

ELITE GLASS-SEAL®

3-TAB ASPHALT SHINGLES

MANUFACTURED IN FREDERICK, MD • JOPLIN, MO



SHINGLES BEGIN TO AGE AS SOON AS THEY ARE EXPOSED TO NATURE. BUILDINGS EXPERIENCE AGING FACTORS DIFFERENTLY, SO IT IS DIFFICULT TO PREDICT HOW LONG SHINGLES WILL LAST. THAT'S WHY TAMKO PROVIDES A LIMITED WARRANTY THAT INCLUDES A BINDING ARBITRATION CLAUSE AND OTHER TERMS AND CONDITIONS WHICH ARE INCORPORATED HEREIN BY REFERENCE. YOU MAY OBTAIN A COPY OF THE LIMITED WARRANTY AT TAMKO.COM OR BY CALLING 1-800-641-4691.

WARNING: USE OF POLYURETHANE FOAM INSULATION APPLIED DIRECTLY TO THE UNDERSIDE OF A ROOF DECK MAY CAUSE PREMATURE DEGRADATION OR FAILURE OF THIS ASPHALT ROOFING PRODUCT. WE ARE INVESTIGATING COMPATIBILITY OF POLYURETHANE FOAMS WITH OUR ASPHALT BUILDING PRODUCTS. CHEMICAL INCOMPATIBILITY, OFF-GASSING AFTER APPLICATION AND EXCESS HEAT DURING AND AFTER APPLICATION OF POLYURETHANE FOAMS MAY AFFECT THE PERFORMANCE OF ASPHALT AND MODIFIED ASPHALT BUILDING PRODUCTS AND METAL FASTENERS USED WITH THOSE PRODUCTS.



IMPORTANT SAFETY INFORMATION: Do not install until all appropriate safety precautions have been read and understood. [The TAMKO Safety Data Sheet \(SDS\) is available at tamko.com/sds.](http://tamko.com/sds) Always use appropriate fall protection equipment and wear appropriate personal protective equipment (PPE) when working with this product. Moisture, frost or debris will decrease the traction and can cause slippery conditions when walking on the product. **Applicator safety is of utmost importance.**

THIS TAMKO® PRODUCT IS COVERED BY A LIMITED WARRANTY AND ARBITRATION AGREEMENT, THE TERMS OF WHICH ARE PRINTED ON THE WRAPPER.

IN COLD WEATHER (BELOW 40°F), CARE MUST BE TAKEN TO AVOID DAMAGE TO THE EDGES AND CORNERS OF THE SHINGLES.

IMPORTANT: It is not necessary to remove the plastic strip from the back of the shingles.

THESE ARE THE MANUFACTURER'S APPLICATION INSTRUCTIONS FOR THE ROOFING CONDITIONS DESCRIBED. TAMKO BUILDING PRODUCTS, INC. ASSUMES NO RESPONSIBILITY FOR LEAKS, ROOFING PROBLEMS OR OTHER DEFECTS RESULTING FROM FAILURE TO FOLLOW THE MANUFACTURER'S INSTRUCTIONS. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN UNSAFE CONDITIONS AND WILL ADVERSELY AFFECT COVERAGE UNDER THE LIMITED WARRANTY AND ARBITRATION AGREEMENT. SEE THE LIMITED WARRANTY FOR DETAILS.

CHECK LOCAL BUILDING CODES TO DETERMINE SUITABILITY OF THIS PRODUCT FOR YOUR INTENDED USE.

INFORMATION INCLUDED IN THESE APPLICATION INSTRUCTIONS WAS CURRENT AT THE TIME OF PRINTING. TO OBTAIN A COPY OF THE MOST CURRENT VERSION OF THESE APPLICATION INSTRUCTIONS, VISIT US ONLINE AT WWW.TAMKO.COM OR CALL US AT 1-800-641-4691.

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**ROOF DECK**

These shingles are for application to roof decks consisting of plywood, oriented strand board (OSB) or sheathing boards capable of receiving and retaining fasteners, and to inclines of not less than 2 in. per foot. For roofs having pitches 2 in. per foot to less than 4 in. per foot, refer to special instructions titled "Low Slope Application." For roofs having pitches greater than 21 in. per foot, refer to special instructions titled "Mansard Roof or Steep Slope Roof." Shingles must be applied properly. TAMKO assumes no responsibility for leaks or defects resulting from improper application, or failure to properly prepare the surface to be roofed over.

