GAF

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Version 2.2

TimberSteel™

Premium **Metal** Roofing System

Instructions

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Introduction

The GAF TimberSteel™ Premium Metal Roofing System features coated Galvalume® steel shingles with an embossed vertical striated texture that can be applied over plywood, OSB (oriented strand board), or wood plank (non-chamfered edge) roof decks as a primary water-shedding roof covering. This comprehensive metal roofing system includes all underlayments, edge metal, valley metal, field shingles, hip and ridge attic ventilation, hip and ridge cap shingles, and other supporting components. It is designed to be installed similarly to asphalt shingle roofing systems by existing asphalt shingle installers with minimal additional tools and training. Always follow all local building codes applicable to your geographical region and structure type.

Before You Begin

- Read these entire instructions thoroughly.
- Use the installation instruction video available on gaf.com to help guide you through your installation.
- Use only approved system components and accessories that have been designed for use with the TimberSteel™ Premium Metal Roofing System. Do not install non-GAF-approved/sourced components and accessories with this system.
- Take care not to scratch or damage the metal shingle surface. The TimberSteel™ Shingles are provided with a factory-applied protective film; Although this film helps protect the shingles from damage, care should be taken when staging off of installed TimberSteel™ shingles to reduce the chance of damaging the finished surface. Remove factory-applied protective film only after a shingle area will not be walked on.
- Any touch-up paint should be carefully and neatly applied to minor surface scratches.
- Work from above the shingles whenever possible.

Slope Considerations

- The TimberSteel™ Premium Metal Roofing System is designed to be applied on slopes of **3:12 or greater**. Roof slopes greater than 6:12 may affect walkability.
- TimberSteel™ Field Shingles and TimberSteel™ Rake Edge Flashings are not designed for curved or domed roof areas. The color-matched TimberSteel™ Supplemental Flashing Sheets may be used to field fabricate components for parts of a roof where traditional TimberSteel™ components are not appropriate.

Safety Considerations

- Follow all manufacturer recommendations for the use and maintenance of tools and equipment.
- The TimberSteel™ Premium Metal Roofing System is slippery when wet.
- Always wear appropriate clothing, work gloves, eye protection, and footwear. Soft-soled shoes are recommended.
- Always follow OSHA fall protection requirements. Appropriate fall protection methods should be used whenever working at elevated heights.
- Keep work areas organized and clean to reduce tripping hazards.
- Toe boards and roof brackets can be used on slopes 6:12 or over to reduce the risk of personnel slipping as well as maintaining control of materials and installation equipment from sliding.
- Store material safely on the roof. OSHA recommends keeping material at least 6' (1.83 m) from the eaves and the rake edges to reduce the chance of falls.
- Always check with local building codes and other authorities having jurisdiction for additional safety requirements.

Tools

Required Equipment

The TimberSteel™ Premium Metal Roofing System is designed to be installed with standard, corrosion-resistant collated (coil) roofing nails* and typical asphalt roofing tools and equipment. Below is a list of tools that contractors can expect to use:

- Safety equipment (harness, glasses, cut-resistant gloves, hard hats, etc.)
- Roofing nail gun
- Cap Nailer
- Hammer
- Double-sided soft face mallet
- Air compressor
- Roofing blade or utility knife
- Pry bar
- Chalk line tools (Temporary or semi-permanent marking chalk only)
- Measuring tape
- Caulking gun
- Curved aviation tin snips
- Cordless drill
- Generator
- Extension ladders
- Portable metal forming brake (min 5′ [1.5 m] length, 14″ [356 mm] throat, 24 ga. Galv. Steel bending)
- Narrow hand seamer (3″ to 6″ [76 mm to 152 mm])
- Straight-cut aviation tin snips

* **Note:** For proper holding power, hip and ridge ventilation and cap shingles are installed using either the included standard TimberSteel™ 3″ (76 mm) ring shank nails or premium TimberSteel™ 3″ (76 mm) screws. The included underlayment is a full-deck peel-and-stick that does not require fasteners. Should a contractor elect to mechanically fasten the leak barrier to the deck, cap fasteners should be used. All other system components, including field shingles and edge metal, can be installed with a roofing nail gun and collated roofing nails.

Recommended Equipment

Here are a few additional tools that can increase efficiency and improve the installation experience.

- Powered metal shear (e.g. Malco TSHD Attachment)
- Roof brackets and wood planks for roof slopes 6:12 and greater
- Ladder hoist
- 2-in-1 extendable square
- Wide hand seamer (10″ to 12″) [254 mm - 305 mm]

- Colored and metallic marker

Pneumatic Nail Gun Preparation

Prior to installing the TimberSteel™ Premium Metal Roofing System, test the pneumatic nailer to ensure nails are properly driven through both the material and deck to determine how the depth gauge should be set on the pneumatic nail gun. Nails should be driven flush with the surface of the TimberSteel™ product being installed without deforming the material. Nails should be long enough to penetrate at least 3/4" (19 mm) into wood plank decks or through plywood or OSB decks.

- Use only corrosion-resistant zinc-coated (galvanized) steel or stainless steel roofing nails for the installation of TimberSteel™ Metal Shingles.
- Nail shanks must be 10 to 12-gauge barbed, smooth, or deformed shank for gripping the deck and have heads of 3/8" (10 mm) to 7/16" (11 mm) in diameter.

Roof Deck Preparation

- Always inspect existing roof sheathing for damage, rot, wet areas, and uneven areas or areas with holes. Dips or raises in the deck greater than 1" (25 mm) over 3' (914 mm) will likely be visible and may impede proper shingle-to-shingle hem engagement. Properly fix/replace any such areas as necessary.
- The roof deck should always be dry, well-seasoned, and consist of one of the following:
  - Minimum 15/32" (12 mm) APA - The Engineered Wood Association-rated exterior-grade plywood.
  - Minimum 7/16" (11 mm) APA - The Engineered Wood Association-rated exterior-grade oriented strand board, commonly known as "OSB."
  - Minimum 1" (25 mm) thick by 6" (152 mm) wide boards.
    Note: Gaps between boards may not exceed 1/2"
- Application over an existing roof is not acceptable. When reroofing, remove existing materials down to the acceptable deck.
- Remove any obsolete penetrations, and reseat or remove any misaligned nails.
- Repair any cracks, splits, voids, or openings in the deck greater than 1/4" (6 mm).
- Prepare the deck for the applicable ventilation system.
  - Cobra® Hip Vent
  - TimberSteel™ Ridge Vent
  - Cobra IntakePro® (See Rooftop Intake Ventilation for modified preparation steps)

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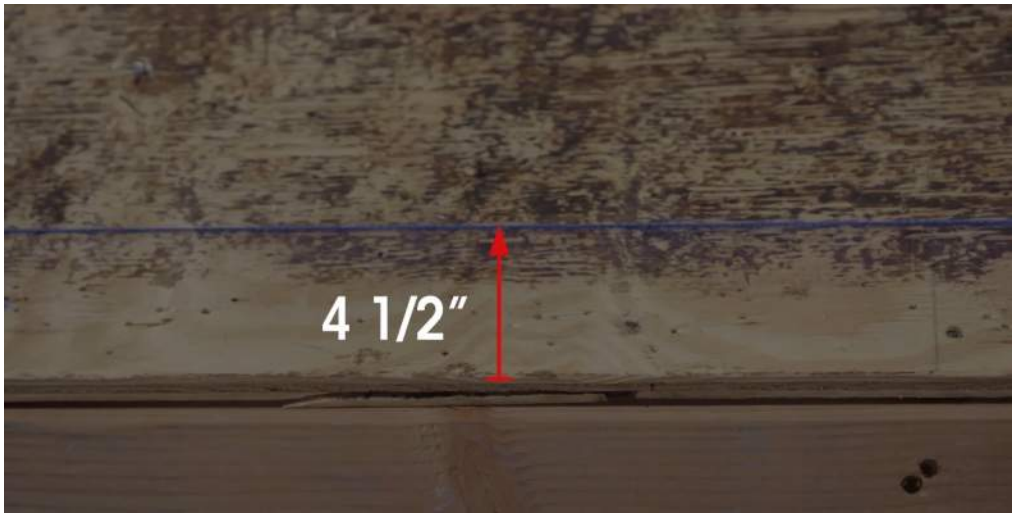
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Detailed Installation Procedures

1. Install TimberSteel™ Eave Drip Edge Flashing

Note: In all cases, the TimberSteel™ Eave Drip Edge Flashing should be installed so the vertical face is as uniformly flush against the fascia board as possible.

1.1. Snap a chalk line with temporary marking chalk only, 4 ½" (114 mm) from the face of the eave edge fascia board.



1.2. Cut and wrap the edge of the drip edge flashing up to ½" (13 mm).

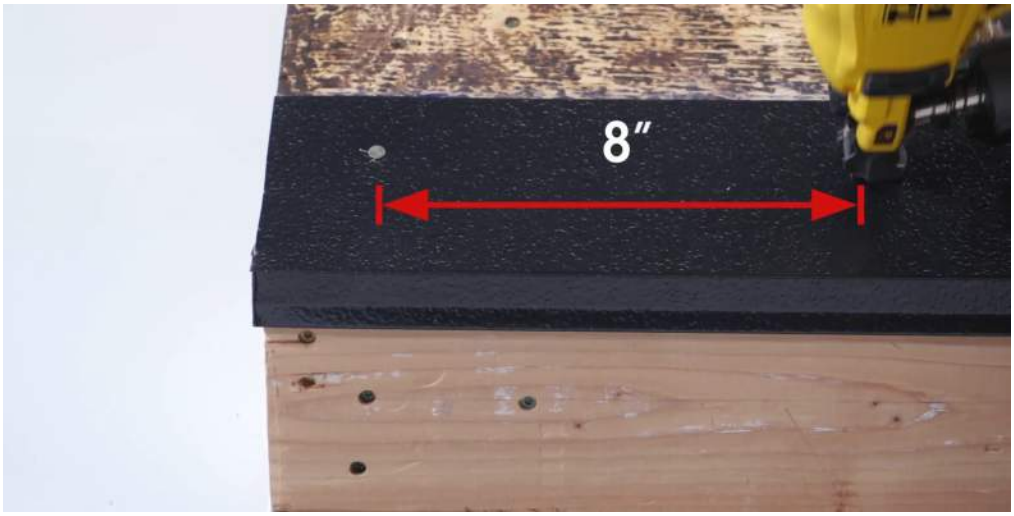




1.3. Align the drip edge flashing with the chalk line.



1.4. Fasten drip edge flashing every 8" (203 mm) on center.



1.5. When joining two pieces of drip edge flashing together, cut a 1″ (25 mm) notch off the two pieces where they overlap.



1.6. Slide the new piece into the notch of the receiving piece and fasten through this overlap.



Note: Measure from ridge to eave to determine if the drip edge flashing is even across the roof plane. If uneven, see "Squaring a Roof Plane" for additional steps.

2. Adhere the GAF Peel & Stick Leak Barrier underlayment

Note: Underlayment must be installed over the entire roof deck extending from the eave edge to the ridge or top of roof.

2.1. Apply the first full-width course of the underlayment over the eave metal and parallel to the eaves.



2.2. Adjacent sheets of underlayment must be installed with a 6" (152 mm) end lap.

2.3. Underlayment from course to course must overlap a minimum of 3" (76 mm). End laps must be staggered a minimum of 3' (914 mm) from adjacent courses.

2.4. Where a roof to wall/curb transition exists, underlayment should be run a minimum of 5" (127 mm) up the vertical face.

2.5. Run the underlayment flush to the rake edge of the roof. Apply GAF 4" Flashing Tape on the rake edge with the tape extending no more than 1" (25 mm) past the rake edge and onto the fascia board.



Note: Should the underlayment be damaged (cuts, holes, rips) during installation; the damaged area must be covered with a new piece of underlayment extending past the damage a minimum of 3" (76 mm) in all directions.

3. Install TimberSteel™ Rake Edge Flashing

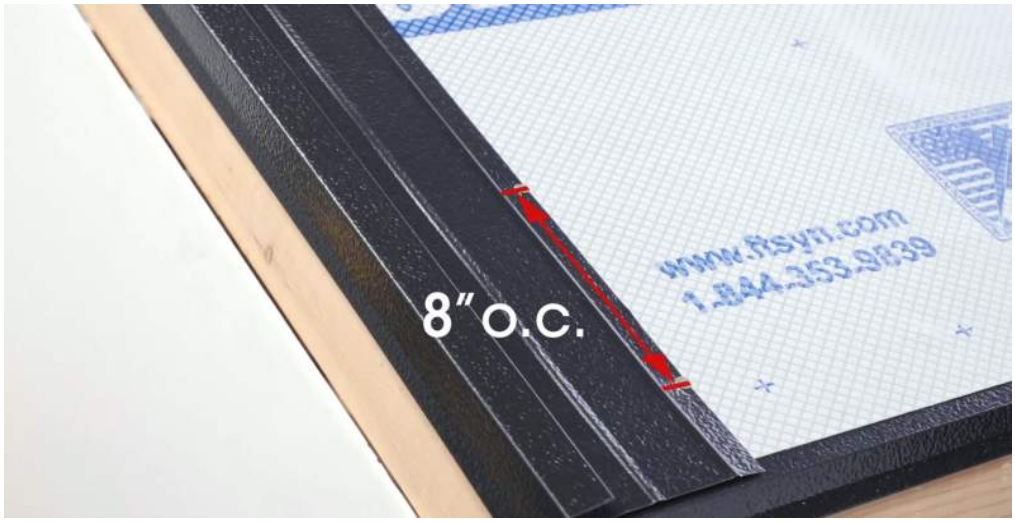
Note: In all cases, the TimberSteel™ Rake Edge Flashing should be installed so the vertical face is as uniformly flush against the fascia board as possible. See "Squaring a Roof Plane" for additional steps if the rake edge is wavy or has protruding features..

