper.
- Fan sheets lightly at the bottom to allow for air circulation.
- **Keep the sheets off the ground** by using an insulator such as wood.
- **Never cover the metal with plastic** as this will cause condensation to form.

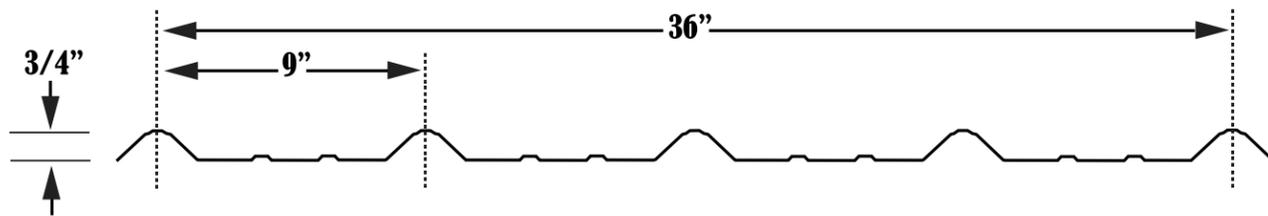


Make Your Next Roof Your Last!



Make Your Next Roof Your Last!

ULTRA RIB PRODUCT INFORMATION



Applications: Residential, Light Commercial, Industrial, Agricultural
Gauge: 26 gauge and 29 gauge - exceeds FL Bldg Codes specifications
Minimum Slope: 2 / 12
Panel Profile: 36" net coverage, 5 ribs 9" on-center, 3/4" high rib
Substrate: Galvalume® steel sheet, conforming to ASTM A792
Finish: Mill Finish AZ55 Acrylic Coated Galvalume®; 25 year limited warranty
TCM exclusive paint systems:
 Core Defender Paint System® 40 / 30 year limited warranty.
 Max Defender Paint System® 35 / 30 year limited warranty.

GAUGE	SUBSTRATE	APPROVAL#
26	15/32 Plywood	4595.16
29	15/32 Plywood	4595.17
29	1x4 Wood Purlins over 15/32 Plywood	4595.18
29	1x4 Wood Purlins over 15/32 Plywood/Shingles	4595.19
29	7/16 OSB	4595.20
29	15/32 Plywood/Shingles	4595.21
29 <small>THROUGH RIB screw</small>	1x4 Wood Purlins over 15/32 Plywood / Shingles	4595.22
29	5' OC Open Framing Steel Purlin	9903.3

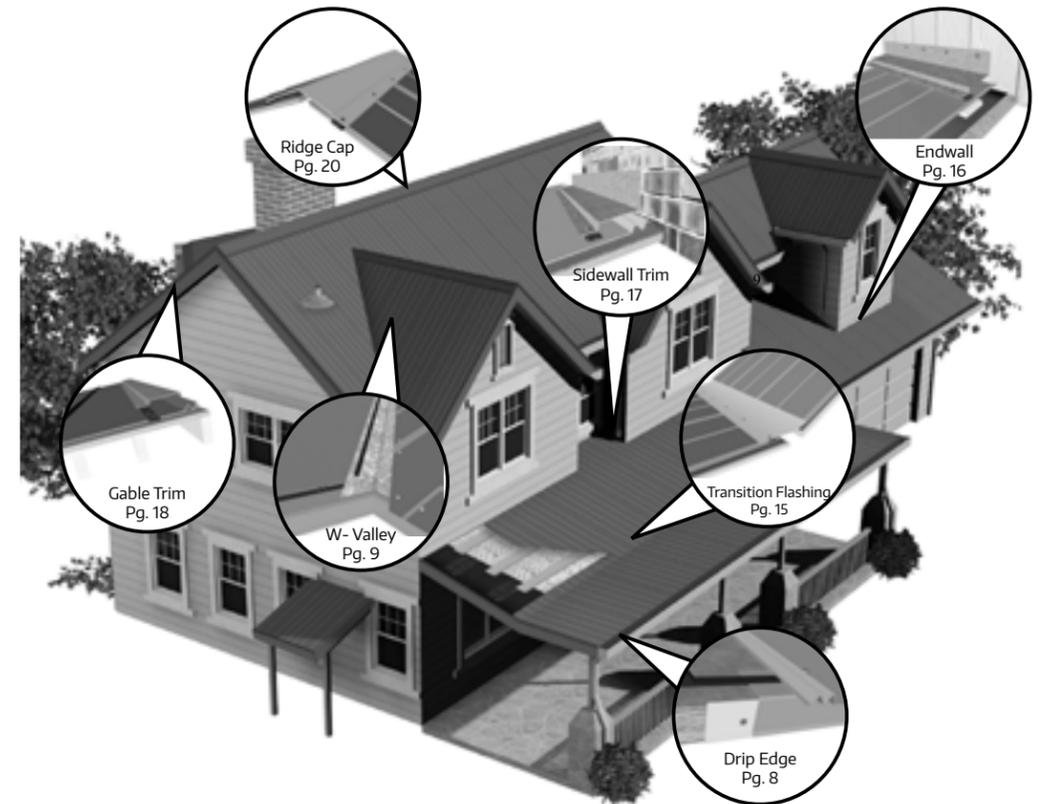
PLEASE NOTE: For other installation configurations, please inquire with your salesperson for site-specific accommodations.

RECOMMENDED ACCESSORIES:
 Lifetime WoodZac or Woodbinder fasteners
 (250 screws / bag)

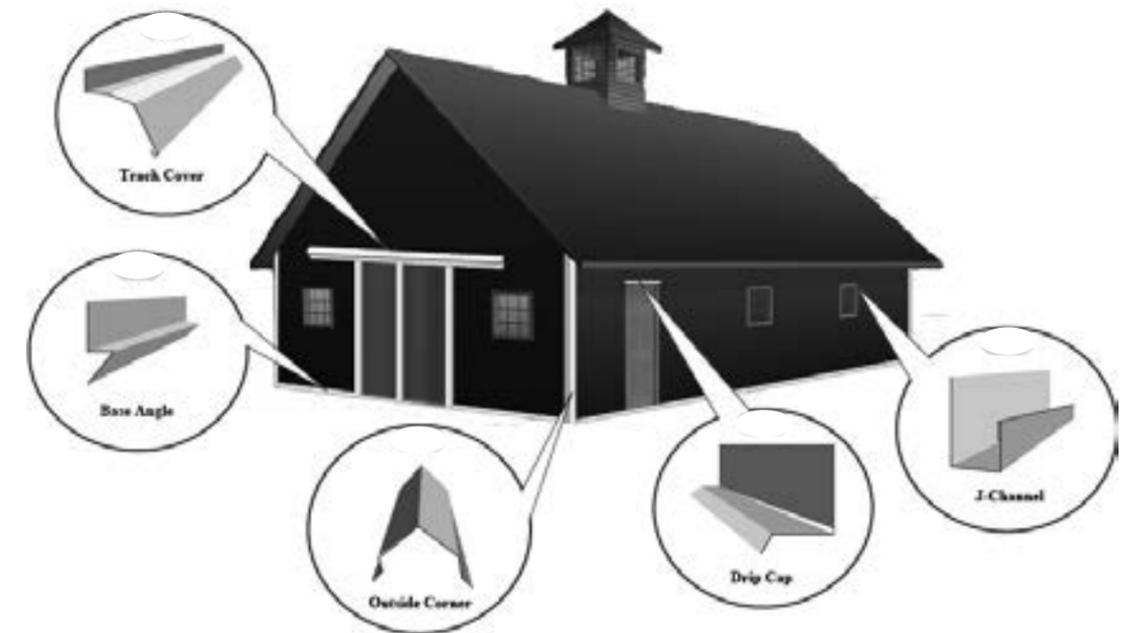


Make Your Next Roof Your Last!