NEW ROOF DECK CONSTRUCTION: Roof deck must be smooth, dry and free from warped surfaces. It is recommended that metal drip edges be installed at eaves and rakes.

PLYWOOD: All plywood shall be exterior grade as defined by APA - The Engineered Wood Association. Plywood shall be a minimum of 3/8 in. thickness and applied in accordance with the recommendations of APA - The Engineered Wood Association.

ORIENTED STRAND BOARD: Oriented strand board shall be exterior grade as defined by APA - The Engineered Wood Association, minimum 7/16 in. thickness, APA-rated in accordance with Voluntary Standard PS 2 and applied in accordance with the recommendations of APA - The Engineered Wood Association.

SHEATHING BOARDS: Boards shall be well-seasoned tongue-and-groove boards and not over 6 in. nominal width. Boards shall be a 1 in. nominal minimum thickness. Boards shall be properly spaced and nailed.

VENTILATION

Inadequate ventilation of attic spaces can cause accumulation of moisture in winter months and a build-up of heat in the summer. These conditions can lead to:

1. Vapor condensation
2. Buckling of shingles due to deck movement.
3. Rotting of wood members.
4. Premature failure of roof.

To ensure adequate ventilation and circulation of air, the ventilation system must include inlets and outlets. This may be accomplished with a combination of ridge and soffit vents or by using gable end vents. FHA minimum property standards require one square foot of net free ventilation area to each 150 square feet of space to be vented.

This may be reduced to one square foot of ventilation area per 300 square feet if at least 40% and not more than 50% of venting is provided not more than 3 feet below the ridge or if a Class I or II vapor barrier is installed on the warm-in-winter side of the ceiling in climate zones 6, 7, and 8 as recommended by the 2015 International Residential Code. For more information consult your design professional. If the ventilation openings are screened, the total area should be doubled.

IT IS PARTICULARLY IMPORTANT TO PROVIDE ADEQUATE VENTILATION.**FASTENERS**

WIND CAUTION: Extreme wind velocities can damage these shingles after application when proper sealing of the shingles does not occur. This can especially be a problem if the shingles are applied in cooler months or in areas on the roof that do not receive direct sunlight. These conditions may impede the sealing of the adhesive strips on the shingles. The inability to seal down may be compounded by prolonged cold weather conditions and/or blowing dust. In these situations, hand sealing of the shingles is required. To ensure quicker sealing, apply 2 quarter sized dabs of TAM-PRO® Q-20 Premium SBS Flashing Cement, TAMKO® or TAM-PRO® Plastic Roof Cement, or TAMKO® Tam-Seal Roof Patch Sealant or adhesive meeting ASTM D4586, Type I, under the corner of each tab 1 in. (25mm) from each side and 1 in. (25mm) up from the bottom of the shingle. Press shingle firmly into the adhesive. For maximum wind resistance along rakes, cement shingles to the underlayment and each other in a 4 in. (102mm) width of TAM-PRO® Q-20 Premium SBS Flashing Cement, TAMKO® or TAM-PRO® Plastic Roof Cement, or TAMKO® Tam-Seal™ Roof Patch Sealant or adhesive meeting ASTM D4586, Type I. Caution: Apply ONLY a thin uniform layer of adhesive less than 1/8 in. (3mm) thick. Excessive amounts can cause blistering of the shingles and may soften the asphalt in certain underlayments resulting in the asphalt flowing, dripping and staining. Shingles must also be fastened according to the fastening instructions described below.

FASTENING PATTERNS: Fasteners must be placed above or below the factory applied sealant in an area between 5-5/8 in. and 6-7/8 in. from the butt edge of the shingle. Fasteners should be located horizontally according to the diagram below. Do not nail into the sealant. TAMKO recommends nailing below the sealant whenever possible for greater wind resistance.