3.1. Secure an un-notched TimberSteel™ Rake Edge Flashing Starter at the eave edge, in line with the TimberSteel™ Eave Drip Edge Flashing. The eave edge of the rake edge flashing does not need to be cut to match the contours of the fascia board.

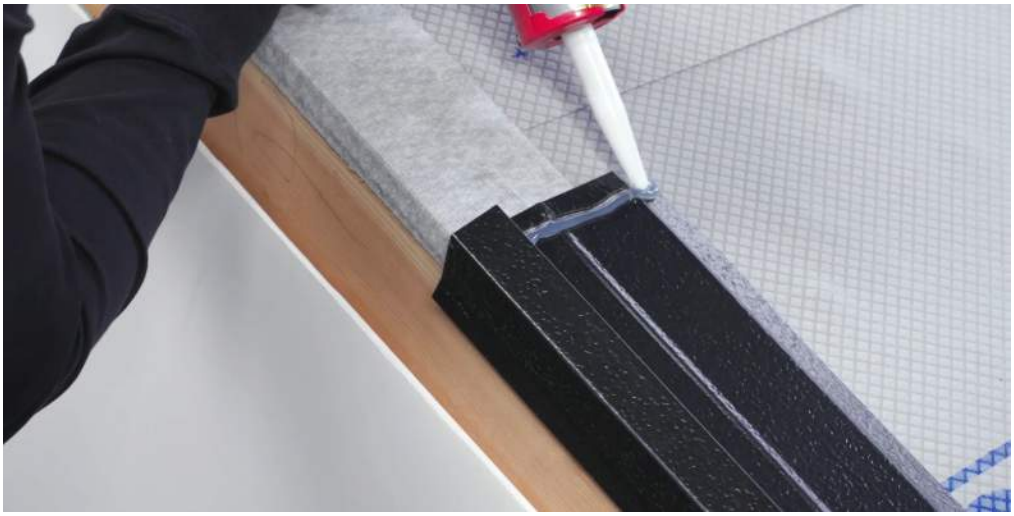
Note: The rake edge metal must not extend past the eave drip edge.



3.2. Fasten rake edge flashing starter every 8" (203 mm), outside the second water diverter.

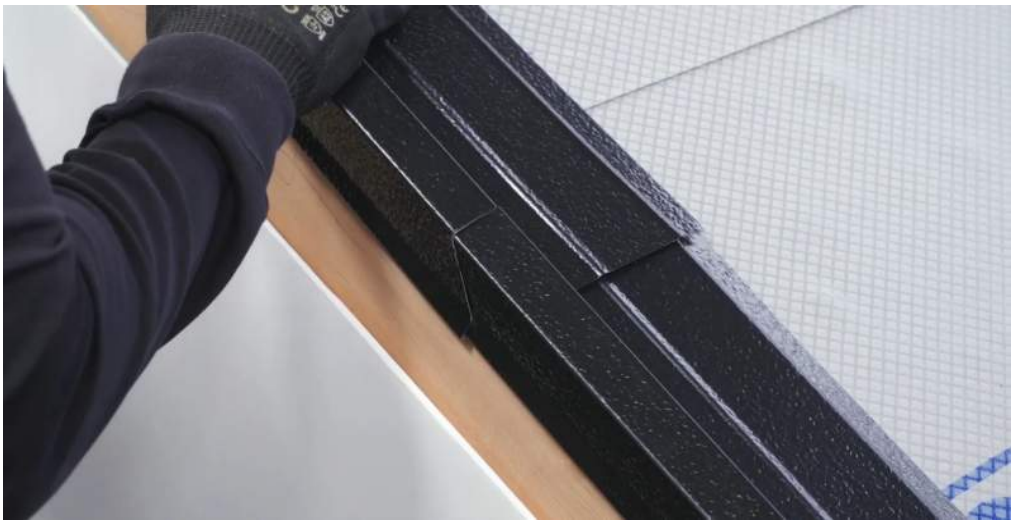


3.3. Apply TimberSteel™ Metal Roof Sealant at the top 4" (102 mm) of the rake edge flashing starter where the next piece of rake metal will overlap.

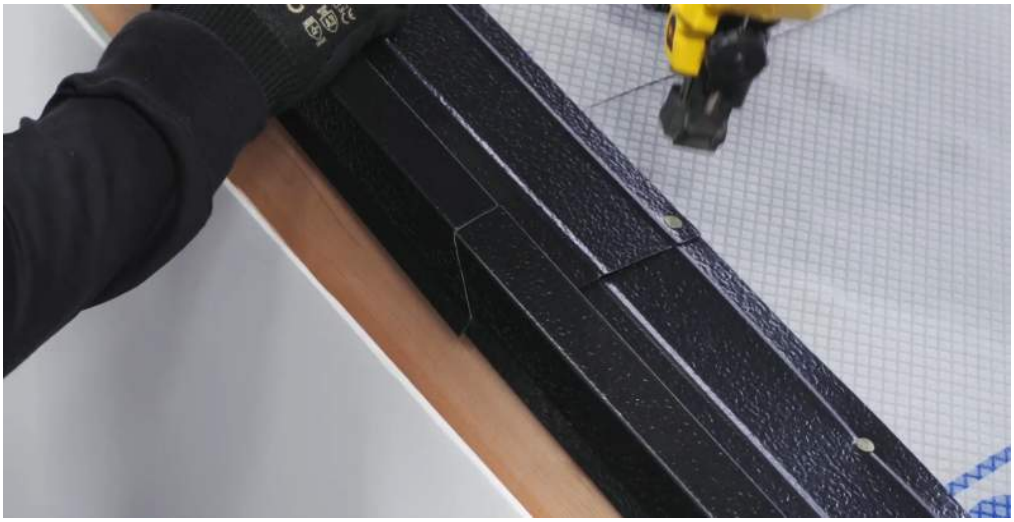


3.4. Insert the factory-notched rake edge flashing into the end of the rake edge flashing starter. Ensure the upper piece is on top of the lower piece to create a water shedding lap.

Note: The factory-notched rake edge flashing should be used throughout the balance of the roof.



3.5. Fasten rake edge flashing every 8" (203 mm), outside the second water diverter.



3.6. Extend the rake edge flashing up and over the ridge. Cut the vertical face and hem of the rake edge flashing to conform to the angle of the ridge. Overlap the rake edge flashing on the opposite side a minimum 4" (102 mm).

Note: The overlapping of the rake edge flashing at the ridge does not need to align perfectly as this interface will be covered with a TimberSteel™ Rake Edge Flashing Peak Cover.



3.7. Once the full run of rake edge flashing is installed, apply the TimberSteel™ Butyl Tape down the inside of the water diverter closest to the exposed underlayment. Remove the release tape prior to installing the TimberSteel™ Shingles.



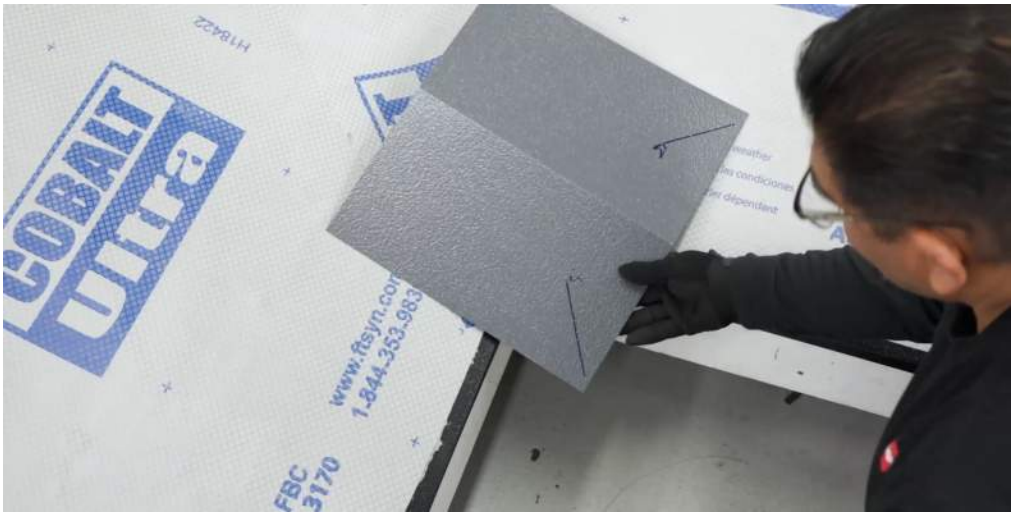
4. Install TimberSteel™ Valley Starter and Valley Flashings

4.1. Closed-style valleys at continuous valleys:

4.1.1. Center the valley starter in the middle of the valley. The lower corners on both sides of the valley starter should be even with the edge of the TimberSteel™ Eave Drip Edge Flashing.



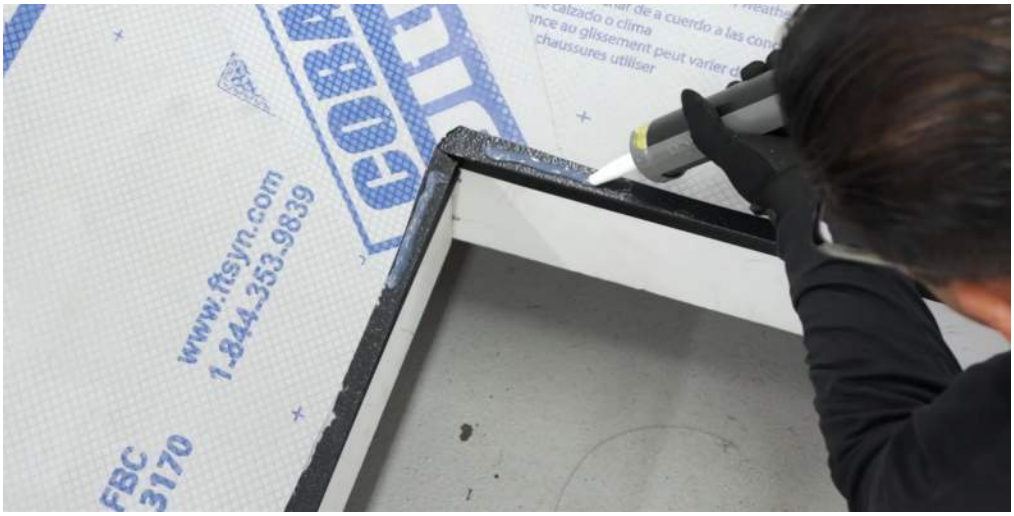
4.1.2. Mark the underside of the valley starter along the drip edge flashing.



4.1.3. Cut the valley starter along those lines to match the profile of the drip edge flashing.

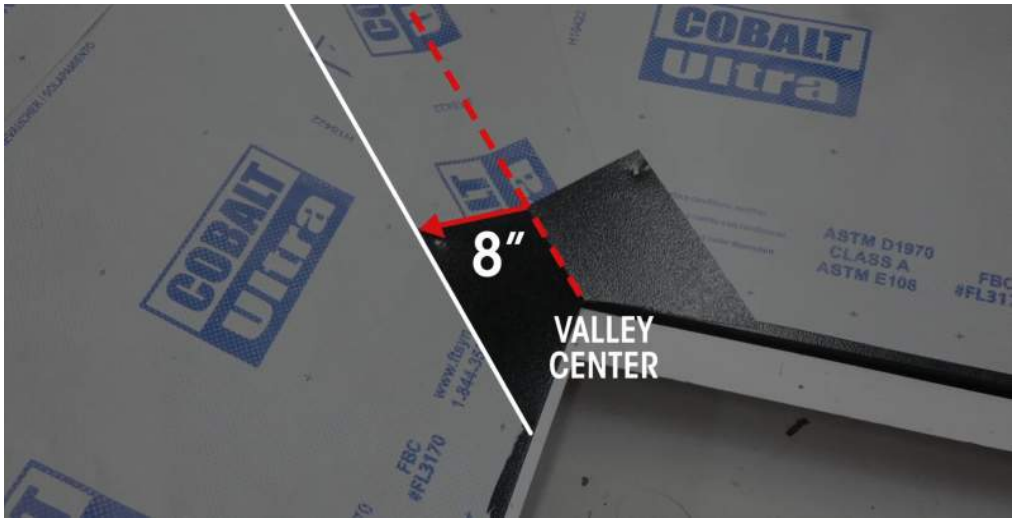


4.1.4. Apply TImberSteel™ Metal Roof Sealant to the drip edge flashing where the valley starter will be placed. Position the valley starter in place and secure with one nail in the upper left and right corners.



