

Installing Shingles on Special Shaped Roofs

9

YOUR OBJECTIVE:

To learn how to apply shingles to roof shapes other than the standard straight gable.

The application instructions for each of the CertainTeed products in the middle chapters of this manual are intended for a standard straight gable roof. You will encounter other roof shapes where the methods for the standard roof will not be entirely appropriate. This chapter contains supplementary instructions that will enable you to handle the special problems encountered in hip roofs, cone- or turret-shaped roofs, and dormers. There is also a discussion of how to finish a dormer ridge cap that ties into the field of a roof.

HIP ROOF APPLICATION

METHODS

Most shingles can be applied to hip roofs by employing either of two methods — the racking method or the diagonal method. **The choice depends on the application instructions for the shingle being applied.** The racking method is the only recommended method for some shingles and is designated as an alternative method for others. At the same time, the diagonal method is the only method recommended for other shingles. Refer to the approved application method(s) in the chapter for the specific shingle being installed.

THE DIAGONAL METHOD

A. UNDERLAYMENT AND THE STARTER COURSE

1. It is recommended that WinterGuard™ Waterproofing Underlayment be used across the hips. Apply the WinterGuard centered on the hips before applying ordinary underlayment to the rest of the roof. (If WinterGuard is used along the eaves for protection against ice dams, apply it first, and then lap the WinterGuard from the hip over it.)
2. Strike a chalk line perpendicular to the eaves from the ridge to the eaves to serve as a vertical reference. Strike horizontal lines as necessary to assure course alignment. (The vertical reference should be on the left side of the roof in the vicinity of where the hip meets the ridge.)
3. Install starter strips as directed in the application instructions for the shingle being applied. Overlap the vertical reference line by the measured half tab-length portion of the shingle instead of cutting it off. The starter strip should extend the entire length of the eaves (see Figure 9-1).

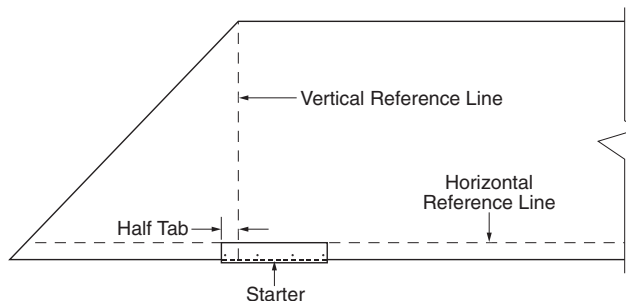


Figure 9-1: Starter strip overlapping the vertical reference line.

B. INSTALLING THE FIRST DIAGONAL SECTION

1. Install the first shingle of the first course with the left edge aligned with the vertical reference line (see Figure 9-2).

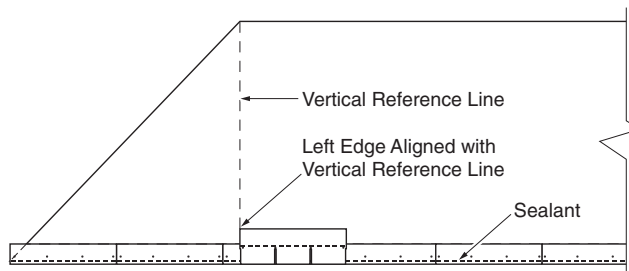


Figure 9-2: Installing the first shingle of the first course with the left edge aligned with the vertical reference line

2. Apply the first shingle of each course above the first course by overlapping the reference line by the required amount as directed by the application instructions for the product. **DO NOT** nail the left end of these shingles at this time. (There will be a total of four or six courses per diagonal section depending on the product being installed.) (See Figure 9-3).

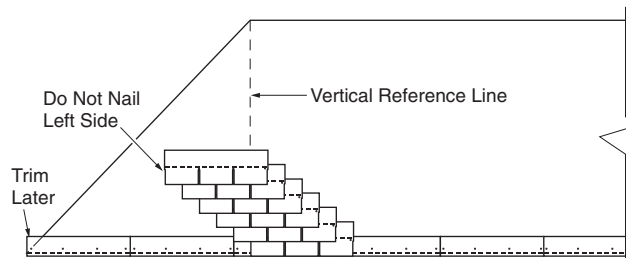


Figure 9-3: Section 1-A

3. Before continuing up the roof section, apply one shingle immediately to the right of each shingle of the completed first section (see Figure 9-4, Section 1B).