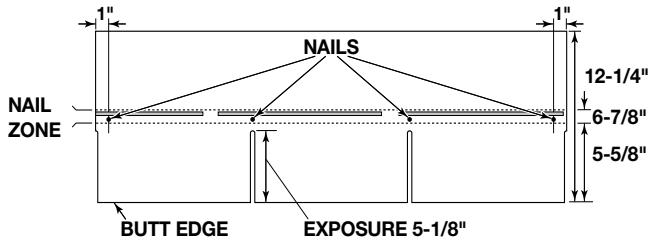
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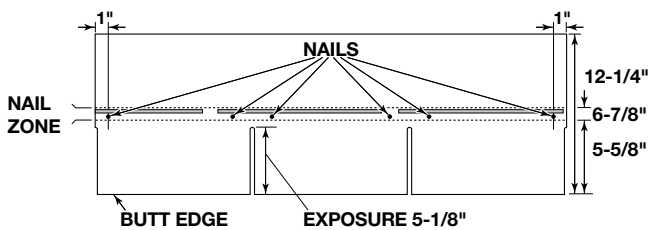


1) Standard Fastening Pattern. (For use on decks with slopes 2 in. per foot to 21 in. per foot.) One fastener 1 in. back from each end and one 12 in. back from each end of the shingle for a total of 4 fasteners. (See Standard Fastening Pattern illustrated below).

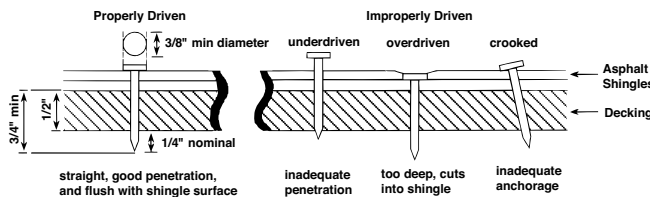


2) Mansard Fastening Pattern. (For use on decks with slopes greater than 21 in. per foot.) One fastener 1 in. back from each end and one fastener 10-1/2 in. back from each end and one fastener 13-1/2 in. back from each end for a total of 6 fastener per shingle. (See Mansard Fastening Pattern illustrated below.)

MANSARD FASTENING PATTERN

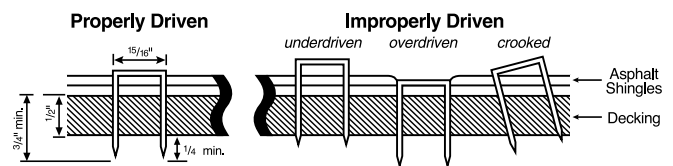


NAILS: TAMKO recommends the use of nails as the preferred method of application. Standard type roofing nails should be used. Nail shanks should be made of minimum 12-gauge wire, and a minimum head diameter of 3/8 in. Nails should be long enough to penetrate 3/4 in. into the roof deck. Where the deck is less than 3/4 in. thick, the nails should be long enough to penetrate completely through decking and extend at least 1/8 in. through the roof deck. Drive nail head flush with the shingle surface.



STAPLES: If staples are used in the attaching process, follow the above instructions for placement. All staples must be

driven with pneumatic staplers. The staple must meet the following minimum dimensional requirements. Staples must be made from a minimum 16 gauge galvanized wire. Crown width must be at least 15/16 in. (staple crown width is measured outside the legs). Leg length should be a minimum of 1-1/4 in. for new construction and 1-1/2 in. for reroofing thus allowing a minimum deck penetration of 3/4 in. The crown of the staple must be parallel to the length of the shingle. The staple crown should be driven flush with the shingle surface. Staples that are crooked, underdriven or overdriven are considered improperly applied.



CAUTION: DO NOT FASTEN INTO THE FACTORY APPLIED ADHESIVE.

UNDERLAYMENT

UNDERLAYMENT: An underlayment must be applied over the entire deck before the installation of TAMKO® shingles. Failure to add underlayment can cause premature failure of the shingles, which is not covered by TAMKO's Limited Warranty and Arbitration Agreement.

Products which are acceptable for use as underlayment are:

Asphalt Saturated Felt Underlayments:

- SuperX® 30 Underlayment
- Any TAMKO® non-perforated asphalt saturated organic felt
- A non-perforated asphalt saturated organic felt which meets ASTM D226 or ASTM D4869

Specialty Underlayments:

- Synthetic Guard Plus™ Underlayment or Synthetic Guard™ Underlayment
- TAMKO® Moisture Guard®, TW Underlayment or TW Metal and Tile Underlayment (additional ventilation may be required. Contact TAMKO's Technical Services Department for more information)
- A self-adhesive underlayment designed for use with asphalt shingles which meets ASTM D1970.