ROOFING ANATOMY



SIDING TRIM



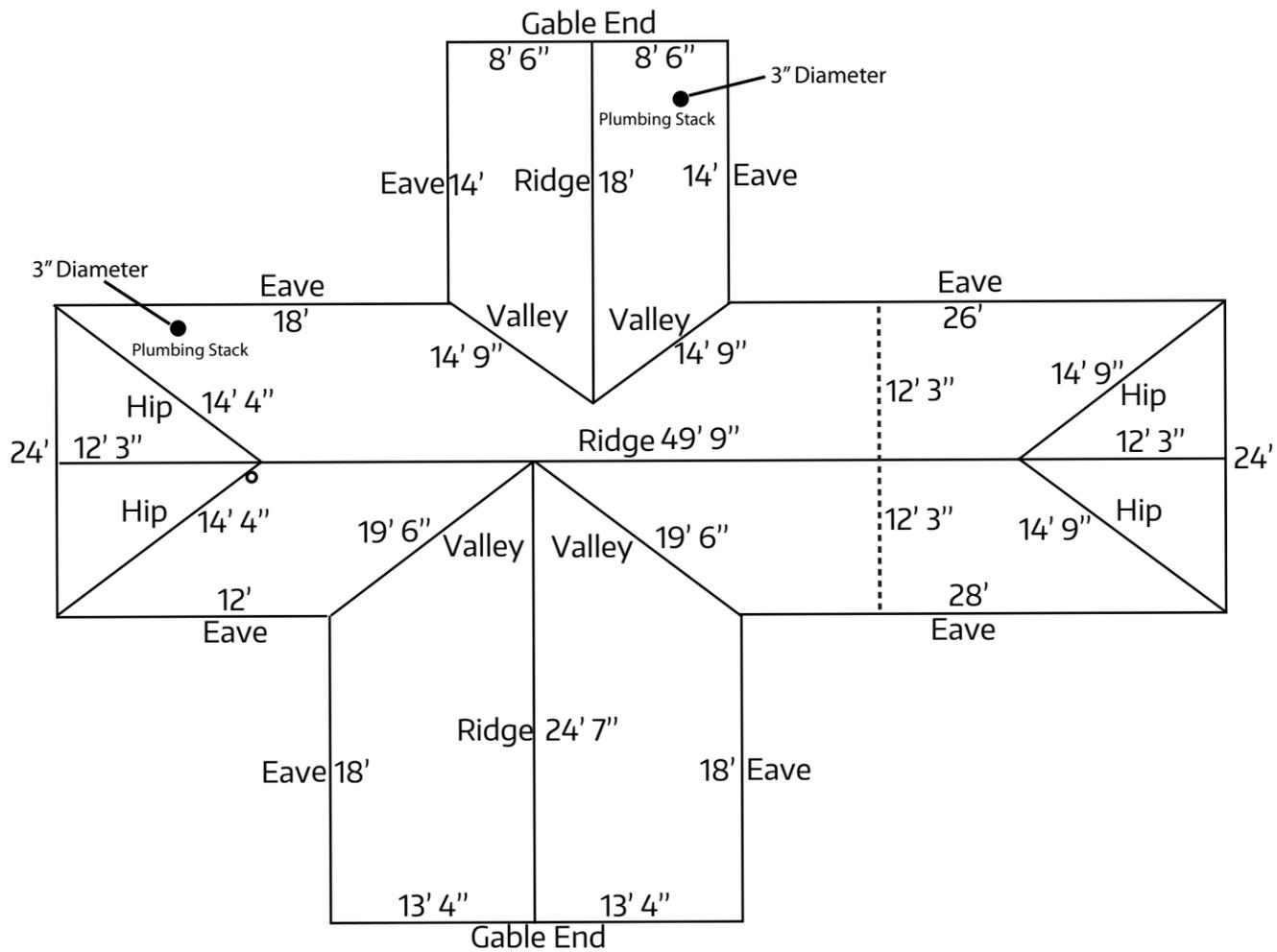
Please refer to the drawing above when ordering siding



Make Your Next Roof Your Last!

MEASURING YOUR ROOF FOR AN ESTIMATE

- > Start by sketching a birds eye view of your roof. This can be aided by using Google Earth or similar online programs.
- > Identify each part of your roof similar to the drawing below.
- > Once you have drawn your roof and identified each part, measure each line and include it on the drawing.
- > Include on the drawing the location of plumbing stacks (if any) and the diameter of the pipe.



ROOFING INSTALLATION

The order that items appear in this manual corresponds to the order that they should be installed. Please read carefully and if you have any questions regarding what you read in this manual, please feel free to call us.

Important: This manual should only serve as a guide to how the metal roofing should be installed. The installer must check with local building codes before any installation of the roof begins.

UNDERLAYMENT INSTALLATION

- > Starting at the eave, run the underlayment horizontally at the eave. Fasten underlayment every 6" at the edges and stagger one row of fasteners every 12" through the middle of the underlayment.
- > Endlaps should be staggered every 6'
- > Overlap each row of underlayment 4"
- > See Florida building codes for specific installation.

WE RECOMMEND AND STOCK THESE UNDERLAYMENTS:
Ultra HT - High Temperature Underlayment and Synthetic Roof Underlayment

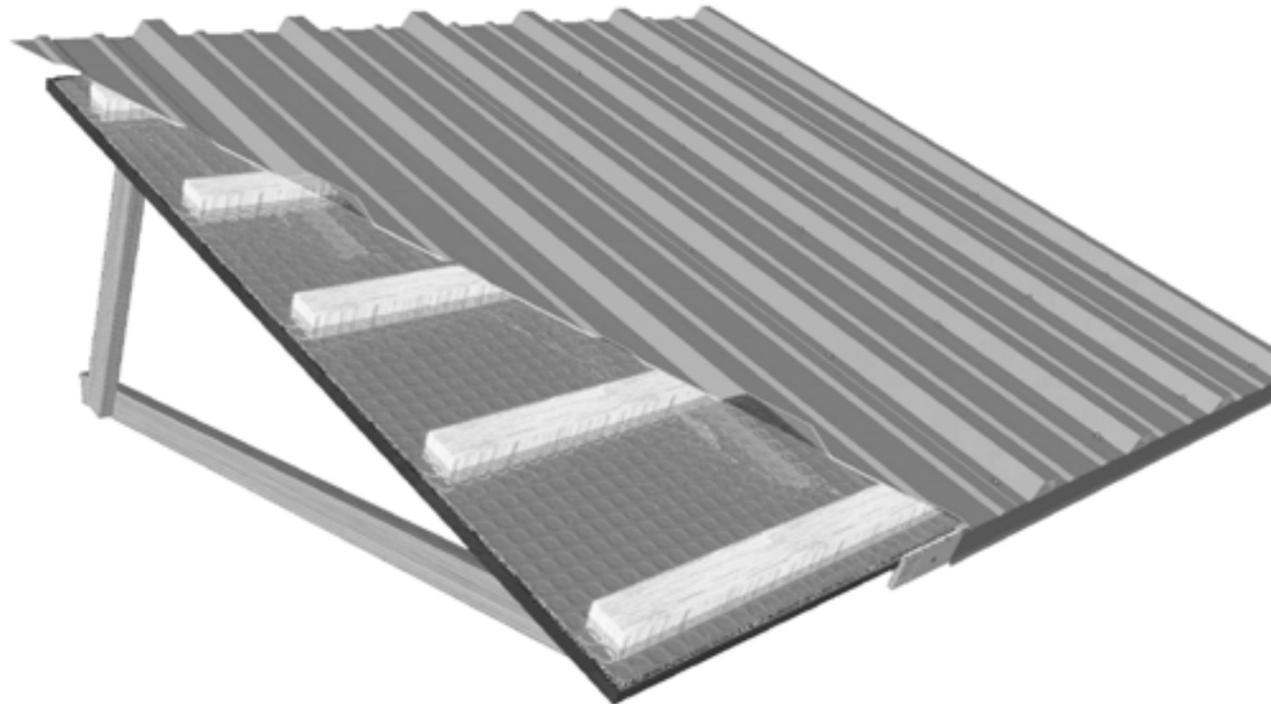
FIELD CUTTING PANELS AND TRIM

- > Trim pieces can be cut with a quality pair of snips.
- > Metal panels can be cut using tin snips, Turbo shears, or scoring the panel with a utility knife. The use of a metal cutting blade can be used but the panel must be cut facing down to avoid hot particles from the Skill saw shavings landing on the panel and damaging the finish. Always remove the shavings off the roof, as they will rust.

WE RECOMMEND AND STOCK THESE TOOLS:
Midwest Cutting Snips
Turbo Shears
Turbo Shears HD
6" Hand Seamer
3" Hand Seamer
Standing Seam Folding Tool