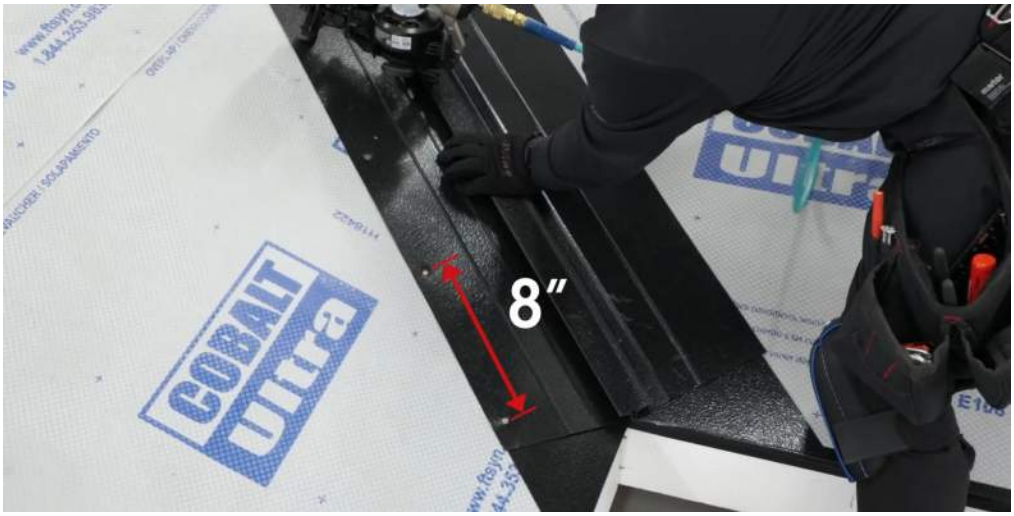


4.1.5. Snap a chalk line, temporary marking chalk only, 8" (203 mm) off of the valley center, parallel with the valley. This should align with the edge of the valley starter.



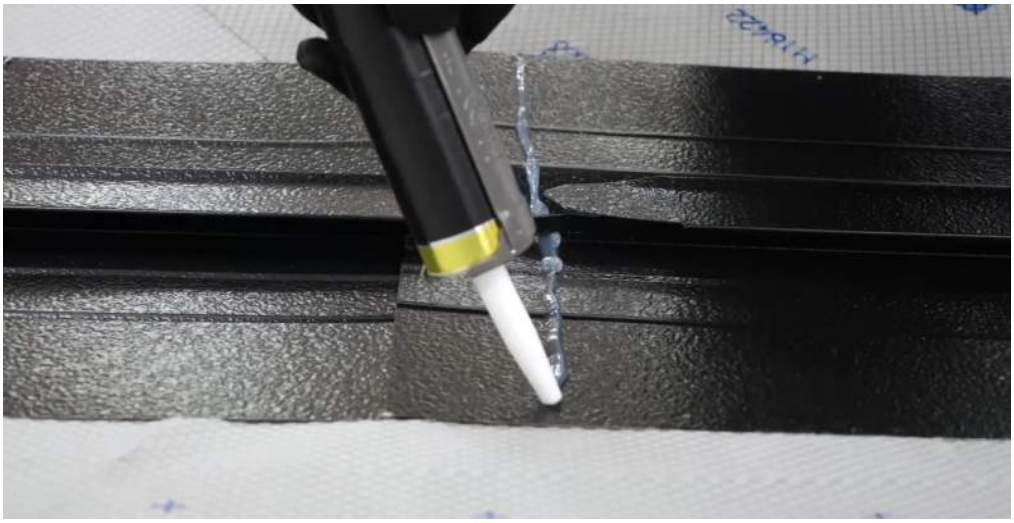
4.1.6. Apply TimberSteel™ Metal Roof Sealant to the valley starter where the TimberSteel™ Valley Flashing will be placed. Place a full piece of valley flashing aligned with the chalk line and flush with the lower corner of drip edge flashing. Secure with roofing nails every 8″ (203 mm), outside the double diverters.





Note: If more than one TimberSteel™ Valley Flashing length is required, do not nail the top half of the lower piece of valley metal until the upper piece is inserted. This makes it easier to insert the T-diverter of the first piece into the second.

4.1.7. Apply TimberSteel™ Metal Roof Sealant to the lower valley flashing where the upper valley flashing will be placed. Set the upper valley flashing in place and open the T-diverter while sliding down over the lower piece. The upper piece is fully engaged when there is at least a 4″ (102 mm) overlap. Continue up the valley as needed to complete the run.





4.1.8. Once the full length of valley metal is installed, run a length of TimberSteel™ Butyl Tape down the outer edge of the water diverter on each side of the T-diverter. Remove the release tape prior to the installation of the TimberSteel™ Shingles.



4.1.9. Where two pieces of valley flashing intersect where a ridge transitions into a roof plane (i.e. dormer), the pieces are to be "woven" together and any gaps are sealed with TimberSteel™ Metal Roof Sealant.

4.1.10. Where the valley flashing terminates at a headwall, seal with TimberSteel™ Metal Roof Sealant prior to counter flashing or replacing the siding.

Note: Care should be taken not to step on the T-diverter of the valley flashing after installation.

4.2. Open valleys at mansard roofs or chimney crickets:

4.2.1. Center the valley starter at the bottom of the valley.

4.2.1.1. On a mansard valley, the lower corners on both sides of the valley starter should be even with the edge of the TimberSteel™ Eave Drip Edge Flashing. Mark the underside of the valley starter along the eave edge, cut, and install with one nail in each of the valley upper corners of the valley starter.

4.2.1.2. On a chimney cricket valley, ensure the lower edge of the valley starter extends at least 2" (51 mm) over the TimberSteel™ Field Shingles installed on the main roof plane and secure with one nail in the upper left and right corners.

4.2.2. Using a full width of either TimberSteel™ Supplemental Flashing Sheets or TimberSteel™ Supplemental Flashing Coil, bend the appropriate length of supplemental flat stock at the valley center.

4.2.3. Apply TimberSteel™ Metal Roof Sealant to the face of the valley starter, then nail the supplemental flat stock in place with coil nails every 8" (203 mm), no more than 2" (51 mm) from the outside edge. When multiple sheets of flat stock are required, ensure there is at least a 4" (102 mm) overlap.

4.2.4. At the top of the valley, mark where the TimberSteel™ J-Channel will be placed, no closer than 4" (102 mm) from the centerline of the valley.

4.2.5. At the bottom of the valley, mark where the J-Channel will end, ensuring the endpoint is at least ⅛" (3 mm) per 1' (304 mm) wider at the bottom than the top. Snap a chalk line, temporary marking chalk only, connecting the upper point to the lower point on each side of the valley.

4.2.6. Align the J-Channel with the chalk line and secure with one nail every 8" (203 mm) outside the water diverter.



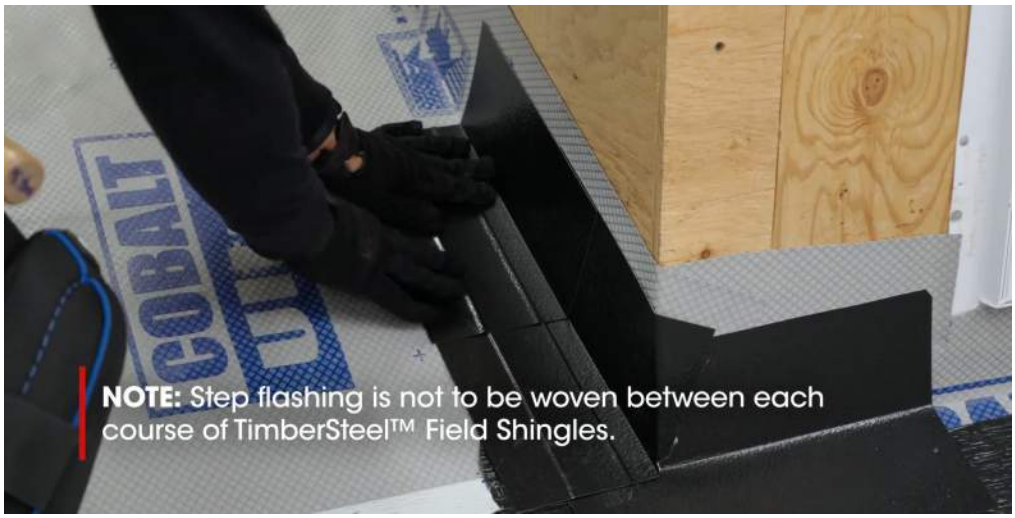
4.2.7. Apply GAF 4" Flashing Tape over the length of the J-Channel, covering the nails and adhering to the supplemental flat stock.

4.2.8. Once the full length of J-Channel is installed, run a length of TimberSteel™ Butyl Tape down the water diverter of each J-Channel. Remove the release tape prior to the installation of the TimberSteel™ Shingles.

5. Install TimberSteel™ Step Flashings

Note: Step flashing is not to be woven between each course of TimberSteel™ Field Shingles.

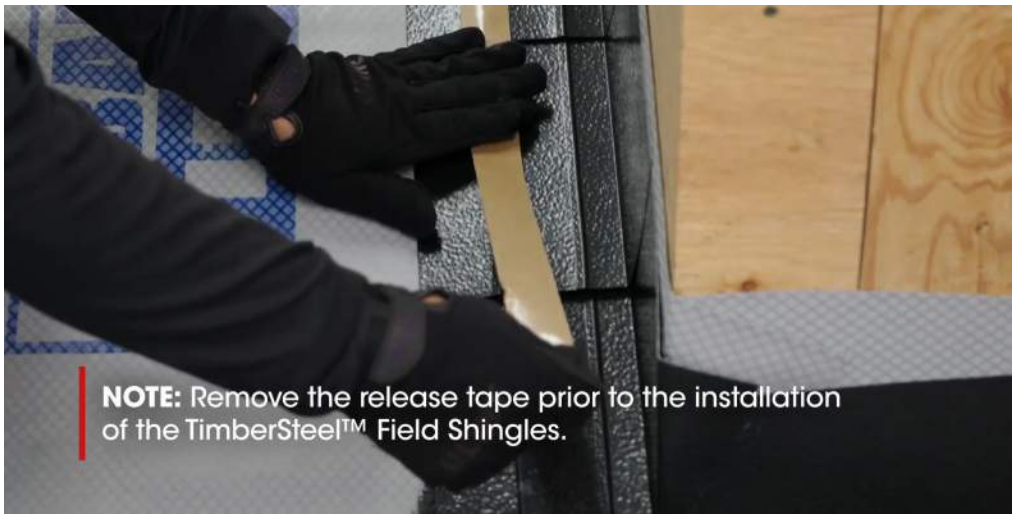
5.1. Install the 5" (127 mm) by 5" (127 mm) by 11" (279 mm) step flashing, overlapping each piece a minimum of 2" (51 mm) and continue to the end of run.



5.2. Attach to the roof deck with two nails in the upper corner, outside the second water diverter.



5.3. Once the full run of step flashing is installed, apply a length of TimberSteel™ Butyl Tape on the water diverter closest to the exposed underlayment. Remove the release tape prior to the installation of the field shingles.



6. Install TimberSteel™ Field Shingles

Note: Field shingles are always installed left to right, eave to ridge.

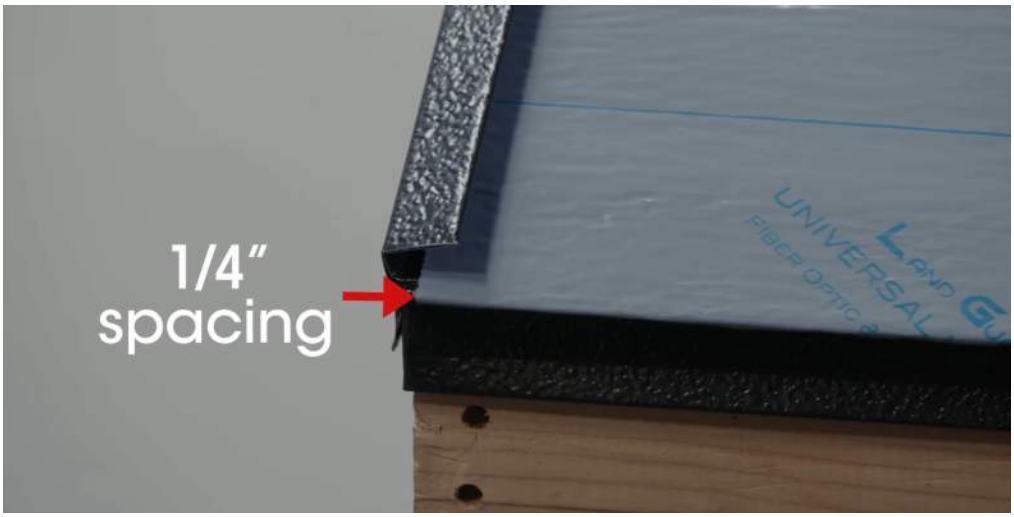
6.1. Installing field shingles at a rake, wall, or valley:

6.1.1. Start the first course with a TimberSteel™ Field Shingle starting at the bottom left corner of the roof where the eave and rake, wall, or valley flashing intersect.



Note: At a valley, cut the left side of the shingle to match the angle.