C. INSTALLING DIAGONAL SECTIONS ABOVE THE FIRST SECTION

1. Install the first shingle of the first course of each diagonal section the same as in the first diagonal section: with the left edge aligned with the vertical reference line.
2. Continue up the roof using the same offset method used in the first diagonal section.
3. Before beginning each diagonal section, apply one shingle immediately to the right of each shingle of all courses already installed on the roof (as in Figure 9-4, Section 1-B).
4. Continue installing diagonal sections and shingles to the right of the sections as described above up to the ridge and to the right-edge gable or hip.
5. Trim shingles that extend beyond the right edge flush with the hip line or with proper overhang at a gable edge.

D. FILLING IN TO THE LEFT OF THE VERTICAL REFERENCE LINE

Install a full shingle to the left of the shingle in the first course at the vertical reference line and along the edge of the roof. Slide the end of this shingle under the portion of the first shingle of the second course that extends to the right of the vertical line. **INSTALL THE NAIL** in the overlying portion of the second-course shingle.

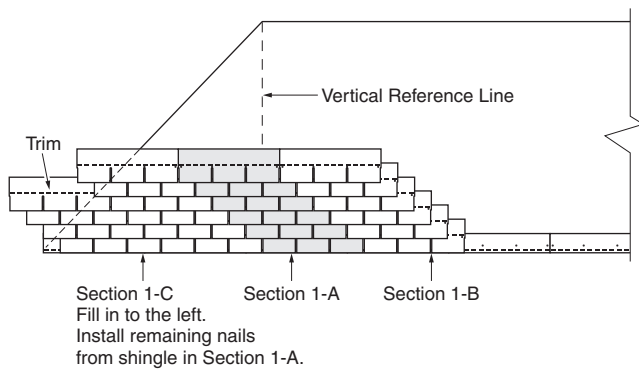


Figure 9-4: Filling in the area to the left of the vertical reference line.

Install a full shingle next to the just-nailed second-course shingle, sliding it under the overhanging portion of the third-course shingle and installing the nail in the overlying portion of the third-course shingle. **DO NOT** nail the left end of this shingle at this time.

Continue installing shingles in this manner, starting to the left of the existing diagonals at the vertical reference line and continuing up and to the left until reaching the hip in both directions. **NAIL THE LEFT EDGE** of shingles when a shingle further left is inserted beneath them.

Pieces cut from the right of the roof area, whether a straight gable or another hip, can be used to fill in the missing segments at the left hip. Be alert to the necessity of installing the nail that was left out of the left end of the overlying shingle.

E. SHINGLING THE OTHER SIDES OF HIP AND CAP INSTALLATION

Complete the roof by similarly installing shingles on the other sides of the roof, then install the hip and ridge caps.

THE RACKING METHOD

A. UNDERLAYMENT AND THE STARTER COURSE

1. It is recommended that WinterGuard™ Waterproofing Underlayment be used across the hips. Apply the WinterGuard centered on the hips before applying ordinary underlayment to the rest of the roof. (If WinterGuard is used along the eaves for protection against ice dams, apply it first, and then lap the WinterGuard from the hip over it.)
2. Strike a chalk line perpendicular to the eaves from the ridge to the eaves to serve as a vertical reference. Strike horizontal lines as necessary to assure course alignment. (The vertical reference should be on the left side of the roof in the vicinity of where the hip meets the ridge.)
3. Install starter strips as directed in the application instructions for the shingle being applied. Overlap the vertical reference line by the measured half tab-length portion of the shingle instead of cutting it off. The starter strip should extend the entire length of the eaves (Figure 9-2).

B. INSTALLING THE SINGLE-COLUMN RACK (Figure 9-5)

1. Install the first shingle of the first course with the left edge aligned with the vertical reference line.
2. Install the first shingle of the second course by overlapping the vertical reference line by half a tab length. This overlap is the same portion that would be cut off when starting at a rake. **DO NOT** nail the **LEFT** end of the shingle at this time.
3. Install the first shingle of the third course by the left edge along the vertical reference line. **DO NOT** nail the **RIGHT** end of the shingle at this time.
4. Install the first shingle of subsequent courses by alternating the pattern of the second and third courses. For even-numbered courses, overlap the vertical reference line by half a tab and omit the left most nail. For odd-numbered courses, position the shingle flush with the line and omit the rightmost nail (Figure 9-5).