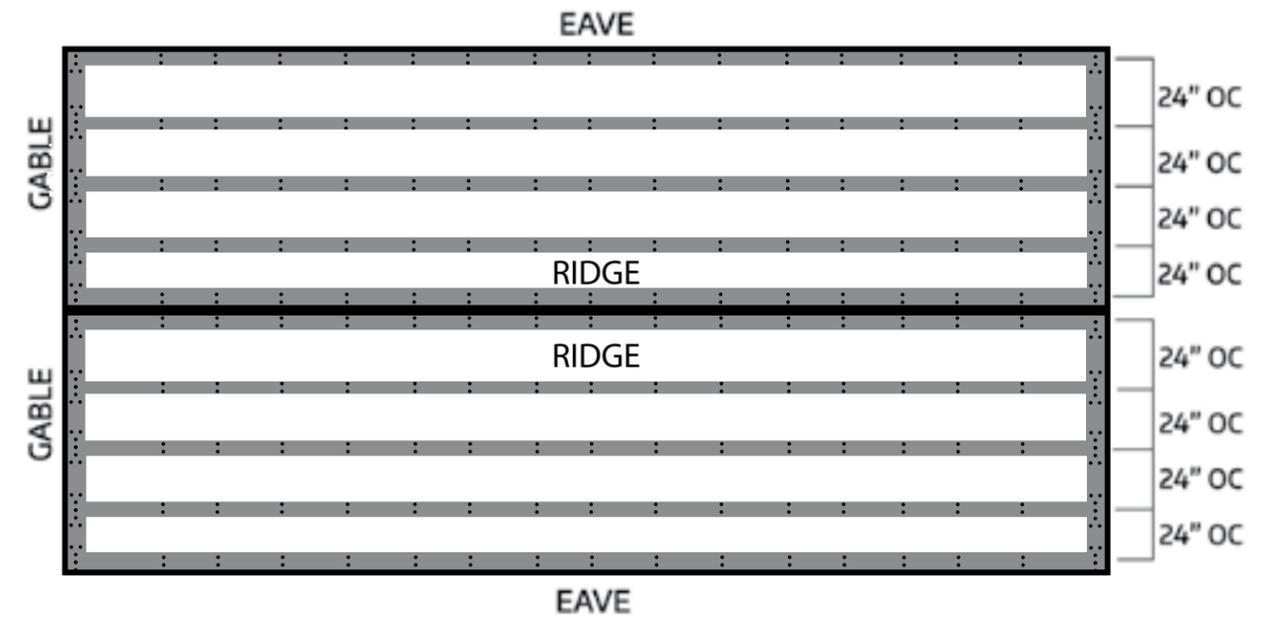
TCM RADIANT BARRIER INSTALLATION

Pg.6



Pg.7

PURLIN SPACING



Note : SILVER SIDE UP

1. Fasten TCM Radiant Barrier to roof using plastic caps every 12" on center on the edges and one row through the center every 12" on center (the purpose of fastening the TCM Radiant Barrier is to hold the TCM Radiant Barrier in place prior to installing purlins.
2. Starting at the eave, run the TCM Radiant Barrier up and over the ridge to the other side. If you are venting the ridge it is easier to cut the TCM Radiant Barrier back along the entire ridge after you have installed the entire roof and 1 x 4's (if applicable).
3. Tape all seam edges with TCM Radiant Barrier tape. **(Optional)**
4. Once TCM Radiant Barrier has been installed over the entire roof, then you are ready for purlins.
5. A 3/4" air space is required with the use of TCM Radiant Barrier for it to work effectively.

One roll of double bubble = 500 sq. ft. (4' wide x 125' long)

RECOMMENDED ACCESSORIES:

TCM Radiant Barrier Foil Tape (2" x 150' roll)

DO NOT USE PRESSURE TREATED PURLINS. PRESSURE TREATED PURLINS ARE CORROSIVE TO METAL ROOFING

- > The purpose of the purlins is to provide a solid foundation for the metal roofing panels and trim to be screwed to.
Therefore, good judgment should be used in order for there to be a solid surface that can be screwed to.
- > Purlins must be attached to the truss using either 2 #9 x 3" deck screws spaced every 2 feet into roofs trusses or 1 8d x 2 3/8" ring shank nail staggered every 4" on center.
- > Purlin spacing is 2 foot on center.
- > Purlins must be installed to support the entire width and length of the ridge, eave, hip, valley, transition, sidewall, endwall and gable ends.
- > You will also need to install purlins around penetrations such as plumbing pipes, electrical pipes and skylights to fasten roof boots. (see page 21 for roof boot installation)

* Please read ahead in this book for purlin placement on trim detail pages.

Recommended Wood (non pressure treated)

One purlin = 1" x 4" x 12' #2 Yellow Pine



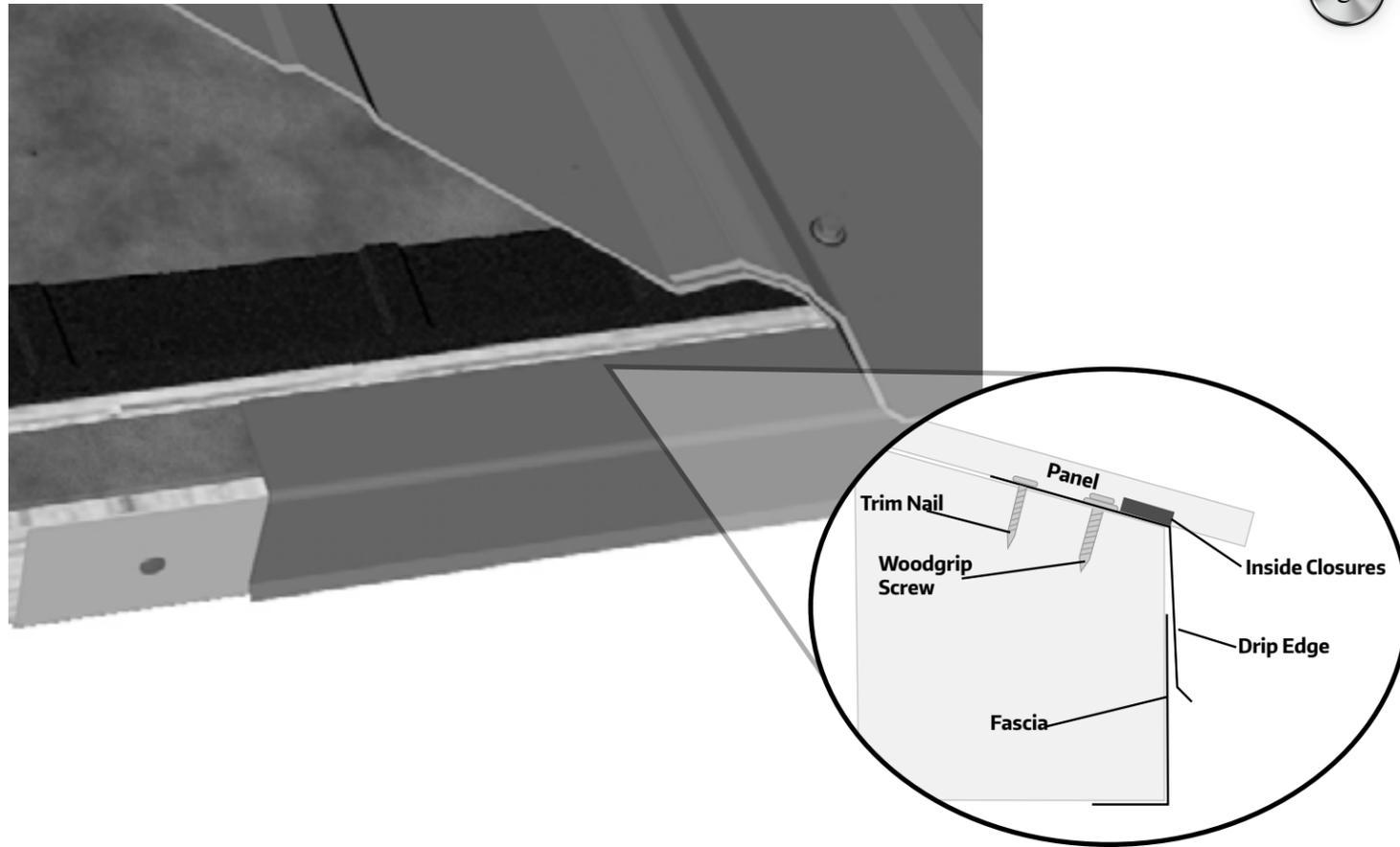
Make Your Next Roof Your Last!



Make Your Next Roof Your Last!

DRIP EDGE

Pg.8



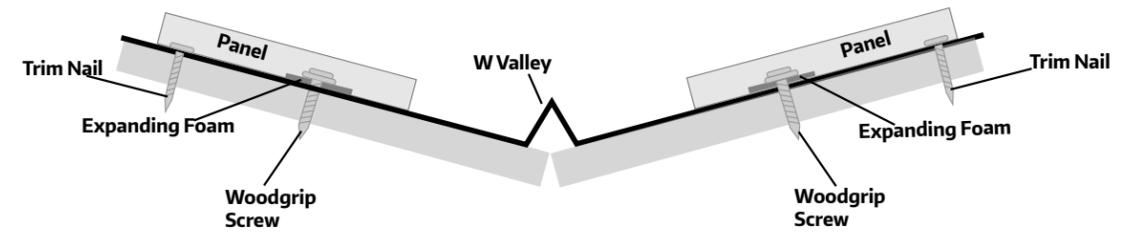
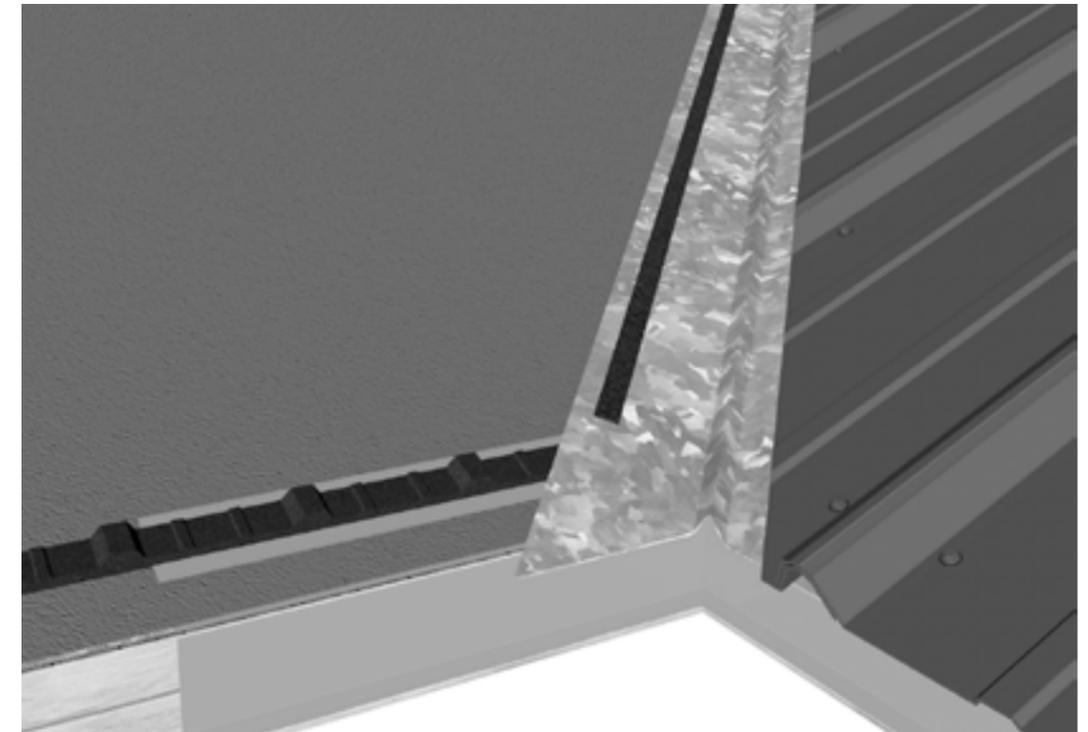
- Notes:**
1. Attach Drip Edge flashing to roof deck or purlins with 1 1/4" galvanized roofing nail 24" on center.
 2. Install inside closures on the top edge of the drip edge flashing.
 3. Overlap drip edge flashing a minimum of 3"
 4. Allow drip edge to run past corner of roof 3" so it can be folded to ensure maximum weather tightness.
 5. Attach roofing panel at eave with a minimum #9 x 1 1/2 Woodgrip Screw in the flat adjacent to each rib. (See fastener pattern on page 10)
 6. Panel ends should hang past the eave 2"-3" or 1" for gutters.