6.1.2. Ensure there is a ¼" (6 mm) gap between the field shingles and the rake, wall, or valley flashing to allow for expansion/contraction.



6.1.3. Cut back the bottom hem of the first shingle where it overlaps the rake edge to ensure proper water shedding.



6.1.4. Lock the bottom edge of the first course of field shingles onto the TimberSteel™ Eave Drip Edge Flashing.

6.1.5. Full-length field shingles are secured to the deck with four nails per shingle. The far left nail must be driven through the shingle, butyl tape, and rake, wall, or valley metal.



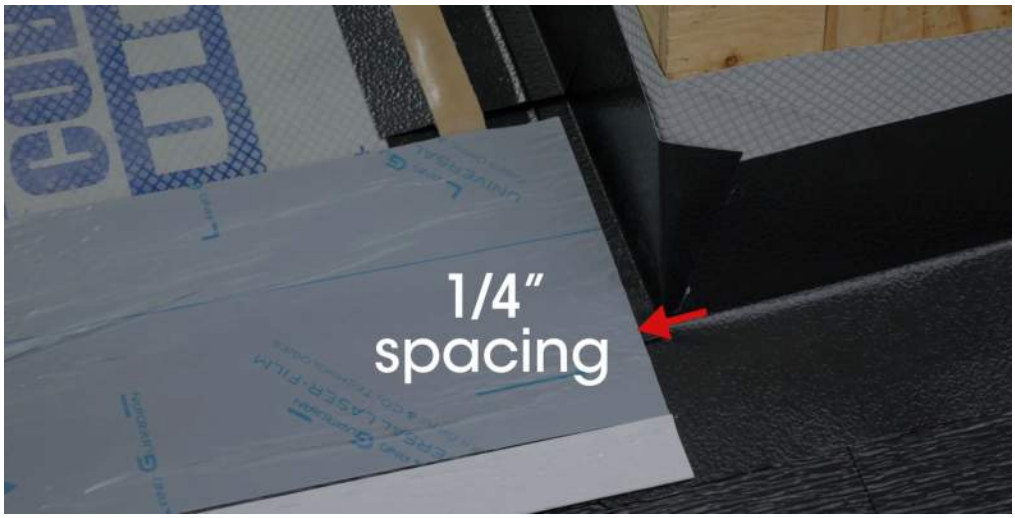
6.1.6. Interlock field shingles left-to-right by hooking the left side of the bottom hem of the shingle over the right side lap, pushing the shingle as far left as possible before laying it into place.



Note: Care should be taken not to slide the shingle back and forth over the adhesive, as this will smear the adhesive into the visible shingle exposure.

6.1.7. Repeat step 6.1.6. to continue installing field shingles across the roof plane.

Note: The last field shingle must be a minimum of 6" (152 mm) long with a ¼" (6 mm) gap for expansion/contraction when installing into rakes, valleys, or walls.



6.1.8. Cut the last field shingle in the course to size and cut the bottom hem back where it overlaps the rake edge, step flashing, or valley flashing to ensure proper water shedding. Complete a course with an XL Field Accessory if using full shingles would cut the last shingle to 6" (152 mm)or less.

6.1.9. Install with three nails if the shingle is half-length or shorter and four or more nails if longer than half-length. Ensure the far right nail is installed directly through the butyl tape over the outside diverter.

6.1.10. Start the subsequent course of shingles with a TimberSteel™ XL Field Accessory.

Note: At a valley, ensure the offset from the previous course is at least 6" (152 mm) apart.

6.1.11. The XL field accessory is secured to the deck with six nails per shingle. The far left nail must be driven through the shingle, butyl tape, and rake, wall, or valley metal.

6.1.12. Repeat step 6.1.6. through 6.1.9 to continue installing full-length field shingles across the roof plane, alternating the starting shingle of subsequent courses between TimberSteel™ Field Shingles and the TimberSteel™ XL Field Accessory.

6.2. Installing field shingles at a hip:

6.2.1. Start with a TimberSteel™ Field Shingle. Cut the left side of the shingle to match the angle of the hip. Begin course within 2" (51 mm) of the hip.



6.2.2. Lock the bottom edge of the first course of field shingles onto the TimberSteel™ Eave Drip Edge Flashing.

6.2.3. Full-length field shingles are secured to the deck with four nails per shingle.

6.2.4. Interlock field shingles left-to-right by hooking the left side of the bottom hem of the shingle over the right side lap, pushing the shingle as far left as possible before laying it into place.

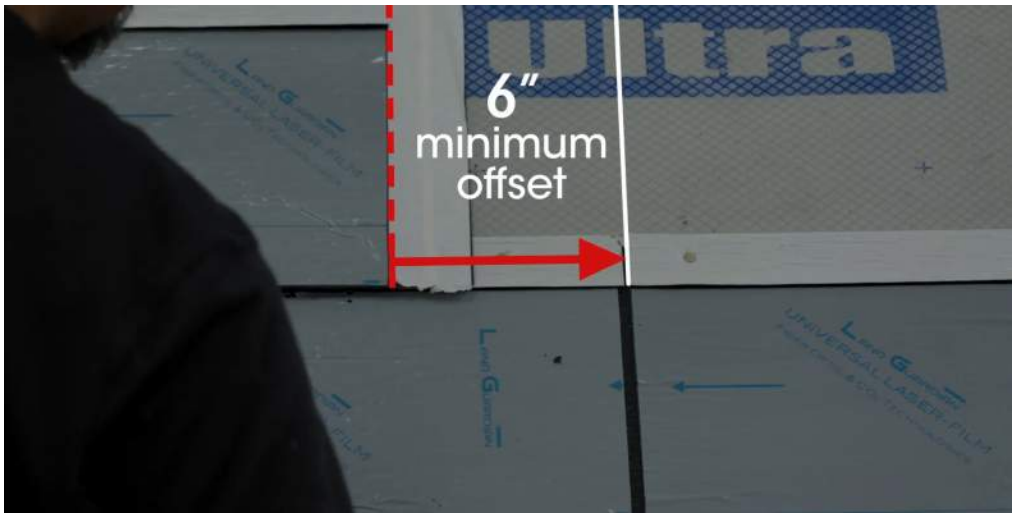
Note: Care should be taken not to slide the shingle back and forth over the adhesive, as this will smear the adhesive into the visible shingle exposure.

6.2.5. Repeat step 6.2.4. to continue installing field shingles across the roof plane.

Note: The last field shingle must be a minimum of 6" (152 mm) long and finish within 2" (51 mm) of the hip.

6.2.6. Cut the last field shingle in the course to size.

6.2.7. Start the subsequent course of shingles with a TimberSteel™ Field Shingle. Cut the left side of the shingle to match the angle of the hip, ensuring the offset from the previous course is at least 6" (152 mm) apart.



6.2.8. Install with three nails if the shingle is half-length or shorter and four or more nails if longer than half-length. If necessary, a nail may be placed on the right hand side of a shingle running into a hip, where the nail will be covered by a TimberSteel™ Hip & Ridge Spacer or GAF Cobra® Hip Vent.

6.2.9. Repeat step 6.2.4. through 6.2.6 to continue installing field shingles across the roof plane.

Note: Small course corrections may be necessary if the TimberSteel™ Field Shingles are no longer engaging properly or courses are no longer parallel with the eave edge. See "Small Course Corrections" for additional steps.

7. Install Flashings for Roof Top Penetrations

7.1. Pipe flashings:

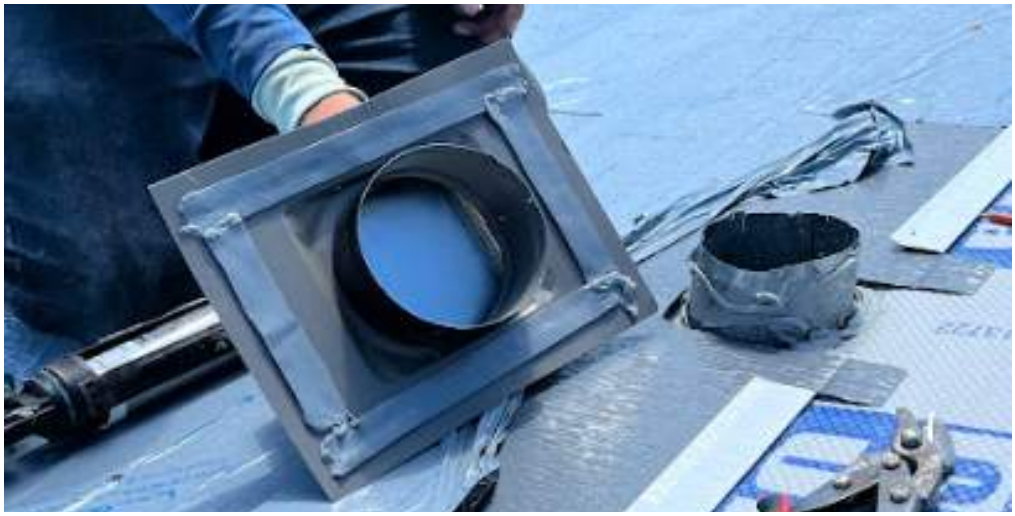
7.1.1. Trim the field shingles to fit the width of the pipe penetration.



7.1.2. Cut the shingle hems from both sides of the pipe penetration to match the width of the pipe flashing flange. Open and flatten the hems on either side of the pipe penetration to allow the flashing flange to sit flush to the surface below.



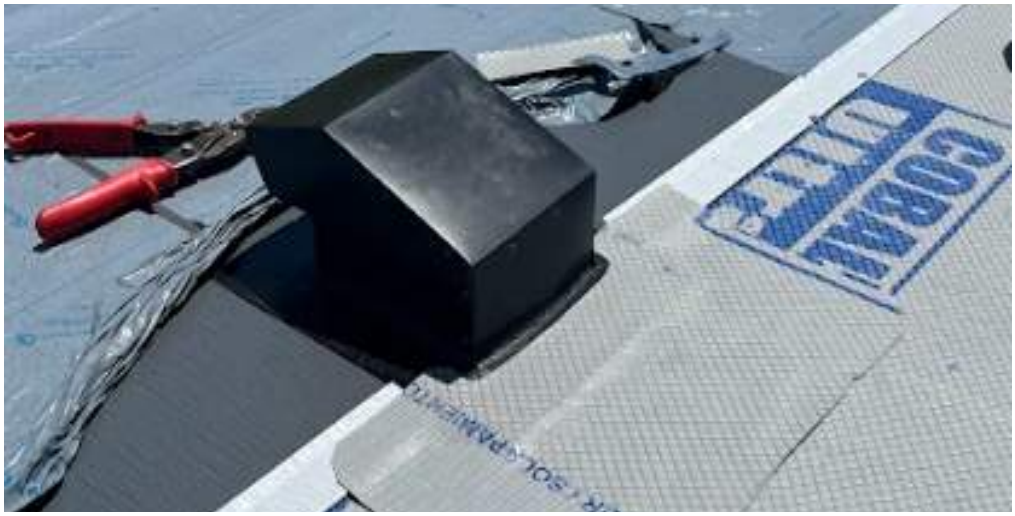
7.1.3. Apply TimberSteel™ Butyl Tape to the underside of the pre-manufactured pipe flashing. Ensure the opening for the penetration in the pipe flashing is surrounded on all sides by the butyl.



7.1.4. Peel the factory-applied protective film back from the field shingles where the pipe flashing will cover the shingles. Install pre-manufactured pipe flashing, pressing firmly on all sides onto the surface below.



7.1.5. Install the leak barrier over the top flange of the pre-manufactured pipe flashing and 3" (76 mm) onto the adjacent shingle hems; leak barrier is not to exceed the bottom edge of the hem.



7.1.6. When installing field shingles behind the pipe flashing, mark and cut the shingle around the pipe flashing and apply TimberSteel™ Butyl Tape to the underside of the field shingle on all sides of the pipe flashing opening.



7.2. Chimneys:

Note: Crickets are not required on chimneys 30" (762 mm)wide or less. Crickets are required on chimneys wider than 30" (762 mm). Chimney crickets are often omitted from roof reports. Ensure the dimensions are added to the measurements that are entered into the TimberSteel™ Order Entry Portal to ensure the appropriate amount of material is added to your order.

7.2.1. Trim the field shingle(s) to fit the width of the chimney to maintain the 9" (229 mm) reveal.

7.2.2. Cut the shingle hems 6″ (152 mm) from both sides of the chimney. Open and flatten the hems to allow the leak barrier to sit flush over the shingle(s).