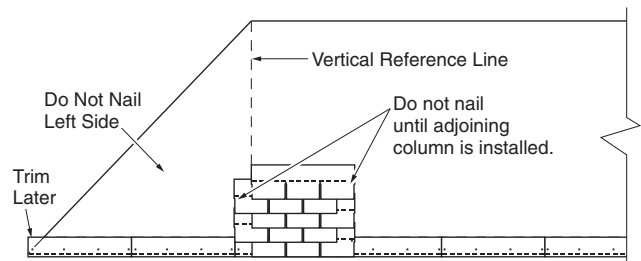


Figure 9-5: The Single-Column Rack

5. When the single rack reaches the ridge, install shingles to the left and right of the installed rack by inserting them under the loose ends of previously installed shingles. **BE SURE TO INSTALL** previously omitted nails as shingles are inserted under loose ends and temporarily omit end nails where a shingle will have to be inserted.
6. When the shingles that overlap the hip edge are being installed, the portion that overlaps must be trimmed along the hip line. (These pieces can be used at the opposite hip.)

C. SHINGLING THE OTHER SIDES OF THE HIP ROOF AND CAP INSTALLATION

Complete the roof by similarly installing shingles on the other sides of the roof, then install the hip and ridge caps.

CONES AND TURRETS

Rounded, cone, or turret-type roofs are labor intensive because of the many cuts, joints, and unique workmanship involved. While final results can be quite impressive, there is a significant labor cost associated with rounded-roof applications: approximately five times the labor required for a normal roof. The special technique involved is to trim the shingles on an angle so that the sides butt together smoothly:

1. Begin by applying CertainTeed WinterGuard™ Shingle Underlayment directly to the deck according to application instructions provided with the product. WinterGuard seals around fasteners and helps prevent leaks that can result from the increased number of joints characteristic of rounded-roof applications.
2. Depending on the circumference of the roof, use full or partial shingles, whichever conform to the curvature and lie flat. The minimum width should be no smaller than half a tab.
3. Shingles at the eaves may be trimmed to fit the rounded edge. The length of the shingle depends on the circumference.
4. Snap chalk lines from the peak center point to the eaves at intervals of one-half tab measured at the eaves. Gauging size to ensure that the shingles lay flat and uniform, fit the shingles between the chalk lines.
5. Shingle portions get progressively smaller as the rounded arc gets smaller further up the roof. Applied pieces will still maintain a staggered side offset; i.e., cutouts will align every other course if chalk lines are followed.

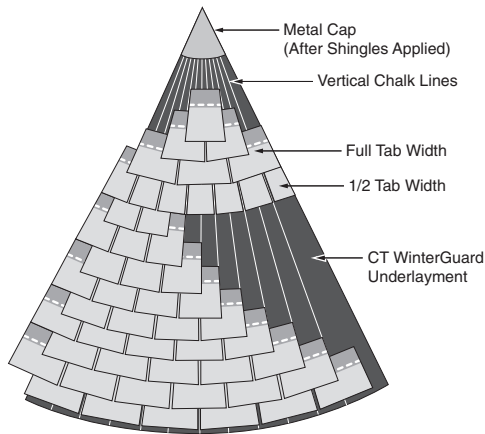


Figure 9-6: Shingles applied to the rounded portion of a roof.

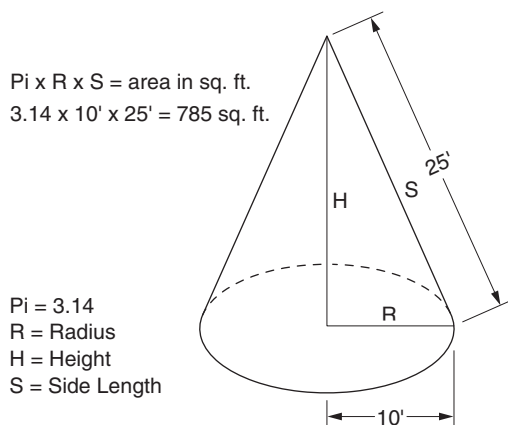


Figure 9-7: Determining the surface area for a cone in square feet.