* Purlin placement should be directly above fascia board along the eave line.

RECOMMENDED ACCESSORIES:
 Inside Closures (1 closure = 3' of coverage)
 Trim Nails (1 box = 1lb)

Pg.9

W-VALLEY



- Note:**
1. Starting at the bottom, fasten W-Valley trim flashing to purlins or substrate using 1 1/4" trim nails 1" from trim edge every 24" on center.
 2. Allow W-Valley trim flashing to overhang roof edge so it can be trimmed back flush with roof overhang. (If your panels are going to overhang the eave by 2" then you will want your W-Valleys to overhang at least 2")
 3. Cut roofing panels so they stop 3" from the diverter in the center of the W-Valley trim flashing.
 4. Apply expanding foam tape to the top of the W-Valley Flashing 1" from the bottom edge of the roofing panel.
 5. Fasten roofing panel ends to roof using #9 x 1 1/2" Woodgrip Screws.
 6. Screws should be installed on each side of every rib, 3" from panel end.

* Purlins should be spaced 1' & 6" from center of valley on both sides.

RECOMMENDED ACCESSORIES:
 Expanding Foam (1 roll = 20' of coverage)

FASTENING SCHEDULE

Pg.10

Screw placement both sides of ribs at Eaves, Ridges, Valley Ends, Hip Ends, Transition Ends

Purlin bearing rib side intermediate rows, 2 foot on-center



Middle Screw Placement



Bottom and Top Edge Screw Placement



FASTENING SCHEDULE - THRU RIB

Pg.11

Screw placement should be through every major rib, starting at panel ends, with each row of screws spaced 24" on-center



PROPER SCREW INSTALLATION



Too Tight

Washer deformed, Sealing material extrudes beyond edge of washer.



Too Loose

Sealing material isn't visible. Not enough Compression.



Correct

Sealing Material is slightly visible at edge of washer. Assembly is weather tight.



We recommend use of Lifetime WoodZac fasteners for your metal roofing system.

Make Your Next Roof Your Last!



We recommend use of Lifetime WoodZac or Woodbinder fasteners for your metal roofing system.

Make Your Next Roof Your Last!

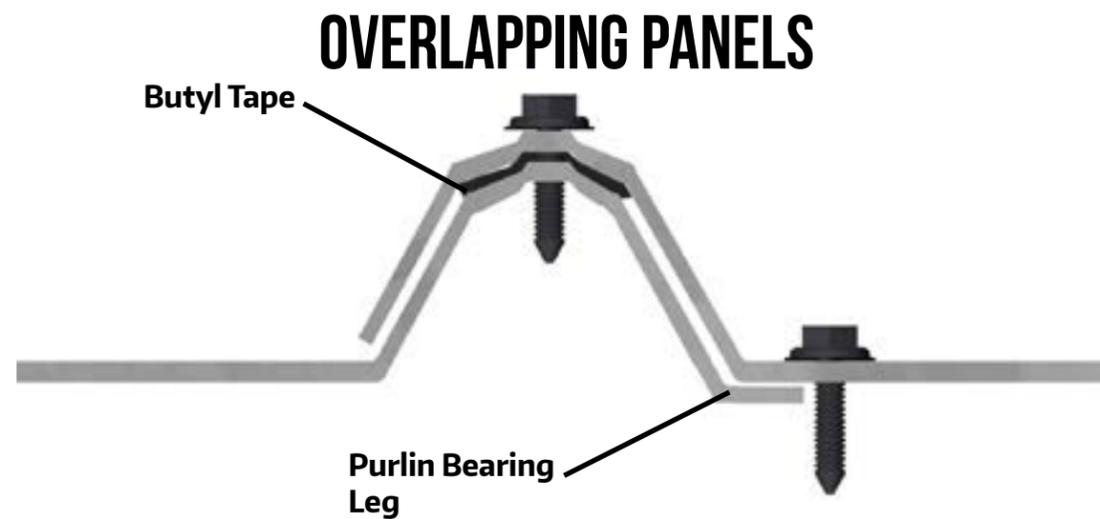
PREDRILLING PANELS

The placement of screws and ease of installation can be aided by predrilling the roofing panels on the ground using a 3/16" drill bit.

You will also benefit from predrilling the panels on the ground by not having metal filings on the roof or unsightly shavings sticking out from under the screws that will rust.

Predrilling holes for the screws will make the roof look better when viewed from the ground. Although screws can be installed on the roof, the tendency is to have wavy rows of screws.

When predrilling panels, it is recommended to only predrill 10 panels of 29 gauge and 7 panels of 26 gauge.



Notice the purlin bearing leg is installed underneath the overlapping panel.

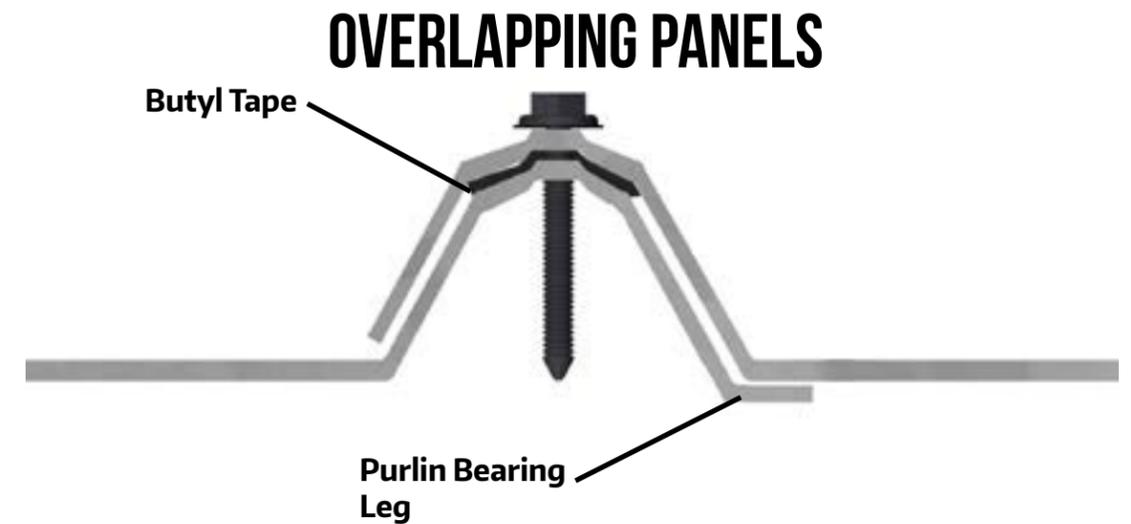
ATTENTION:

Roofs with less than a 3/12 pitch requires butyl tape to be installed the entire length of the panel overlap and the use of lap screws.



Make Your Next Roof Your Last!

PREDRILLING PANELS - THRU RIB



Notice the purlin bearing leg is installed underneath the overlapping panel.

ATTENTION:

Roofs with less than a 3/12 pitch requires butyl tape to be installed the entire length of the panel overlap and the use of lap screws.