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For Asphalt Saturated Felt Underlayments:

Apply the felt when the deck is dry. On roof decks with slopes 4 in. per foot and greater apply the felt parallel to the eaves lapping each course of the felt over the lower course at least 2 in. Where ends join, lap the felt 4 in. If left exposed, the felt may be adversely affected by moisture and weathering. Laying of the felt and the shingle application must be done together.

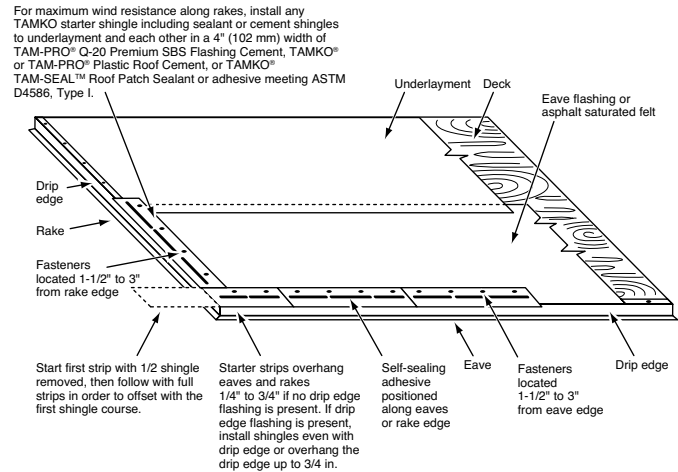
For All Other Specialty Underlayments:

On roof decks with slopes 4 in. per foot and greater, apply the underlayment parallel to the eaves in accordance with underlayment application written instructions. The underlayment should not be left exposed for a longer period of time than is specified in the underlayment application written instructions. The final roof covering must be installed before the structure is exposed to adverse weather conditions, such as wind driven rain, high wind, hail, ice storms, etc.

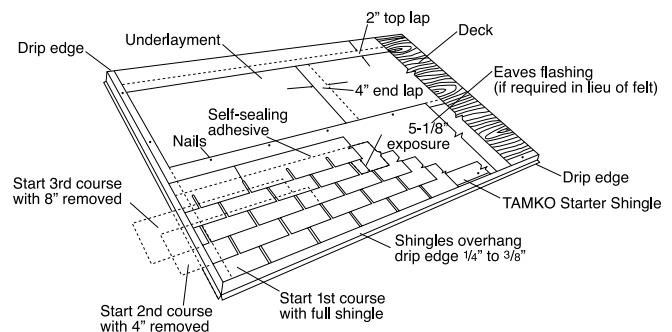
In areas where ice builds up along the eaves or a back-up of water from frozen or clogged gutters is a potential problem, TAMKO® Moisture Guard®, TW Metal and Tile Underlayment or TW Underlayment (or any specialty eaves flashing product) may be applied to eaves, rakes, ridges, valleys, around chimneys, skylights or dormers to help prevent water damage. Contact TAMKO's Technical Services Department for more information.

APPLICATION INSTRUCTIONS

STARTER COURSE: A starter course may consist of TAMKO® Shingle Starter, TAMKO® 10-Inch Starter, or self-sealing 3-tab shingles. If self-sealing 3-tab shingles are used, remove the exposed tab portion and install with the factory applied adhesive adjacent to the eaves. Attach the starter course with approved fasteners along a line parallel to and 1-1/2 in. to 3 in. above the eaves edge. The starter course should overhang the eave edge 1/4 in. to 3/4 in. and the rake edge 3/8 in. to 3/4 in. if drip edge flashing is not used along the eaves or rakes. If drip edge flashing is present, install shingles even with the drip edge or overhang the starter course over the drip edge up to 3/4 in. Minimizing overhang at eaves and rakes is recommended to improve wind resistance of the installed system.



SHINGLE APPLICATION: There are three different offset methods for applying strip shingles: the 4-inch method, the 5-inch method and the 6-inch method. By removing different lengths from the first shingle, cutouts in one course of shingles do not line up directly with those of the course below. It is recommended that the shingles be laid according to one of these methods consistent with procedures outlined in ARMA's Residential Asphalt Roofing Manual. The drawing below features the 4-inch method. Start the first course with a full shingle. Start the second course with 4" removed from the first shingle, the third course with 8" removed, and so on through the ninth course which has 32" removed from the first shingle. For information regarding the other methods, please refer to the ARMA Residential Asphalt Roofing Manual Design and Application Methods.