6. Cut trapezoidal sections from shingles to fit between narrowing vertical lines until the shingles are a minimum of one-half of one tab wide at the lowermost edge of the shingle piece. Each shingle section should span four chalk lines. Continue up the roof using wider sections when pieces become less than one-half of one tab wide.
7. Taper shingles to a narrower width in the top portion of the headlap by following the chalk line to cut the taper. Individual pieces will be pie-shaped. Cuts should be straight to ensure that no gaps occur between joints. (For a pie-shaped Carriage House Shingle™, it may look better to trim the lowermost edge to approximate the original chamfered corners or scallop-edged finish. Use a hook blade knife to trim shingles from the granule side.
8. Cap the peak: The normal method is to fabricate a copper cap that fits snugly onto the pointed area overlapping the shingles headlap area sufficiently to prevent leakage. Use spots of roofing cement to set the metal cap into place.

OTHER ROOF SHAPES

Dome and barrel roofs often have areas with slopes that fall below the 2/12 range where roofing shingles cannot be applied. Such areas must be covered with roofing material such as metal, built-up roofing, modified roll roofing, or EPDM.

Geometric shapes such as hexagon (six-sided), octagon (eight-sided) and the like can be treated like a multiple-hip roof. The typical hip roof is a rectangle (four-sided). Usually, however, all hips are treated the same.

DORMER RIDGE CAP INSTALLATION

Because dormers and “L” shaped roofs project out of the field of the roof, there is a need to finish their ridge caps by tying them into the field of the roof. A smooth transition makes for the best appearance and is also necessary to prevent leaks

1. If closed-cut valleys are employed, complete the dormer roof by extending the dormer shingles across the centerline of the valley. Start the ridge cap at the rake, and complete to within one cap of the field of the roof.
2. Complete the main roof up the left side of the dormer into the valley. Cut back the valley shingles on the main roof 2" from the valley centerline to create a closed cut valley.

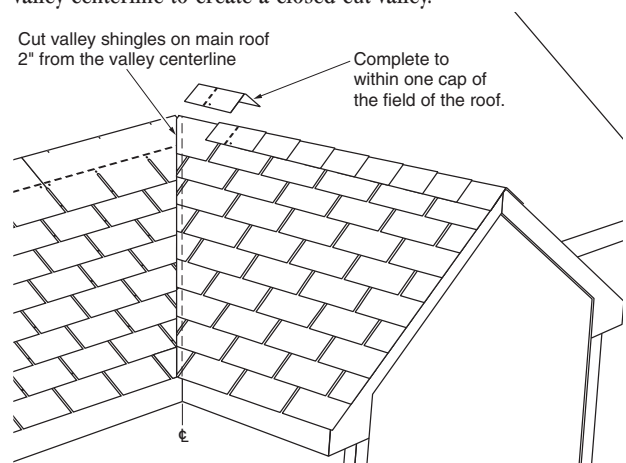


Figure 9-8: Dormer shingles extending across the valley with main roof shingles cut back two inches from the center line.

- Cut into the first shingle that crosses above the ridge of the dormer a V-shaped notch that fits over the ridge of the dormer. The sides of the notch should match the cut of the shingles on the field of the roof that were cut back at the valley centerline. Cut this notch into the headlap area of the shingle. Shingles on the right side of the dormer should be applied so that course pattern and horizontal alignment conform to the position of the V-notched shingle (*Figure 9-9*).

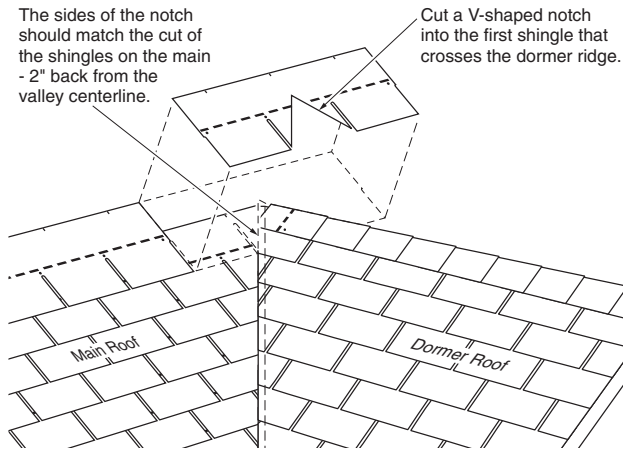


Figure 9-9: The V-notched shingle being fitted over the dormer ridge.