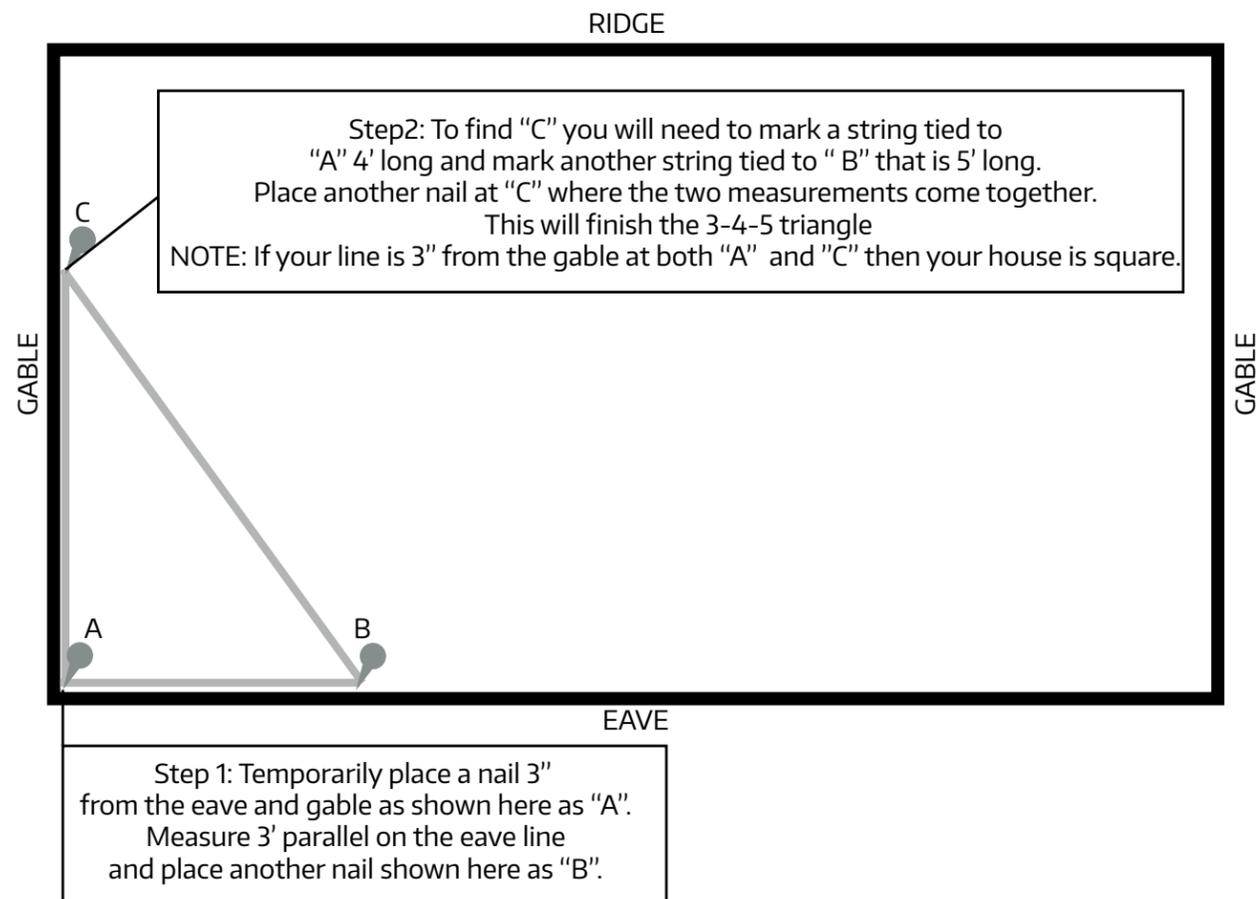


Make Your Next Roof Your Last!

SQUARING PANELS

Pg.14

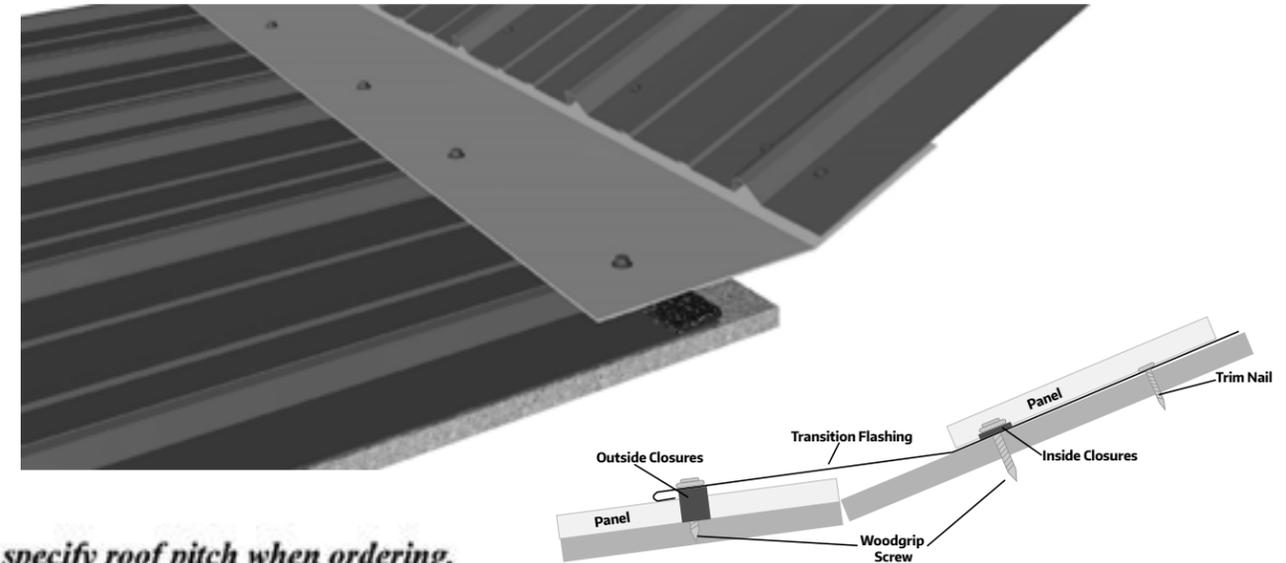
Pg.15



The 3-4-5 triangle method will work on a larger scale as well. For example if your roof panels are 16' long then you can multiply the 3-4-5 by 4 so you will be measuring 12-16-20. Just make sure that you multiply all measurements by the same number. The next step will be making a chalk line going from your "point A" to "point C". You will want this line to be as close to the edge of the gable as possible so your first panel will be about an 1/8" from the edge of the roof. You will want to measure 9' 6" from your chalk line at the A and C points and make another chalk line. This will help you as you start installing your panels to make sure they are still square with your eave. It is a good idea to continue this process for the entire project and on both sides of your roof.

Note: If your roof length is a few inches over an even multiple of 3' you will want to take that into consideration when you start installing your panel so that you are not short on the other end of the house. For instance, if your house is 42' 4" wide you can get away with 14 panels. You will just make sure you start your first panel 2" away from the gable end.

TRANSITION FLASHING



Please specify roof pitch when ordering.

Notes:

1. Install bottom roofing panels first.
2. After bottom roofing panels have been installed, set one piece of transition flashing down where the top portion (non-hemmed) of the transition flashing lies flat on the upper roof.
3. Measure 1 1/2" from bottom edge of transition flashing.
4. Repeat step 3 on the opposite end of the roof transition.
5. Remove transition flashing and pop a chalk line on line previous marked indicating where outside closures are going to be placed.
6. Install outside closures.
7. After outside closures are installed, install the transition flashing over the outside closures.
8. Fasten transition flashing using #9 x 2" Woodgrip Screw through each major rib of the roofing panel.
9. When overlapping transition flashings, flashings should be attached immediately adjacent to a major rib and not in between two major ribs.
10. Once the bottom half of the transition flashing has been installed completely, install the upper roofing panels next overtop the top part of the transition flashing.
11. Hold roofing panels back two inches from the centerline of the transition flashing.
12. Leave bottom row of screws uninstalled so inside closures can be installed later.
13. Once upper roof panels have been installed (except for bottom row of screws), insert inside closures 1" from edge of roofing panel the entire length.
14. Install bottom row of screws into the metal panel catching the inside closures to hold them into place.
15. Bottom row of screws should be placed adjacent to both sides of every major rib.