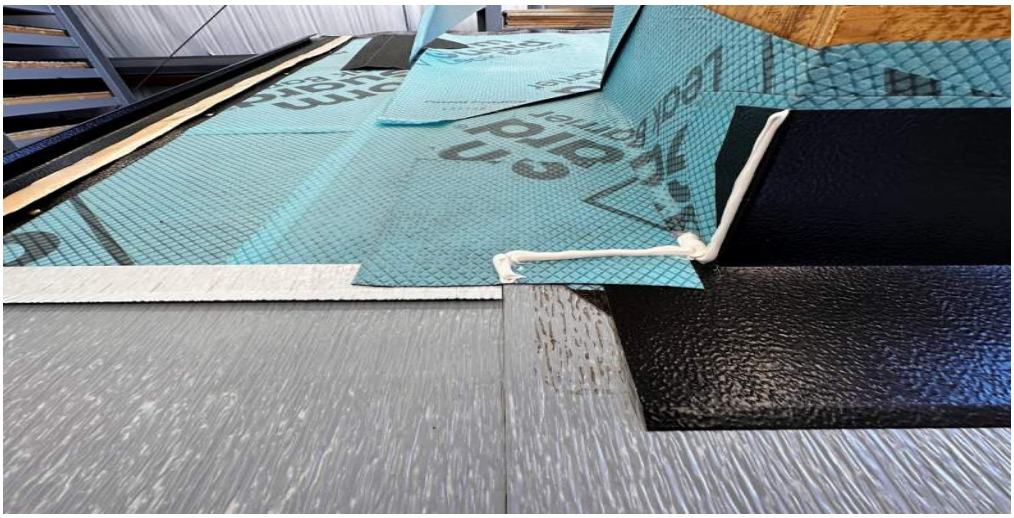
7.2.3. Install the leak barrier over the shingle at the base, and wrap the chimney at least 5″ (127 mm) up the chimney and 4″ (102 mm) onto the roof deck.



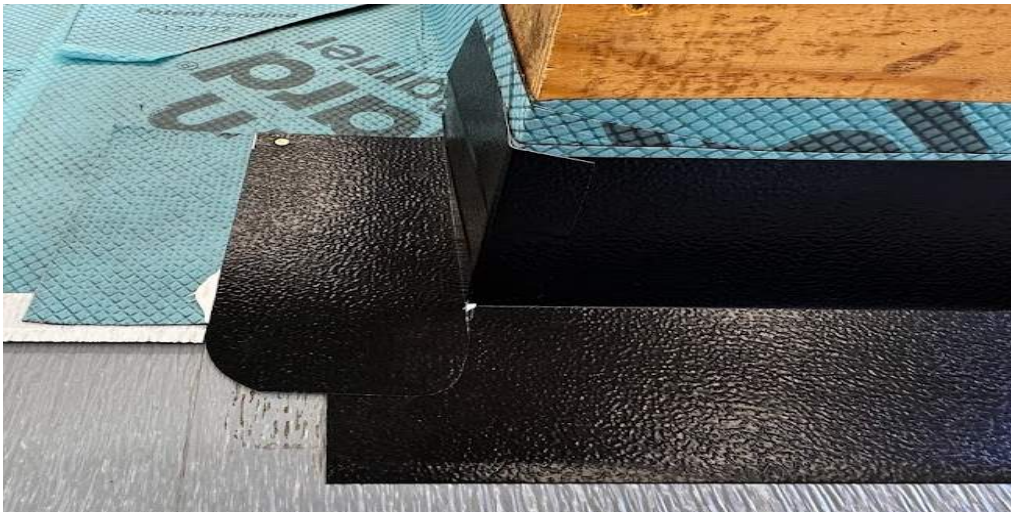
7.2.4. Use the TimberSteel™ Supplemental Flashing Sheets to form apron flashing, extending 5″ (127 mm) up the chimney, 5″ (76 mm) onto the field shingle and 5″ (127 mm) beyond either side of the chimney. Fasten with nails through the leading edge and open hem of the field shingles. The nails are to be covered by the butyl installed in step 7.2.6.



7.2.5. Apply TimberSteel™ Metal Roof Sealant where the step flashing will be installed.

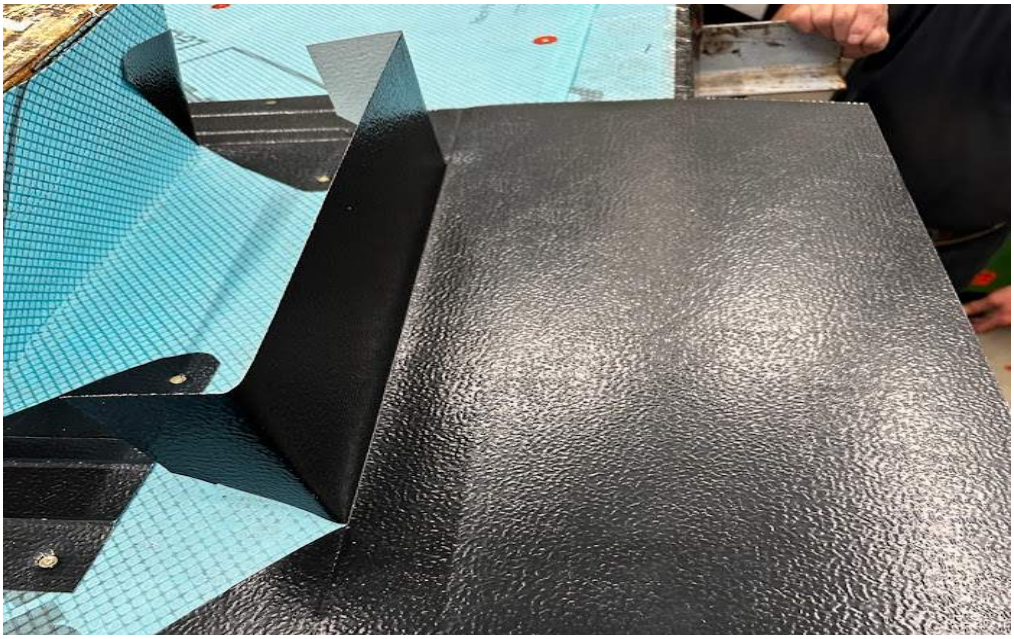


7.2.6. Install a TimberSteel™ Step Flashing, ensuring half of the step flashing overlaps with the apron flashing, and install a strip of butyl tape over the step flashing, down the apron flashing, stopping at the hem of the field shingle.



7.2.7. Install step flashings up the sides of the chimney as described in step 5 of the Detailed Installation Procedures. Complete by cutting and forming the final step flashing pieces around the upper corners.

7.2.8. Use the TimberSteel™ Supplemental Flashing Sheets to cut and form a back pan (sometimes called a flue back) that goes at least 5″ (127 mm) up the back of the chimney and 12″ (305 mm) up the roof deck.



Note (For chimneys greater than 30″ (762 mm) wide):

When forming a back pan flashing over a cricket, the flashing must extend up the roof deck 12" (305 mm) beyond the ridge of the cricket. Large chimney crickets will require open valleys, shingles on each side, and hip & ridge caps across the top, terminating into the main roof plane.

7.2.9. Install the back pan over the step flashings and run a strip of butyl tape across the back pan flashing, roughly 4" (102 mm) out from the chimney. Secure in place with nails at the top corners of the back pan.



7.2.10. When installing field shingles behind the chimney, cut the shingle to leave approximately a 3" (76 mm) gap between the shingle and the chimney. Press the shingle firmly into the butyl tape.



7.3. Skylights:

7.3.1. Trim the field shingle(s) to fit the width of the curb to maintain the 9″ (229 mm) reveal.

7.3.2. Cut the shingle hems 6″ (152 mm) from both sides of the curb. Open and flatten the hems to allow the Velux® adhesive skylight underlayment to sit flush over the shingle(s).



7.3.3. Install the Velux® adhesive skylight underlayment over the shingle at the base, up both sides, and across the top as outlined in the Velux® installation instructions.



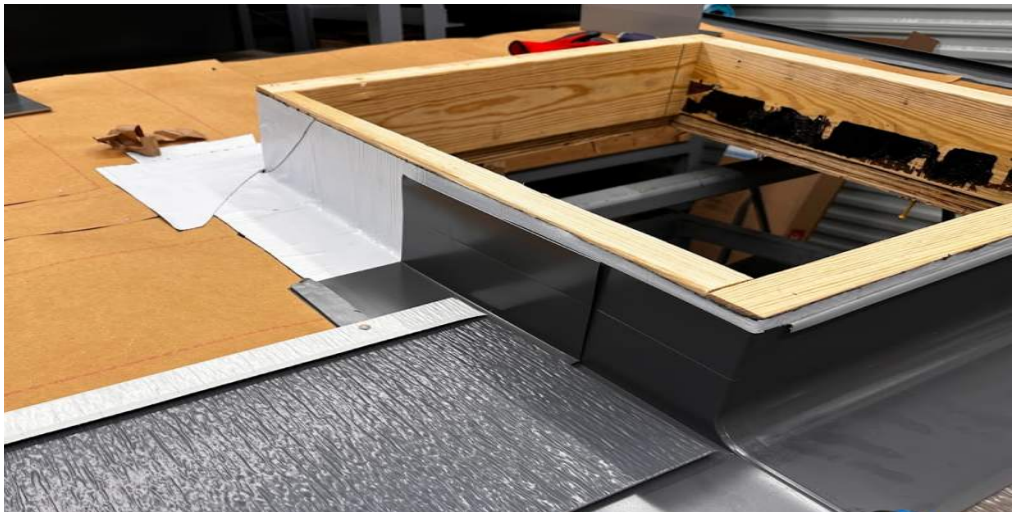
7.3.4. Fasten the Velux® sill flashing with nails through the leading edge and open hem of the field shingles. The nails are to be covered by the butyl installed in step 7.3.5.



7.3.5. Install a Velux® step flashing, ensuring half of the step flashing overlaps with the Velux® sill flashing, and install a strip of butyl tape over the step flashing, down the sill flashing, stopping at the hem of the field shingle.



7.3.6. Install the field shingle; the closest nail to the curb should be installed directly into the butyl tape.

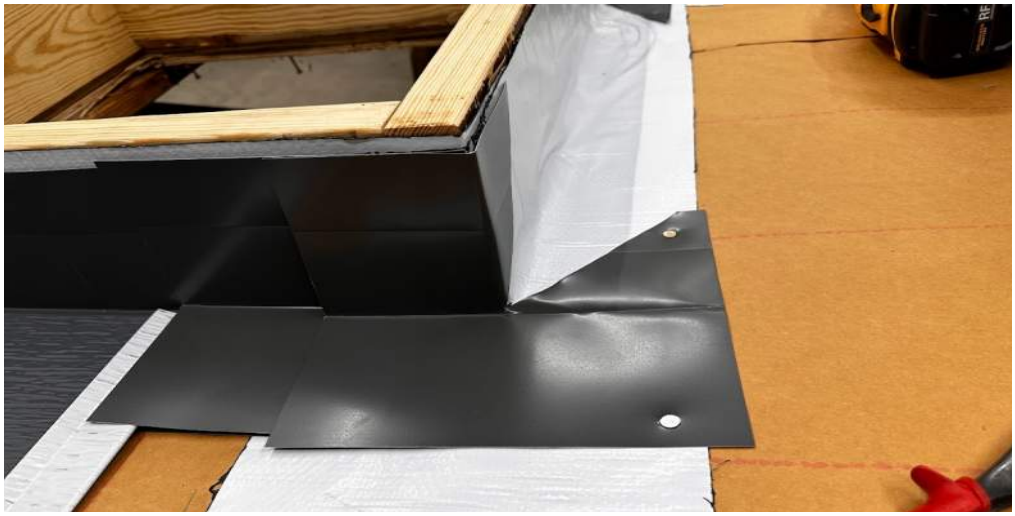


7.3.7. Install two additional Velux® step flashings. The first is installed to cover the hem of the preceding shingle. The second overlaps the first step flashing halfway. Apply a strip of butyl tape over both step flashings before installing the next shingle.



7.3.8. Install the field shingle; the closest nail to the curb should be installed directly into the butyl tape.

7.3.9. Repeat steps 7.3.7 and 7.3.8 until the top of the skylight is reached. Complete by cutting and forming the final step flashing piece around the corner.



7.3.10. Install the Velux saddle flashing over the step flashings nailing 12″ (305 mm) o.c. across the leading edge and one nail halfway down each side.

7.3.11. Install Velux adhesive skylight underlayment over the Velux saddle flashing, leaving 4″ (102 mm) of the flashing exposed above the curb, and extend 6″ (152 mm) beyond on either side.

7.3.12. Apply strips of butyl tape across the step and saddle flashing assembly.



7.3.13. Apply a horizontal piece of butyl tape across the width of the saddle flashing 4″ (102 mm) from the curb. Cut the shingle to allow for a 3″ (76 mm) clearance between the shingle and the curb. Press the shingle securely into the butyl strip when installing.



8. Complete the Roof Plane

8.1. At a ridge:

8.1.1. Cut the final course of TimberSteel™ Field Shingles even with the top edge of the roof deck before nailing into place.

8.1.2. Nails should be applied directly into the field shingle exposure, at the highest point on the shingle and deck.

8.2. At a headwall:

8.2.1. Cut the final course of shingles flush with the headwall and nail in place using four nails per shingle.

8.2.2. Apply peel & stick leak barrier over the cut shingle, extending 3" (76 mm) onto the field shingle and 5" (127 mm) up the vertical wall.

8.2.3. Use the TimberSteel™ Supplemental Flashing Sheets to form headwall flashing, extending 4" (76 mm) onto the field shingle and 5" (127 mm) up the vertical wall. Secure to the wall with five nails per length, 2" (51 mm) above the roof deck.