- Install a ridge cap on the dormer with a portion of its headlap extending onto the main roof. Cut a slit in the headlap just long enough for the cap to be folded over the dormer ridge and for the upper corners to be pressed flat against the main roof.
- A V-notch will again be required for the next course of shingles above the dormer ridge. Cut this notch to fit snugly around the cap shingle.
- The next ridge cap shingle will also require a slit in its headlap to permit shaping it to the ridge contour as well as to the main roof.
- The next course of shingles may still require a small notch to enable the tab to lie flat.
- The next ridge-cap shingle should complete the ridge cap, and it will have to be split again to conform to both the dormer surface and the main roof surface. Fill the opening created by the slit with roofing cement, and seal under the cut edges also.
- The slit in the ridge cap must be covered completely by the shingle over it in the next course. If cutouts or butt joints are closer than 4" to the slit, a scrap piece of shingle at least 8" wide by 12" high should be installed over the cut before the full shingle is applied (*Figure 9-10*).

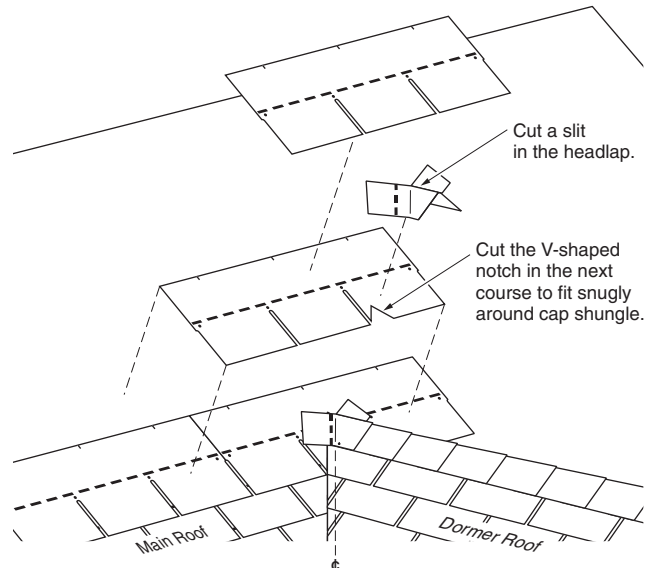


Figure 9-10: "Exploded" view of the entire assembly where the dormer ridge meets the main roof.

NOTE: The layers of shingle material from the ridge cap under the shingle courses may shift the cutout alignment of the shingles to the right of this area; check and correct if necessary.

SHINGLING AROUND A DORMER

On the main roof, snap chalk lines horizontally and vertically on both sides of and above the dormer to ensure proper alignment and exposure of shingle courses. Snapping chalk lines on the dormer roof too, helps ensure the courses from both roof planes are in line with each other.

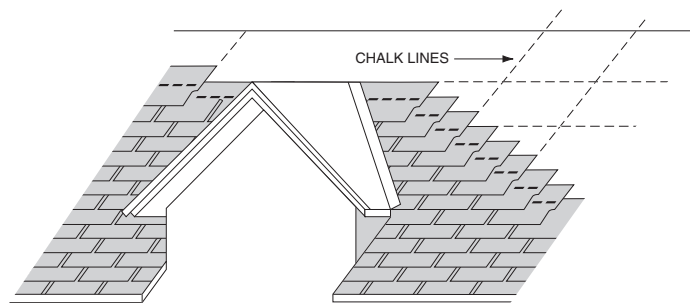
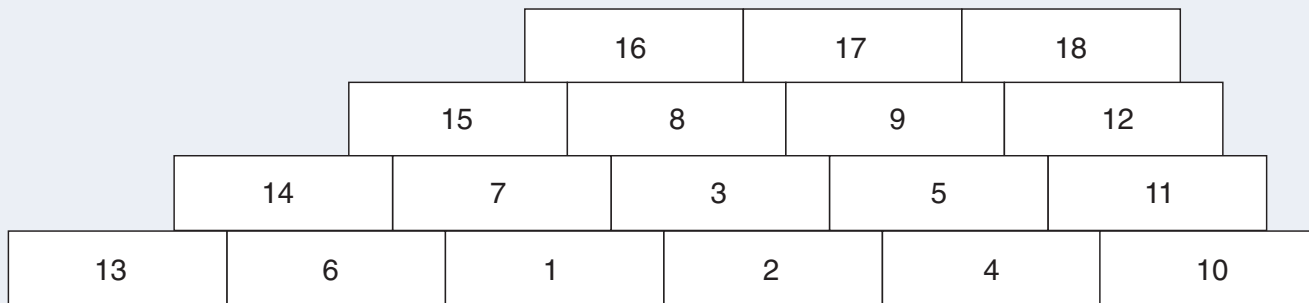


Figure 9-11: Ensure shingles on the main roof continue the same alignment pattern on both sides of the dormer as shown.