RECOMMENDED ACCESSORIES:

Outside Closures, Inside Closures (1 closure = 3' of coverage)



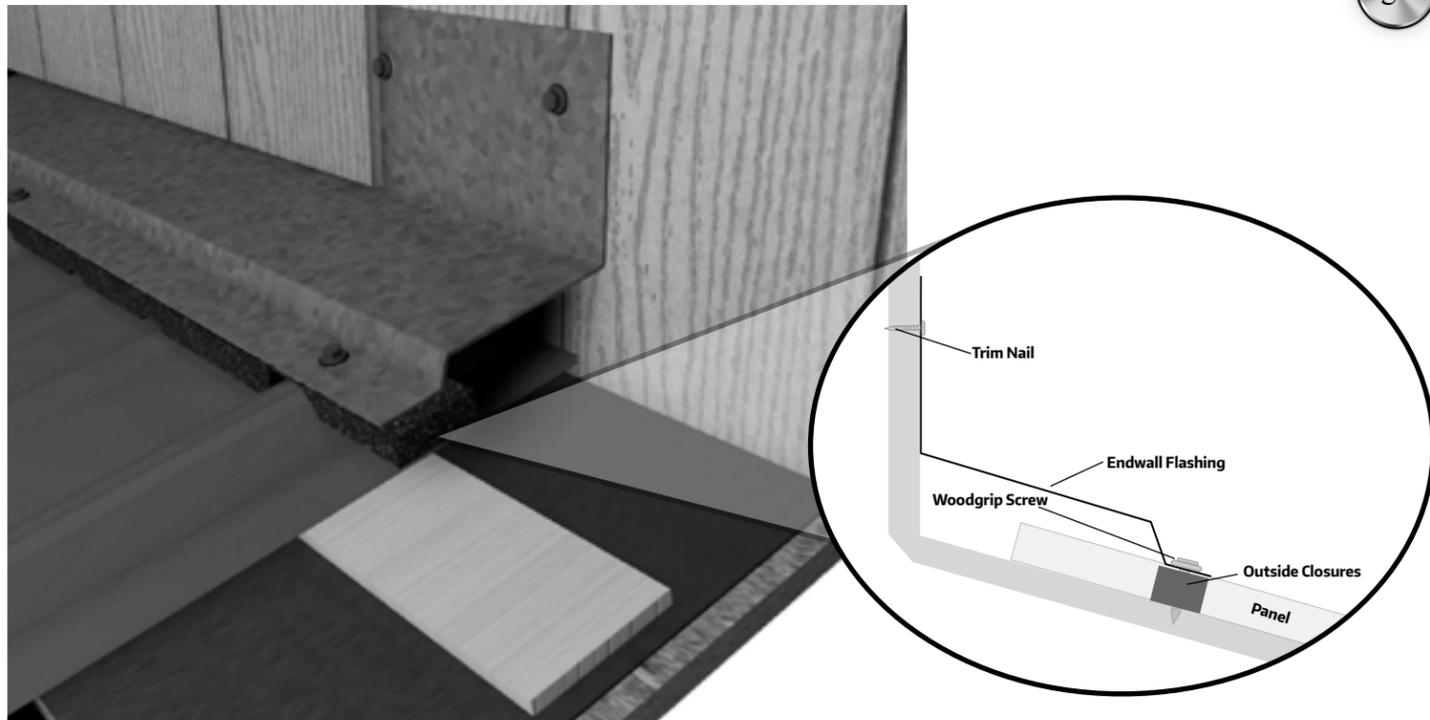
Make Your Next Roof Your Last!



Make Your Next Roof Your Last!

ENDWALL FLASHING

Pg.16



- Notes:**
1. Install outside closures where the flat of the endwall flashing will be fastened to the roofing panels.
 2. Attach endwall flashing to roofing panels using #9 x 2" Woodgrip Screw 9" on-center (every rib) to prevent dimpling of endwall flashing
 3. Overlap endwall flashings a minimum of 3" if more than one endwall flashing is required. Two endwall flashing pieces should be attached immediately above a major rib on the roofing panel and not between ribs.
 4. It is recommended that the top edge of the endwall flashing be tucked underneath the house siding to provide maximum weather tightness.
 5. A counter flashing can be added to the top edge of the endwall flashing to allow the endwall flashing to be inserted into the adjacent wall.
 6. As a last resort when the previous two methods can not be performed, a caulk edge can be added to the endwall flashing and then a bead of caulk can be used.

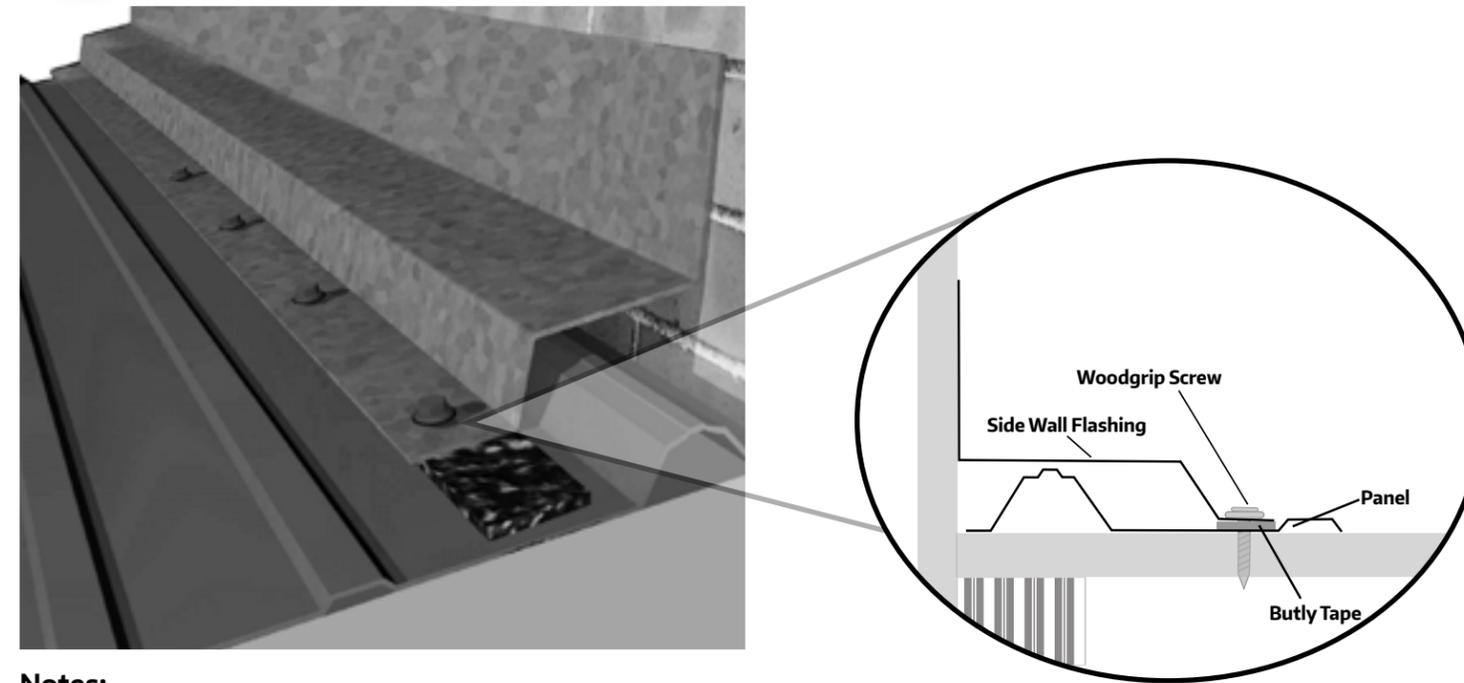
* Purlin placement should be approximately 1" from the wall.

RECOMMENDED ACCESSORIES:

Outside Closures (1 closure = 3' of coverage)
Caulking (1 tube = 31 linear feet (1/4" bead))

SIDEWALL FLASHING

Pg.17



Notes:

1. Install butyl tape the entire length along the bottom edge of the sidewall flashing trim where it is on the roofing panels.
2. Allow 1" at the bottom of the sidewall flashing to be cut and folded in for a finished look.
3. When using sidewall flashing around a dormer, allow 1" at the bottom to be wrapped around the endwall flashing.
4. It is recommended that the top leg of sidewall flashing be installed behind the wall siding. If this cannot be done, then using a counter flashing method is preferred.
5. Overlap each piece of sidewall flashing at least 3" or in line with the previous row of roofing panel screws to give it a well finished look.
6. Attach sidewall flashing to roofing panels using #9 x 1 1/2" Woodgrip Screws every 24".