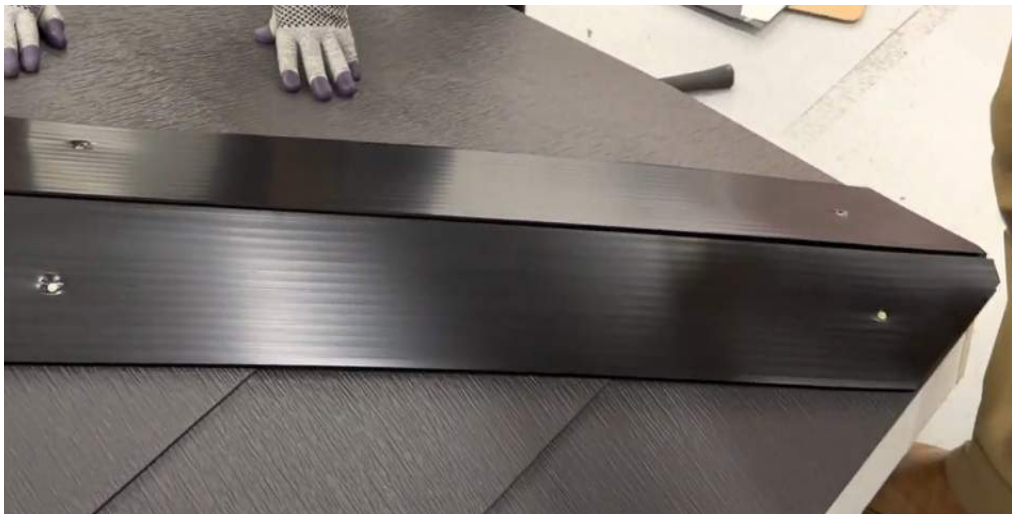
8.2.4. Overlap subsequent lengths of flashing a minimum of 2" (51 mm). Apply TimberSteel™ Metal Roof Sealant in the overlaps to seal against wind-driven rain.

9. Install TimberSteel™ Hip & Ridge Cap Shingles on Hips

Note: If the hip is vented, Cobra® Hip Vent will be used in the following steps. If the hip is not vented, use Timbersteel™ Hip & Ridge Spacers. For ease of installation, peel back the factory-applied protective film from the field shingles where the spacer or vent will be installed.

9.1. Install Cobra® Hip Vent or TimberSteel™ Hip & Ridge Spacer:

9.1.1. Starting at the bottom of the hip nearest the eave: Center and cut the hip vent or spacer to match the corner of the roof, placing it firmly against the roof surface.



Note: Always be sure that the Cobra® Hip Vent is oriented so that the "Towards Peak" arrows on the top surface of the vent point towards the peak of the roof. This orientation is critical to help prevent weather infiltration and leaking.

9.1.2. With hip vent or spacer properly oriented, fasten in place using pneumatic coil nails. Nails must always penetrate through plywood or OSB decks or at least ¾" (19 mm) into wood planks and should be driven flush with the surface of the hip vent or spacer.

9.1.3. Continue fastening hip vent or spacer up the hip towards the peak. Apply the subsequent sections using the vent's overlap/underlap tabs.

9.1.4. Miter cut the hip vent or spacer at the junction where hips and ridge meet.

9.2. Install TimberSteel™ Hip & Ridge Cap Shingles on a hip:

9.2.1. Begin by centering the cap shingle in the middle of the hip. The center of the shingle should be even with the corner of the spacer or hip vent.

9.2.2. Mark the underside of the cap shingle along the spacer or hip vent.



9.2.3. Flip the cap over and draw a second set of parallel lines ⅜" (10 mm) above the first set. Cut the cap shingle along the second set of lines to match the profile of the spacer or hip vent.



9.2.4. At the cut edge of the cap shingle, cut from the peak to the first set of lines and fold back both sides of the cut edge to create a closed hem.

9.2.5. Position the cap shingle in place. Hand-nail the cap shingles in place using the included TimberSteel™ 3" (76 mm) Ring Shank Nails, through the slots at the top of each cap shingle, one nail per slot.



9.2.6. Install the second cap shingle by engaging its lower hem on the upper hem of the first cap shingle. Hand nail the cap shingle in place with the included 3″ (76 mm) ring shank nails. Continue up the hip to complete the run.

Note: Care should be taken not to slide the upper cap shingle over the exposed surface of the lower cap shingle to avoid scratching.

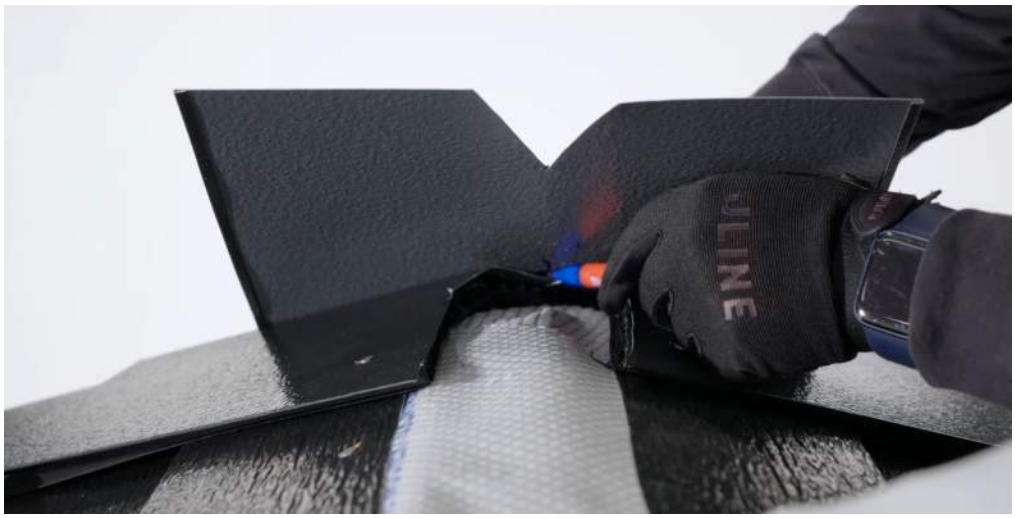


9.3. Install a TimberSteel™ Hip-to-Ridge Transition Cap:

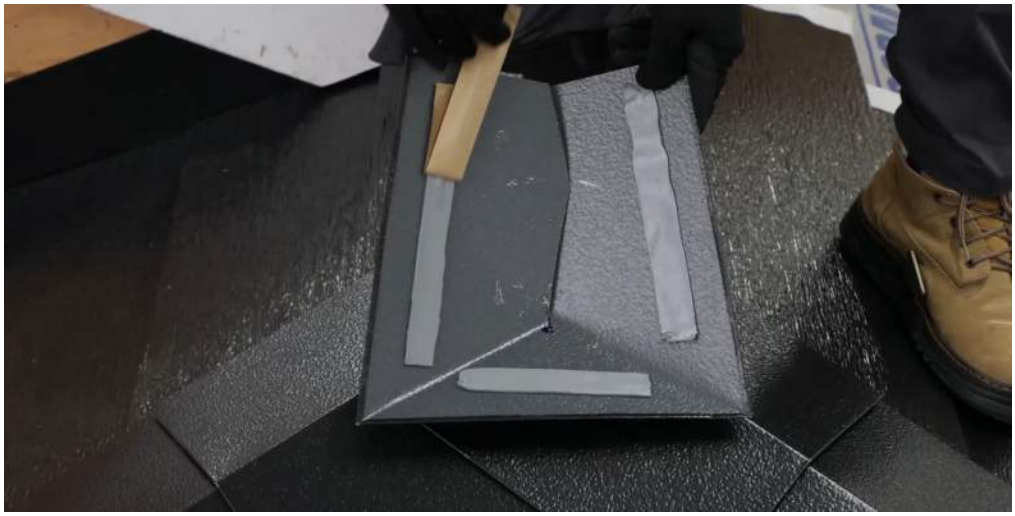
9.3.1. Align the hemmed corners of the transition cap with the centerline of each hip.



9.3.2. Mark where the two hips meet on the back of the shingle and cut from the pre-cut triangle, down to that mark.

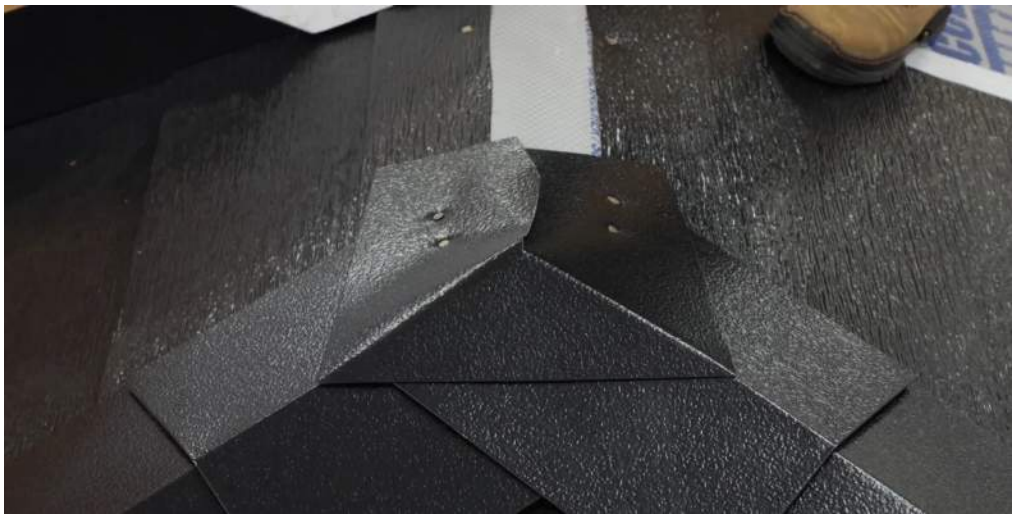


9.3.3. Bend the transition cap from the hemmed corners to the center mark and add strips of butyl tape approximately 1" (25 mm) from each of the three down-slope sides. Remove the tape's release paper before installation.



Note: Do not apply butyl tape over the bends.

9.3.4. Place the transition cap over the cap shingles on the peak of the roof and secure it with four hand-driven 3" (76 mm) ring shank nails, two on each side, as high up on the transition cap as possible.



Note: Ensure the nails are driven into the wood decking.

10. Install TimberSteel™ Hip & Ridge Cap Shingles on Ridges

Note: TimberSteel™ Ridge Vent must be used in the following steps whether the ridge is vented or not. For ease of installation, peel back the factory-applied protective film from the field shingles where the vent will be installed.

10.1. Place, center and conform the TimberSteel™ Ridge Vent over the ridge, resting firmly against the roof surface:

10.1.1. At a hip, the ridge vent should align with the tip of the transition cap.



10.1.2. At a rake edge, the ridge vent should run directly into the rake edge metal flashing.



10.1.3. At a roof plane, miter-cut the ridge vent between the T-diverters of the valleys. Seal any gaps with an appropriate TimberSteel™ Metal Roof Sealant.



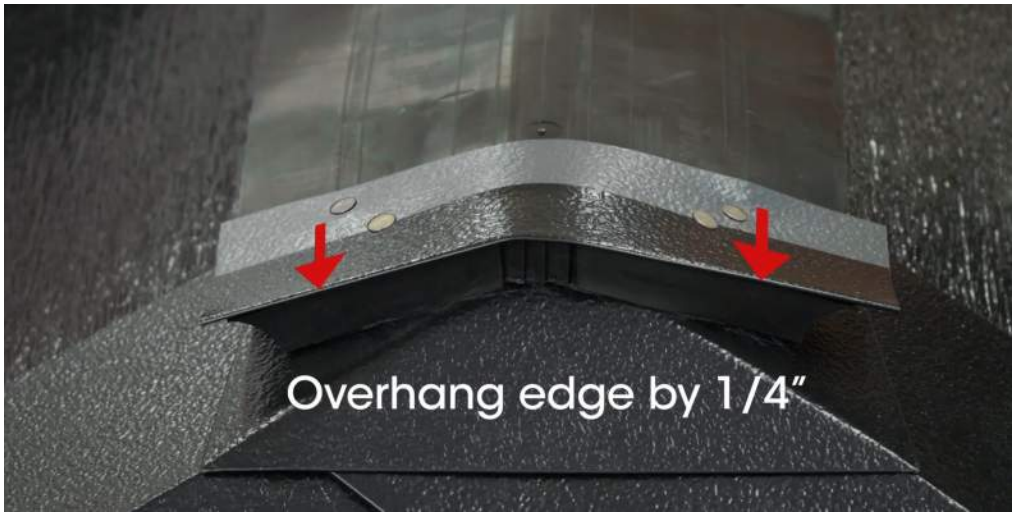
10.2. Fasten the ridge vent in place using the included 3" (76 mm) ring shank nails through the pre-molded nailing holes. Nails must be hammered by hand and penetrate through plywood decks or at least ¾" (19 mm) into wood planks.



10.3. Apply the subsequent ridge vent sections over the length of the ridge using the overlap/underlap tabs.

10.4. Starting cap shingles at a hip:

10.4.1. Install a TimberSteel™ Hip & Ridge Cap Shingle Clip by folding it closed and bending to conform to the ridge. Hand nail it in place, overhanging the edge of the ridge vent by ¼" (6 mm), with four 3" (76 mm) ring shank nails, two on each side.