NOTE: Do not align joints of shingle courses when working in cut pieces. Joints should be no closer than 4 in. from one another.

LOW SLOPE APPLICATION

On pitches 2 in. per foot to less than 4 in. per foot cover the deck with two layers of underlayment. Begin by applying the

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underlayment in a 1/2-sheet width along the eaves. Place a full-sheet width over the 1/2-sheet width starter piece, completely overlapping it. All succeeding courses will be positioned to overlap the preceding course by 1/2-sheet width. If winter temperatures average 25°F or less, thoroughly cement the laps of the entire underlayment to each other with TAM-PRO® or TAMKO® Plastic Roof Cement or adhesive meeting ASTM D4586, Type I from eaves and rakes to a point of a least 24 in. inside the interior wall line of the building. As an alternative, TAMKO® Moisture Guard®, TW Metal and Tile Underlayment, or TW Underlayment self-adhering underlayment may be used in lieu of the cemented felts.

MANSARD ROOF OR STEEP SLOPE ROOF

If the slope exceeds 21 in. per foot (60°), each shingle must be sealed with TAM-PRO® Q-20 Premium SBS Flashing Cement, TAMKO® or TAM-PRO® Plastic Roof Cement, or TAMKO® Tam-Seal™ Roof Patch Sealant or adhesive meeting ASTM D4586, Type I immediately upon installation. Quarter-sized dabs of cement must be applied to shingles with a 5-5/8 in. exposure, use 6 fasteners per shingle. See Mansard Fastening Pattern for fastener placement.

REROOFING

Before reroofing, be certain to inspect the roof decks. All shall meet the requirements listed in "Roof Deck" section, page 1.

Nail down or remove curled or broken shingles from the existing roof. Replace all missing shingles with new ones to provide a smooth base. Shingles that are buckled usually indicate warped decking or protruding nails. Hammer down all protruding nails or remove them and refasten in a new location. Remove all drip edge metal and replace with new.

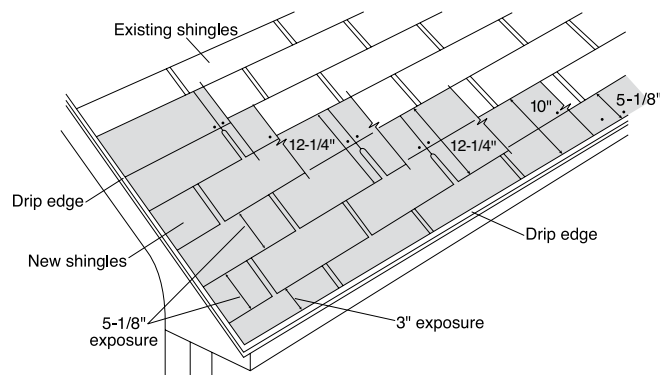
If reroofing over an existing roof where new flashing is required to protect against ice dams (freeze/thaw cycle of water and/or the backup of water in frozen or clogged gutters), remove the old roofing to a point at least 24 in. beyond the interior wall line and apply TAMKO® Moisture Guard®, TW Metal and Tile Underlayment or TW Underlayment. Contact TAMKO's Technical Services Department for more information.

The nesting procedure described below is the preferred method for re-roofing over square tab strip shingles with a 5-1/8 in. exposure.

Starter Course: Begin by using TAMKO® Shingle Starter, TAMKO® 10-Inch Starter or self-sealing 3-tab shingles or by cutting shingles into 5-1/8 × 36 inch strips. This is

done by removing the 5-1/8 in. tabs from the bottom and approximately 2 in. from the top of the shingles so that the remaining portion is the same width as the exposure of the old shingles. Apply the starter piece so that the self-sealing adhesive lies along the eaves and is even with the existing roof. The starter strip should be wide enough to overhang the eaves and carry water into the gutter. Remove 3 in. from the length of the first starter shingle to ensure that the joints from the old roof do not align with the new.

First Course: Cut off approximately 2 in. from the bottom edge of the shingles so that the shingles fit beneath the existing third course and align with the edge of the starter strip. Start the first course with a full 36 in. long shingle and fasten according to the instructions in section "Fasteners" on page 2.



Second and Succeeding Courses: According to the off-set application method you choose to use, remove the appropriate length from the rake end of the first shingle in each succeeding course. Place the top edge of the new shingle against the butt edge of the old shingles in the courses above. The full width shingle used on the second course will reduce the exposure of the first course to 3 in. The remaining courses will automatically have a 5-1/8 in. exposure.