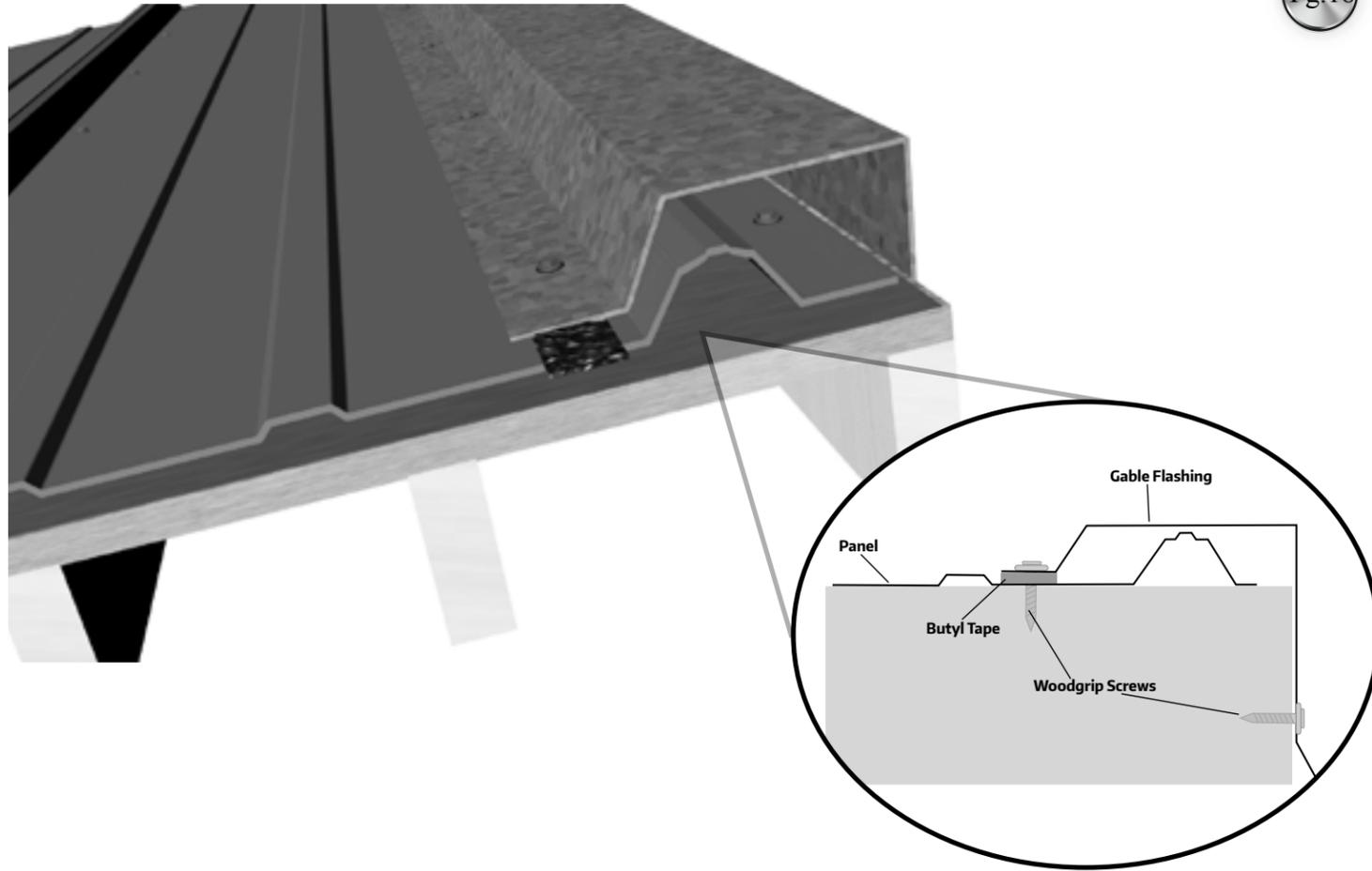
* Purlin placement should be approximately 1" from the wall.

RECOMMENDED ACCESSORIES:

Butyl Tape (1 roll = 50' of coverage)

GABLE TRIM

Pg.18



- Notes:**
1. Install butyl tape to the bottom of the 1" flat on the gable trim the entire length.
 2. Starting at the eave, attach gable trim flashing to roofing panel with #9 x 1 1/2" Woodgrip Screw every 16".
 3. Overlap gable trim flashing a minimum of 3".
 4. Allow gable trim to overhang eave by 1" so gable trim can be folded down to give gable trim a finished look.

* Purlin placement should be approximately 1" from the gable end running parallel with it.

RECOMMENDED ACCESSORIES

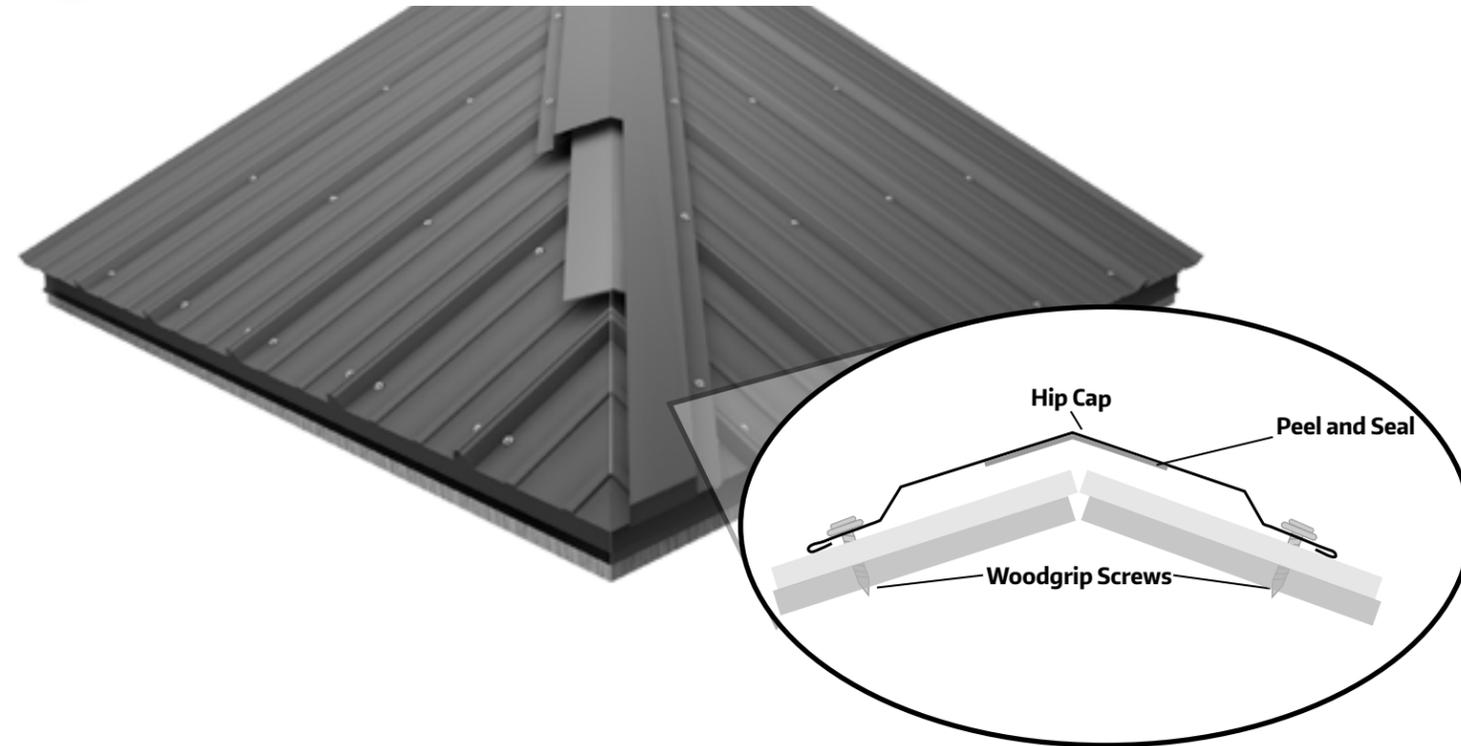
Butyl Tape (1 roll = 50' of coverage)



Make Your Next Roof Your Last!

HIP CAP

Pg.19



- Notes:**
1. Cut the metal roofing panels as close as possible to the hip lines of the roof, but not contacting the opposite side's panels. Allow the metal panels to overhang the desired amount at the bottom of the eaves (1-3" recommended).
 2. Apply peel and seal starting at the bottom of the hip. Cut the start of the tape to match the overhang of the metal panels. Overlap peel and seal a minimum of 3". When at the top of the hip overlap the peel and seal to the next side of the hip and/or ridge a minimum of 3".
 3. When installing the hip-cap start at the bottom of the hip. Either pre-bend or allow the hip-cap to overhang the metal panels along the eave lines so they may be folded to give a finished look. Overlap the hip-caps a minimum of 3". When at the top of the hip installing the hip-cap, trim cap to match hip and/or ridge lines of the adjacent sides of the roof. Then overlapping the previous piece with the next and trimming to fit and lay flat to give a finished look.
 4. Attach hip-cap flashing with minimum # 9 x 2" Woodgrip Screws through each rib on both sides of the hip.

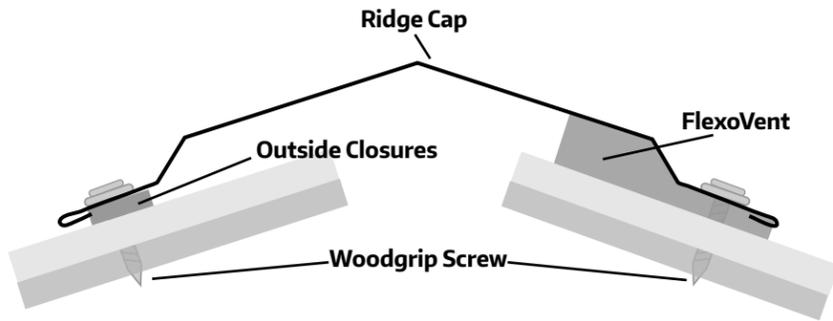
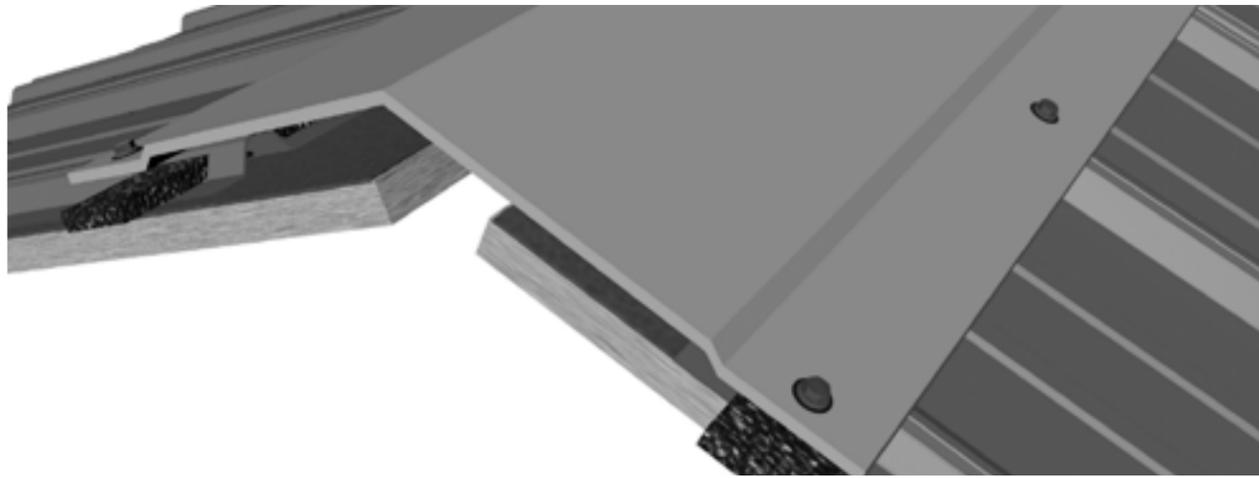
RECOMMENDED ACCESSORIES

6" Peel and Seal



Make Your Next Roof Your Last!