10.4.2. Lock the first cap shingle into place by engaging the leading hem onto the ridge cap shingle clip. Hand nail the cap shingle in place with the included TimberSteel™ 3” (76 mm) Ring Shank Nails, one per side.



10.4.3. Install the subsequent cap shingles by engaging the leading hem on the upper hem of the previous cap shingle. Hand-nail the cap shingles in place using the included 3” (76 mm) ring shank nails, through the slots at the top of each cap shingle.

Note: Ensure cap shingle hem is pulled tight to the previous cap shingle while hand nailing.

10.5. Terminating cap shingles at a hip:

10.5.1. Install a TimberSteel™ Hip & Ridge Cap Shingle Clip by folding it closed and bending to conform to the ridge. Hand nail it in place, overhanging the edge of the ridge vent by ¼" (6 mm), with four 3" (76 mm) ring shank nails, two on each side.

10.5.2. Put the last cap shingle in place, fully engaging its leading hem on the previous cap shingle's upper hem. Mark the cap so it extends ½" (13 mm) longer than the ridge cap shingle clip and cut it to length.

10.5.3. Install the last cap shingle by fully engaging its hem with the previous cap shingle, and bend the edge of the cap shingle over the lip of the ridge cap shingle clip, locking it in place.

Note: The last cap shingle is not fastened in place. Ensure the last cap shingle is fully engaged with the previous cap shingle and the ridge cap shingle clip.

10.6. Starting cap shingles at a rake:

10.6.1. Install a TimberSteel™ Rake Edge Flashing Peak Cover by bending it to conform with the ridge vent and hand nail it in place with four TimberSteel™ 3" (76 mm) Ring Shank Nails, two on each side.



Note: Ensure all four nails are fastened either through or inside the ridge vent's nail zone (inscribed on the top of the ridge vent).

10.6.2. Lock the first TimberSteel™ Hip & Ridge Cap Shingle into place by engaging the leading hem onto the rake peak cover. Hand nail the cap in place with two 3" (76 mm) ring shank nails, one nail per side.



10.6.3. Install the subsequent cap shingles by engaging its leading hem on the upper hem of the previous cap shingle. Hand-nail the cap shingles in place using the included 3" (76 mm) ring shank nails, through the slots at the top of each cap shingle.



10.7. Terminating cap shingles at a rake:

10.7.1. Install a TimberSteel™ Rake Edge Flashing Peak Cover by bending it to conform with the ridge vent and hand nail it in place with four 3" (76 mm) ring shank nails, two on each side.



Note: Ensure all four nails are fastened either through or inside the ridge vent's nail zone (inscribed on the top of the ridge vent).

10.7.2. Put the last cap shingle in place, fully engaging its leading hem on the previous cap shingle's upper hem, then mark the cap so it extends ½" (13 mm) longer than the rake edge peak cover and cut it to length.



10.7.3. Install the last cap shingle by fully engaging its hem with the previous cap shingle, and bend the edge of the cap shingle over the lip of the rake edge peak cover, locking it in place.



Note: The last cap shingle is not fastened in place. It is important to ensure the last cap shingle is fully engaged with the previous cap shingle and the rake edge peak cover.

10.8. Starting cap shingles at a wall:

Note: Starting a course of TimberSteel™ Hip & Ridge Cap Shingle at a wall should only be done when starting the course at a rake or hip is not an option. This is most commonly the case when the other end of the ridge terminates in a roof plane, another ridge, or wall.

10.8.1. Install an opened TimberSteel™ Hip & Ridge Cap Clip by cutting the 2" (51 mm) hemmed lip at its center, bending to conform to the ridge, placing flush against the wall, and hand nailing it in place with two TimberSteel™ 3" (76 mm) Ring Shank Nails, one per side.

10.8.2. Cut the front hem off the first TimberSteel™ Hip & Ridge Cap Shingle and nail the cut edge into the open ridge cap clip and hand nail in place with two nails, one per side.

10.8.3. Apply TimberSteel™ Metal Roof Sealant over the nails and fold the ridge cap clip closed.

10.8.4. Complete the installation of the first cap shingle by hand nailing two nails into the nail zone through the slots at the top of each cap shingle, one per side.

10.8.5. Install the subsequent cap shingles by engaging its leading hem on the upper hem of the previous cap shingle. Hand-nail the cap shingles in place using the

included 3" (76 mm) ring shank nails, through the slots at the top of each cap shingle.

10.9. Terminating cap shingles at a wall:

10.9.1. Install an opened TimberSteel™ Hip & Ridge Cap Clip by cutting the 2" (51 mm) hemmed lip at its center, bending to conform to the ridge, and nailing it in place with two nails, one per side.





10.9.2. Measure and cut the last TimberSteel™ Hip & Ridge Cap Shingle to length. Ensure the lower hem is fully engaged with the upper hem of the previous cap shingle and nail the cut cap shingle into an open cap clip. Fasten with two nails per side.

10.9.3. Apply TimberSteel™ Metal Roof Sealant over the nails and fold the clip closed.

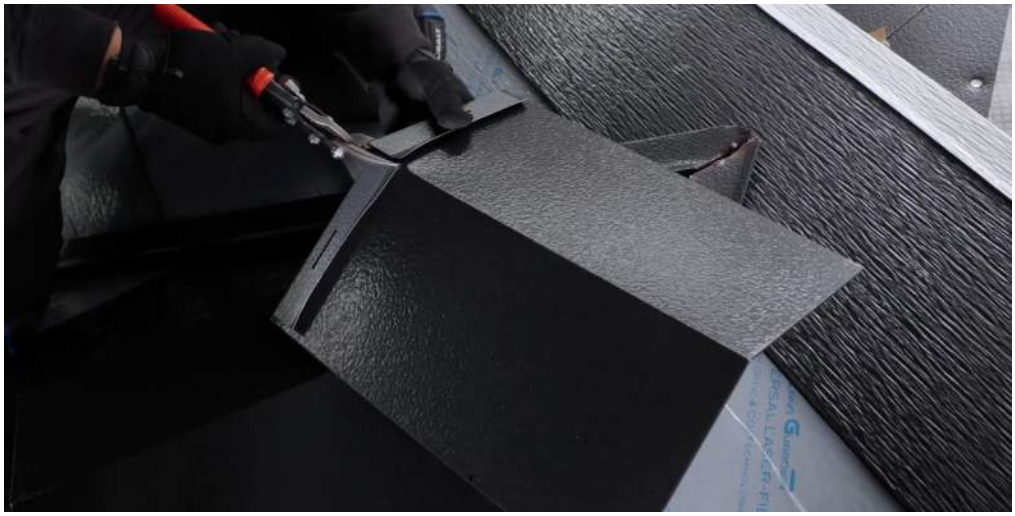


10.10. Terminating cap shingles at a roof plane or perpendicular ridge:

10.10.1. Mark the transition profile on the intersecting cap shingle.



10.10.2. Make a relief cut to the intersection point and bend each side to conform to the intersecting roof plane. Ensure that the leading hems are fully engaged with the previous cap shingle, and nail in place, ensuring it is flush with the roof deck.





10.10.3. Mark and cut the last cap shingle so it terminates under the first field shingle in the roof plane or the ridge cap on the perpendicular ridge. Fasten the last cap shingle in place with two nails before installing the field shingle or perpendicular ridge cap.





Note: Apply TimberSteel™ Metal Roof Sealant as necessary to seal any gaps.

Additional Conditions & Requirements

Roof Slope Transitions

1. Low slope roof to TimberSteel™ roof plane (3:12 or above):

   Note: It is recommended to review the instructions and details for the specified low slope system prior to the start of work to ensure adequate flashing at the slope transition point.

   1.1. Install the low slope roofing product according to the manufacturer's instructions.

   1.2. Align the bottom edge of a TimberSteel™ J-Channel at the slope transition point and install with nails every 8" (203 mm).

   1.3. Adhere TimberSteel™ 4" Flashing Tape across the back of the J-Channel, covering the nails.

   1.4. Apply TimberSteel™ Butyl Tape over the J-Channel diverter.

   1.5. Cut the first course of TimberSteel™ Field Shingles and install into the J-Channel, ensuring a straight line for the rest of the roof plane.

2. TimberSteel™ roof plane (3:12 or above) to low slope roof:

   Note: It is recommended to review the instructions and details for the specified low slope system prior to the start of work to ensure adequate flashing at the slope transition point.

   2.1. Cut the final course of TimberSteel™ Field Shingles even with the slope transition point and secure to the deck with four nails per shingle.

   Note: Nails should be applied directly into the field shingle exposure, at the highest point on the shingle and deck.

   2.2. Use the TimberSteel™ Supplemental Flashing Sheets (or the TimberSteel™ Supplemental Coil if selected) to fabricate the desired transition flashing into the low slope roof.

   2.3. Install the custom transition flashing with nails every 8" (203 mm) and proceed with installation of the low slope roofing product according to the manufacturer's instructions.

3. Lower slope TimberSteel™ roof plane (3:12 or above) to a higher slope TimberSteel™ roof plane:

3.1. Bend the TimberSteel™ Field Shingles to the desired angle using a metal brake and secure to the deck with four nails per shingle.

3.2. Additional nails may be necessary to the right of the shingle's butyl strip to ensure the shingles stay flush to the deck at the transition point.

3.3. If necessary, a TimberSteel™ Z Bar Cleat may be installed above the slope transition point to ensure the rest of the plane is square with the ridge. Snap a chalk line on the field shingles, parallel to the ridge. Align the Z bar cleat on that chalk line and install with nails every 8" (203 mm).

4. Higher slope TimberSteel™ roof plane to a lower sloper TimberSteel™ roof plane, (3:12 or above):

4.1. See "Installing the TimberSteel™ Gambrel Transition Flashing" in the Gambrel/Mansard Style Roofs section for the installation procedure.

Squaring a Roof Plane

1. At the eave edge

Note: Required when the eave edge is wavy or distance between the eave and ridge is uneven.

1.1. Install the TimberSteel™ Eave Drip Edge Flashing as uniformly flush to the fascia board as possible, as described in step 1 of the Detailed Installation Procedures.

1.2. Follow the Detailed Installation Procedures through the installation of the first course of TimberSteel™ Field Shingles.

1.3. Measure from the ridge to the upper hem of the first course of field shingles across the roof plane to determine if the roof plane is square. Continue to step 1.4 if a variation of more than a few inches is measured.

1.4. Ensure the next course of shingles is square with the rest of the roof plane by snapping a chalk line parallel to the ridge, in the exposure of the first course of shingles.

Note: The highest point of the chalk line must be a minimum of 2" (51 mm) below the upper hem of the first course of shingles to accommodate the installation of the TimberSteel™ Z-Bar Cleat.

1.5. Align a TimberSteel™ Z Bar Cleat on that chalk line and install with nails every 8" (203 mm).

1.6. Install the next course of shingles by latching them onto the Z bar cleat.

2. At the rake edge

Note: Required when the rake edge is wavy or has protruding features.

2.1. When installing the TimberSteel™ Field Shingles, snap a vertical chalk line 40" (1016 mm) and 59" (1499 mm) from the furthest left point on the rake edge.

2.2. On shingle courses where TimberSteel™ Field Shingles are used, cut the left edge of the first first field shingle as necessary to align the right side of the shingle with the 40" (1016 mm) chalk line.

2.3. On shingle courses where the TimberSteel™ XL Field Accessory is used, cut the left edge of the XL field accessory as necessary to align the right side of the shingle with the 59" (1499 mm) chalk line.

Small Course Corrections

Note: Required when the TimberSteel™ Field Shingles are no longer engaging properly or courses are no longer parallel with the eave edge.

1. Shifting a course down

1.1. Snap a chalk line at the desired hem location.

1.2. Align a TimberSteel™ Z Bar Cleat on that chalk line and install with nails every 8" (203 mm).

1.3. Install the next course of TimberSteel™ Field Shingles by latching them onto the Z bar cleat.

2. Shifting a course up

2.1. Cut the very top of the nail zone off of the shingles that need to be bypassed.

2.2. Nail the shingle at the top edge with four nails per shingle.

2.3. Snap a chalk line at the desired hem location.

2.4. Align a TimberSteel™ Z Bar Cleat on that chalk line and install with nails every 8" (203 mm).

2.5. Adhere TimberSteel™ 4" Flashing Tape across the back of the Z bar cleat, covering the nails.

2.6. Install the next course of TimberSteel™ Field Shingles by latching them onto the Z bar cleat.

Gambrel/Mansard Style Roofs

1. Installing the TimberSteel™ Gambrel Transition Flashing

1.1. Cut the final course of TimberSteel™ Field Shingles even with the slope transition point and secure to the deck with four nails per shingle.

Note: Nails should be applied directly into the field shingle exposure, at the highest point on the shingle and deck.

1.2. Apply TimberSteel™ 4" Flashing Tape along the top of the cut field shingles, covering the nails.

1.3. Align the gambrel transition flashing over the slope transition point, with the lower flange covering the last course of field shingles.

Note: The gambrel transition flashing is installed **inside** the TimberSteel™ Rake Edge Flashing at slope transitions with rake edges.

1.4. Fasten the gambrel transition flashing every 8" (203 mm) on center.

1.5. When joining two pieces of gambrel transition flashing together, cut a 1" (25 mm) notch off the two pieces where they overlap.