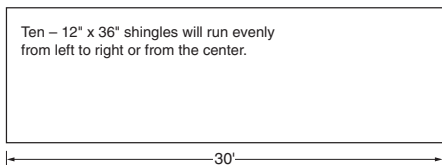
Here's a Tip... Thanks to Scott Wilson from Westerville, OH.

Two-Man, Pyramid Method For Covering a Hip Roof

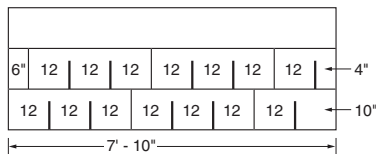
1. Install the starter course along the eave. Apply the first shingle of the first course in the middle of the hip roof. Install the second shingle to the right of the first shingle. (Shingles 1 and 2 in the drawing below.)
2. Install the next shingle (Shingle 3) on the second course, offset by seven inches, from the left edge of Shingle 2. Thus, we have started in the shape of a pyramid.
3. Install adjoining shingles on the first two courses:
Shingles 4, 5 are installed to the right of Shingles 2 and 3. Shingles 6 and 7 are installed to the left of Shingles 1 and 3.
4. Begin the third course by installing Shingle 8, offset by seven inches from the left edge of Shingle 3. To the right of Shingle 8, install Shingle 9.
5. Install adjoining shingles on the first three courses:
Shingles 10, 11, and 12 are installed to the right side of Shingles 4, 5, and 9. Shingles 13, 14, and 15 are installed to the left of Shingles 6, 7, and 8.
6. Begin the fourth course by applying Shingle 16, offset by seven inches from the left edge of Shingle 8. Install Shingles 17 and 18 to the right of Shingle 16.
7. Continue in this same fashion to complete the roof.



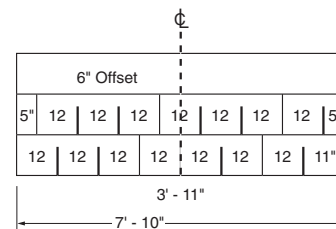
Starting in the Middle... a tip from Mark Featherman. To achieve a “balanced pattern” and to avoid a potential blow-off problem from “small tabs” along the rake, it sometimes makes sense to start a shingle application in the center of a roof. To show us, Mark has provided the following illustrations:



When applying standard 36" shingles on a 30' roof – there is no problem.




When applying shingles from left to right along some roofs, its often possible to have a “short tab” along the rake. In this situation, the roof will not look symmetrical and the small tab might blow off.



When starting from the middle, as shown here, it's easy to calculate a “safe” and uniform tab size at either end of every course. Plus the roof appears symmetrical.

SECTION 9 SELF-TEST

- 9-1. When applying waterproofing underlayment on a hip roof, apply it along the eaves first, then cover the hips.
- A. True.
 - B. False.
- 9-2. When applying shingles to a hip roof you may use either the racking method or a diagonal method, regardless of the application instructions for the shingles being applied.
- A. True.
 - B. False.
- 9-3. Labor costs for work done on cone or turret type roofs generally cost how much more than work done on typical roofs?
-  **W**
- A. Two times as much.
 - B. Three times as much.
 - C. Four times as much.
 - D. Five times as much.
- 9-4. On cone roofs, chalk lines should be snapped from the peak center point to the eaves at intervals of one half tab:
- A. True.
 - B. False.
- 9-5. When applying shingles to a roof with a dormer, and closed-cut valleys are involved, each course of dormer shingles should be:
- A. Started at the valley center line and finished at the rake.
 - B. Cut two inches from the valley center line.
 - C. Left unfinished until the main roof surface has been completed.
 - D. Extended across the center line of the valley.
- 9-6. When shingling around a dormer, snapping horizontal and vertical chalk lines on both the main roof and the dormer roof ensures proper alignment and exposure of the shingle courses and that the courses from both roofs line up:
- A. True.
 - B. False.

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