VALLEY APPLICATION

Center a minimum 36 in. wide sheet of TAMKO® Moisture Guard®, TW Metal and Tile Underlayment, any self-adhesive underlayment designed for use with asphalt shingles which meets ASTM D1970, or a minimum 50 lb. roll roofing in the valley. Nail the underlayment only where necessary to hold it in place and then only nail the outside edges. Install shingle underlayment and extend over valley flashing by 6 in.

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IMPORTANT: PRIOR TO INSTALLATION, WARM SHINGLES TO PREVENT DAMAGE WHICH CAN OCCUR WHILE BENDING SHINGLES TO FORM VALLEY.

Closed cut valley application after valley flashing is in place:

- The first course and only the first course of shingles from the intersecting roof surface should be woven with the first course of shingles on the starting roof.
- Apply the first course of shingles along the eaves of one of the intersecting roof planes and across the valley.

Note: For proper flow of water over the trimmed shingle, always start applying the shingles on the roof plane that has the lower slope or less height.

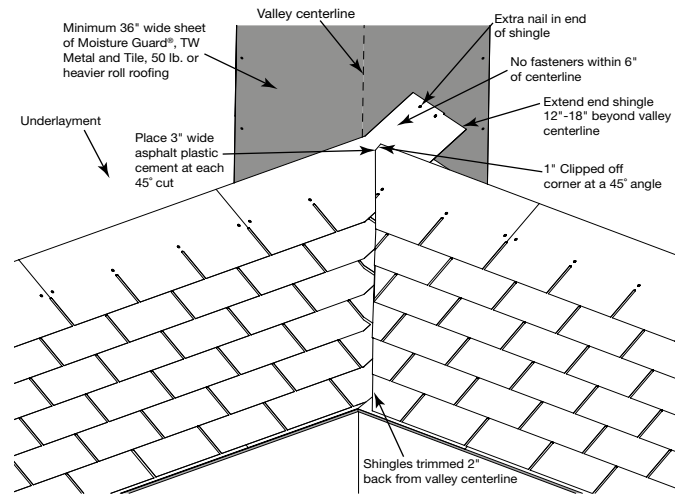
- Extend the end shingle at least 12 in. onto the adjoining roof. Apply succeeding courses in the same manner, extending them across the valley and onto the adjoining roof.
- Do not trim if the shingle length exceeds 12 in. Lengths should vary.
- Press the shingles tightly into the valley.
- Use normal shingle fastening methods.

Note: No fastener should be within 6 in. of the valley centerline, and two fasteners should be placed at the end of each shingle crossing the valley.

- To the adjoining roof plane, apply one row of shingles extending it over previously applied shingles and trim a minimum of 2 in. back from the centerline of the valley.
- For a neater installation, snap a chalkline 2" back from the valley centerline over the shingles for guidance.
- Clip the upper corner of each shingle at a 45-degree angle and embed the end of the shingle in a 3 in. wide strip of asphalt plastic cement. This will prevent water from penetrating between the courses by directing it into the valley.

CAUTION: Adhesive must be applied in smooth, thin, even layers. Excessive use of adhesive will cause blistering to this product. TAMKO assumes no responsibility for blistering.

FOR ALTERNATE VALLEY APPLICATION METHODS, PLEASE CONTACT TAMKO'S TECHNICAL SERVICES DEPARTMENT AT 800-641-4691.



HIP AND RIDGE FASTENING DETAIL

Apply the shingles with a 5-1/8 in. exposure beginning at the bottom of the hip or from the end of the ridge opposite the direction of the prevailing winds. Secure each shingle with one fastener 5-5/8 in. back from the exposed end and 1 in. up from the edge. Do not nail directly into the sealant.

TAMKO recommends the use of TAMKO® 12-1/4 × 12 Hip & Ridge shingle product. Where matching colors are available, it is acceptable to use Elite Glass-Seal® shingles cut down to 12 in. pieces.

The length of the fastener should be long enough to penetrate through the roofing material and 3/4 in. into the wood decking or completely through approved plywood.

IMPORTANT: PRIOR TO INSTALLATION, CARE NEEDS TO BE TAKEN TO PREVENT DAMAGE WHICH CAN OCCUR WHILE BENDING SHINGLES IN COOL WEATHER.