RIDGE CAP



Please specify roof pitch when ordering.

Notes:

1. Stop panels 2" from center line of ridge for vented ridge installation.
2. Install outside closures or FlexoVent the entire length of the ridge 5" from center line of ridge for a standard ridge cap installation.
3. Attach ridge cap flashing with minimum #9 x 2" Woodgrip Screw 9" on center. Install fasteners at each rib to avoid dimpling the ridge cap flashing.
4. Overlap ridge cap pieces a minimum of 3".
5. Allow ridge cap to hang over gable ends approximately 6" so they can be folded down to give ridge a finished look.

* Purlin placement should be approximately 3" from the center of the ridge line on both sides for the small ridge cap.

Recommended Accessories:

- Outside Closures (1 closure = 3' of coverage)
- Profile Vent (sold by the 1' piece)
- Flex-O-Vent (1 box = 20' of coverage)
- FlexPro (1 box = 20' of coverage)

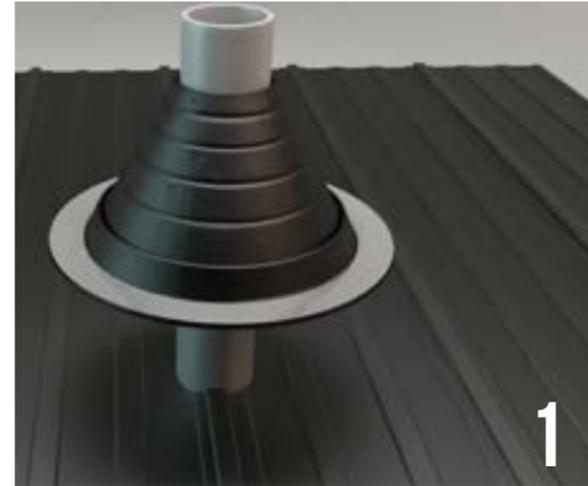


Make Your Next Roof Your Last!

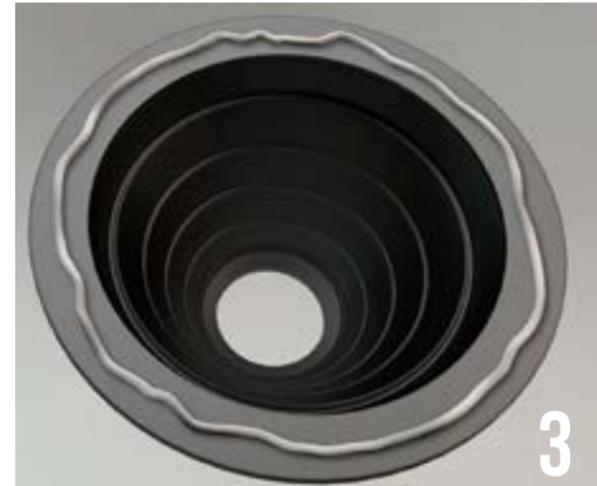
Pg.20

Pg.21

ROOF BOOT INSTALLATION



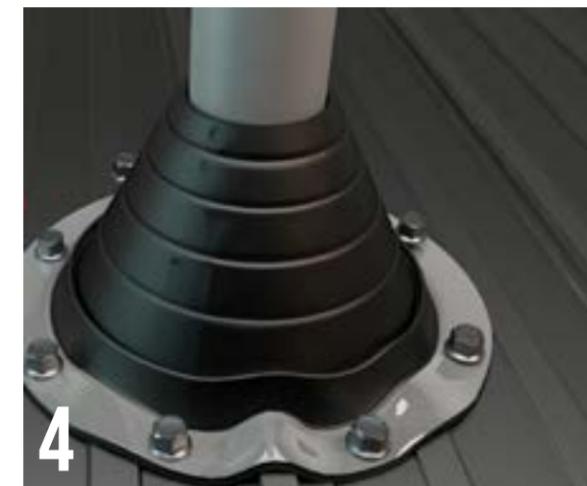
Choose appropriate Master Flash with opening at least 20% smaller than pipe diameter. If necessary trim opening to 20% smaller than pipe diameter.



Apply sealant between base and roof.



Slide Master Flash down over pipe. (A nonpetroleum base lubricant will ease installation.)



Use fasteners to complete sealing. Space screws no more than 3" apart around the pipe.



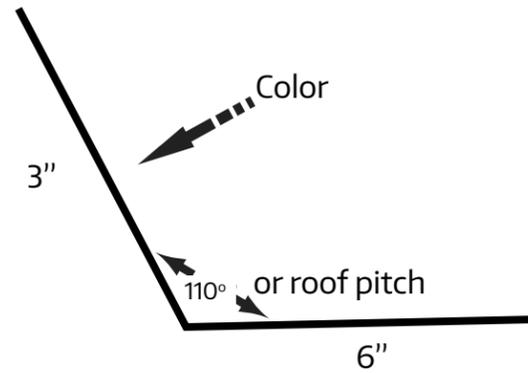
Make Your Next Roof Your Last!

SPECIAL TRIM INFORMATION

Tri County Metals can manufacture special trim designs separate from those designs included in the manual.

If your project requires special trim, please provide us with the following information:

1. A drawing of the trim design.
2. Clearly marked dimensions of each leg of the drawing.
3. Clearly marked degrees of each angle or roof pitch.
4. Clearly indicate the color side.



TRIM MANUFACTURING SPECIFICATIONS

- > Hem size must be 1/2" or larger.
- > Bends on hemmed legs need to be greater than 1/2" or else the hem obstructs the break.
- > Smashed parts need to be at least 1 1/4".
- > Maximum bend break can do is 137 degrees.
- > When bending angles opposite of one another, like that of a Z Flashing, the middle part of the Z must be at least 1/2" or larger.
- > When bending two 90 degree bends on the same side, one leg has to be equal to or less than the length of the material between the two bends.
- > For trim pieces that have to slide over another piece where the inside dimensions are critical, please indicate "CRITICAL" measurement.



Make Your Next Roof Your Last!

CARE AND MAINTENANCE

To maintain the original finish of the metal roofing panels, the only regular maintenance necessary is that of annual washing. Mild solutions of biodegradable cleaner or household ammonia will aid in the removal of most dirt, and the following are recommended levels:

- 1) One cup of Simple Green®, or other non-toxic biodegradable cleaner, which contain less than 0.5% phosphate, dissolved into two gallons of warm water.

NOTE: The use of detergents containing greater than 0.5% phosphate is not recommended for use in general cleaning of building panels. NEVER BLEND CLEANSERS OR DETERGENTS WITH BLEACH.

- 2.) One cup of household ammonia dissolved into five gallons of water (room temperature). Working from the bottom to the top of the metal roofing panels, the panels may be washed with either solution. The use of a well soaked cloth, sponge, brush (with very soft bristles), or a low pressure spray washer is advised.

We do not recommend the use of scouring powders or industrial solvents, since these agents may damage the film. Solvent containing cleaners such as Fantastic®, however, are very effective and can be used without concern. If mildew or other fungal growth is a problem and cannot be removed as outlined above, household bleach, mixed at a concentration of one cup of bleach to five gallons of water, along with one cup of a mild soap (e.g., Ivory) to aid wetting, is recommended.

Once the metal roofing panels is washed, thorough rinsing with clear water is necessary to eliminate the possibility of residue. Failure to remove all residues from these cleaning steps may damage the film.



Make Your Next Roof Your Last!

TRI COUNTY METALS

Toll Free: 877-766-3309

Trenton
Tel: 352-463-8400

Live Oak
Tel: 386-330-0101

Ocala
Tel: 352-622-5500

Tallahassee
Tel: 850-574-4001

Brooksville
Tel: 352-587-8120

DeLand
Tel: 386-204-8006

Jacksonville
Tel: 904-490-6004

www.TriCountyMetals.com

**ULTRA RIB
INSTALLATION MANUAL**