1.6. Slide the new piece into the notch of the receiving piece and fasten through this overlap.

1.7. Adhere the GAF Peel & Stick Leak Barrier underlayment as described in step 2 of the Detailed Installation Procedures.

1.8. If a rake edge is present, install TimberSteel™ Rake Edge Flashing as described in step 3 of the Detailed Installation Procedures.

1.9. Install the TimberSteel™ Field Shingles as described in step 6 of the Detailed Installation Procedures, locking the bottom edge of the first course of field shingles onto the TimberSteel™ Gambrel Transition Flashing.

2. Terminating TimberSteel™ Hip & Ridge Cap Shingles at a TimberSteel™ Gambrel Transition Flashing

   2.1. Install Cobra® Hip Vent or TimberSteel™ Hip & Ridge Spacer as described in step 9.1 of the Detailed Installation Procedures, ending the vent or spacer where it meets the lower edge of the TimberSteel™ Gambrel Transition Flashing.

   2.2. Install TimberSteel™ Hip & Ridge Cap Shingles as described in step 9.2 of the Detailed Installation Procedures.

   2.3. Install an opened TimberSteel™ Hip & Ridge Cap Clip over the lower flange of the TimberSteel™ Gambrel Transition Flashing, just under the lip, by cutting the 2" (51 mm) hemmed edge open at its center, bending to conform to the hip and securing with two 3" (76 mm) fasteners, one per side.

   2.4. Measure and cut the last TimberSteel™ Hip & Ridge Cap Shingle to length. Ensure the lower hem is fully engaged with the upper hem of the previous cap shingle and nail the cut cap shingle into the open cap clip using four fasteners, two per side.

   2.5. Fold the cap clip closed over the nails used to secure the cut cap shingle.

Installation of Accessories

Rooftop Intake Ventilation

Note: Cobra IntakePro® may be used on roofs with slopes 4:12 or greater and only under the second course of field shingles (or higher) above the roof's drip edge. Do not install under the first course of shingles that hooks onto the TimberSteel™ Eave Drip Edge Flashing. Read and review the detailed Cobra IntakePro® Installation Instructions before proceeding. Below are additional and/or modified steps to incorporate the rooftop intake vent into the TimberSteel™ Premium Metal Roofing System.

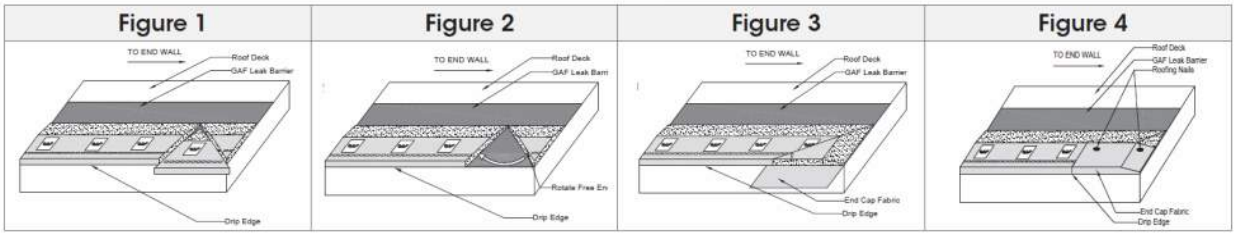
1. After installing the first course of field shingles, measure 4" (102 mm) and 5" (127 mm) up slope from the top edge of the first course of field shingles and mark these locations. Strike chalk lines, temporary marking chalk only, parallel to the eave edge of these two marks. This will mark where the 1" (25 mm) wide intake air slot should be cut.

2. Cut the 1" (25 mm) wide air intake slot in the roof deck parallel to the eave edge. The air slot must stop a minimum of 18" (457 mm) from rake/gable edges, side/end walls, and hip intersections, and must stop a minimum of 24" (610 mm) from valley intersections. The vent must always extend a minimum of 12" (305 mm) past any air slots.

   Note: GAF recommends extending the vent across the entire roof plane, never extending beyond the butyl tape that covers the rake edge, valley metal, or step flashing water diverters.

3. Cut the top of the next course of field shingles 6" (152 mm) from the bottom edge of the shingle. Install the cut field shingles and nail at the top. The shingles should end at the intake slot.

4. To begin installing the intake vent and to terminate the vent at the end of a course, taper cut the start of the vent by marking and cutting a 45-degree "V" shape out of the vent using a sharp utility knife and discard. Using the remaining free end of the vent, rotate and position it so its thin side is nearest to the butyl tape at the termination point.



5. Nail end cap fabric down to the roof deck underneath the intake vent leaving half of the fabric exposed as shown in Figure 3 above. Finish by wrapping the exposed end cap fabric back over the vent to cover the open portion and nail fabric in place with two roofing nails per Figure 4.

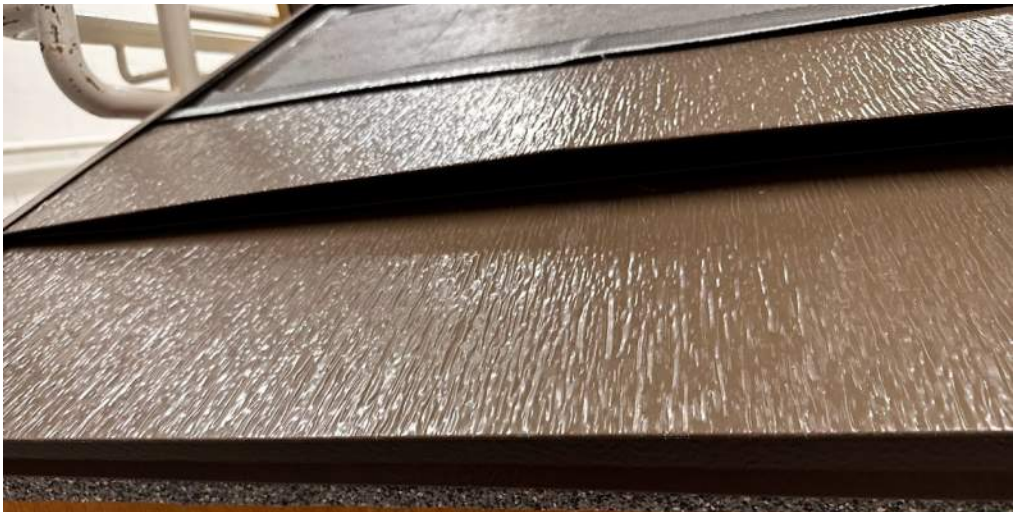
6. When installing, the front venting face of the vent should be flush with the lower lip of the cut field shingle. Using the included 1-¾" (44 mm) pneumatic coil nails, fasten the vent every 6" (152 mm) along the pre-marked nail line and fasten every 12" (305 mm), approximately 1 ½" (38 mm) down from the up-slope edge of the vent. Do not nail within 1" (25 mm) from the side, top, or bottom edges of the vent.

7. Install GAF Peel & Stick Leak Barrier Underlayment completely covering the top of the intake vent and extending to a minimum of 24" (610 mm) in from the building's warm wall. The leak barrier should not overhang the vent.

8. Install a TimberSteel™ Z Bar Cleat, facing downwards over the vent opening with 1-¾" (44 mm) coil nails every 6" (152 mm). This creates a latching point for the next course of metal shingles. The cleat should not extend into the tapered section of the vent.



9. Install the next course of shingles by latching them onto the Z bar cleat. The tapered edges of the vent should allow the next course of shingles to properly fit into the rake edge or valley metal channels.



Roof Jacks / Toe Guards

Note: Slope and Course Restrictions: only install on slopes of 6:12 and greater. Do not install on the bottom four courses of a roof plane, only install on the 5th course from an eave edge or higher. Place a protection layer (e.g. painter's tape, padding, etc.) underneath each roof jack to prevent damage to the underlying metal field shingle.

1. Cut a slot in the top hem of the field shingle to allow for the roof jack to be inserted. Ensure that the slot is wide enough to allow for the jack to be removed when nailed.

2. Slide the roof jack through the slot and nail through the placement slots into the structural supports. Ensure the nail heads do not protrude from the deck any higher than the shingle hem. Before continuing, ensure the roof jack can be removed.







3. Install additional shingles as normal, over the roof jack, up the plane of the roof.
4. When removing the roof jack, tap up and away from the nails to clear the nail slots.

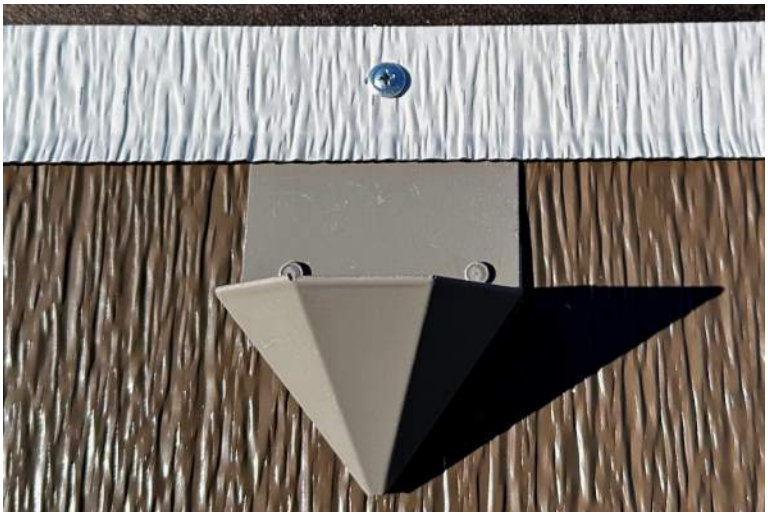
TimberSteel™ Snow Guards

Note: GAF recommends installing TimberSteel™ Snow Guards during the TimberSteel™ system installation process in regions where snow and ice accumulate on the roof.

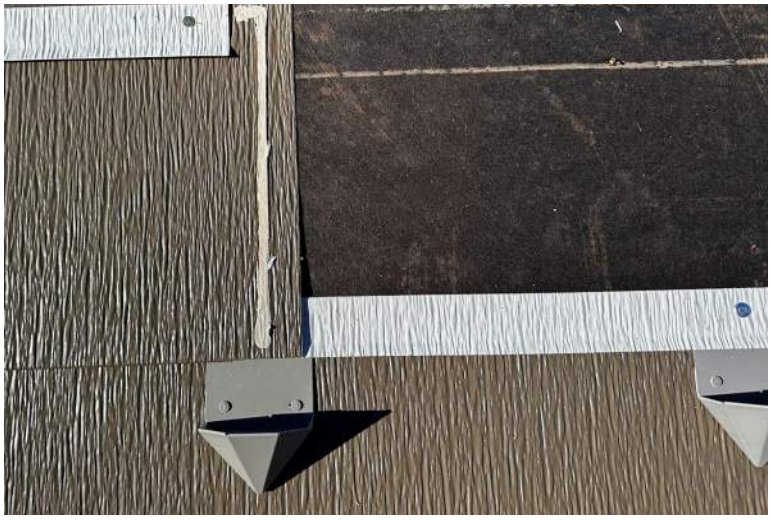
1. After determining the snow guard installation pattern, insert the snow guard into the upper hem of the shingle, ensuring the snow guard stem is flush against the top of the shingle.



2. Secure the snow guard in place with (1) #10 self-drilling screw through the shingle nail zone, snow guard stem, and into the deck.



3. After securing the snow guards in place across a course of shingles, install the next course of shingles per the standard installation instructions.



Shingle Removal and Replacement

1. If a group of TimberSteel™ Field Shingles within a roof plane needs to be replaced, start with the upper-leftmost shingle in the group. Break the butyl adhesive bond between the shingle to be replaced and the shingle to its left. Cut the shingle approximately 1" (25 mm) to 2" (51 mm) from the top.



2. Break the butyl adhesive bond between the last shingle to be replaced in the uppermost course and the shingle to its right that is to remain. Finish cutting the shingle out from beneath the shingle to its right.



3. After cutting out the field shingles in the uppermost course that need to be replaced, remove all remaining shingles to be replaced with a hammer and/or pry bar.

4. Cut a fresh piece of the GAF Peel & Stick Leak Barrier Underlayment to size and install over the exposure underlayment, ensuring all nail holes, cuts, and any other damage are fully covered.

5. Install new field shingles in the lower courses per the procedures outlined in the field shingles section.

6. Cut the replacement field shingles for the uppermost course to a length of 9 ⅜" (238 mm). This cut will remove the upper hem and nail zone.



7. Replace any butyl that was disturbed on the remaining shingles with TimberSteel™ Butyl Tape or TimberSteel™ Metal Roof Sealant. Apply a bead across the fragments of the original shingles.



8. Slide the shingle cut to 9 ⅜" (238 mm) into place. Ensure the bottom hem is fully engaged with the field shingle beneath it and the top part of the shingle is securely wedged between the shingle above it and the fragment from the replaced shingle.





9. Secure each field shingle that was cut to 9 ⅜" (238 mm)with either three evenly spaced stainless steel pop rivets or two stainless steel exposed gasket head fasteners. Ensure either fastener type is installed at the correct height to engage the fragment of the replaced shingle that the new shingle wedged against.