

ICC-ES Evaluation Report**ESR-1389**

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**DIVISION: 07 00 00—THERMAL AND MOISTURE
PROTECTION****Section: 07 31 13—Asphalt Shingles****REPORT HOLDER:****CERTAINTEED CORPORATION
1400 UNION MEETING ROAD
BLUE BELL, PENNSYLVANIA 19422
(610) 341-7000**www.certainteed.com**EVALUATION SUBJECT:****CERTAINTEED ASPHALT SHINGLES****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2012, 2009 and 2006 *International Building Code*® (IBC)
- 2012, 2009 and 2006 *International Residential Code*® (IRC)

Properties evaluated:

- Weather resistance
- Fire classification
- Wind resistance

2.0 USES

The CertainTeed asphalt shingles described in this report comply with ASTM D3462 and are Class A roof coverings when installed as described in this report.

3.0 DESCRIPTION**3.1 General:**

CertainTeed asphalt shingles are available as three-tab, four-tab and laminated asphalt shingle roof covering materials. See Table 1 and Figure 1 for recognized product names, shingle types, manufacturing locations, overall dimensions, installed weights, maximum exposure to the weather, and fastening details. The shingles are self-sealing by means of adhesive strips located on either the weather side or the underside. See Figure 1 for adhesive strip location for field shingles and Starter Strip shingles.

3.2 Three-tab Shingles and Four-tab Shingles:

Three-tab and Four-tab shingles are composed of a single layer of fiberglass mat, impregnated and coated with asphalt on both sides, and surfaced with mineral roofing granules on the weather side and a mineral release agent on the back side.

3.3 Laminated Shingles:

Laminated shingles, including two-layer laminated, three-layer laminated and tri-laminate laminated shingles, are composed of multiple thicknesses of coated and surfaced fiberglass mat, cut and bonded together in different patterns. The weather side is surfaced with mineral roofing granules, and the back side is surfaced with a mineral release agent.

3.4 Accessory Shingles:

3.4.1 Hip and Ridge Shingles: Hip and ridge shingles are factory-made shingles to be used for covering hips and ridges. The hip and ridge shingles are composed of the same materials as the roof shingles. Some of the hip and ridge shingles have perforations that extend from the top of the cut-out to the top of the shingle, which facilitate the tearing of the shingle into three or four equal pieces. Others are manufactured as single hip and ridge units.

3.4.2 Starter Strip Shingles: Starter Strip shingles are factory-made shingles to be used as the starter course (under the first course of roof shingles). The Starter Strip shingles are composed of the same materials as the roof shingles. The shingles are supplied in 7-inch-by-36-inch-long (178 by 914 mm); 10-inch-by-36-inch-long (254 by 914 mm); or 7-inch-by-39³/₈-inch-long (178 by 1000 mm) strips. As an alternative to factory-made starter strips, starter strips can be formed by removing the lower tab portions of the factory-made shingles except for the Presidential Shake and Presidential Shake TL shingles. For Presidential Shake and Presidential Shake TL shingles, the Presidential Starter shingles consist of one 13¹/₄-inch-wide-by-40-inch-long (337 mm by 1016 mm) base shingle and one 11¹/₄-inch-wide-by-40-inch-long (286 mm by 1016 mm) base shingle.

3.5 Fasteners:

Fasteners must comply with ASTM F1667 and must be minimum No. 12 gage [0.105-inch-diameter (2.67 mm) shank], ³/₈-inch-diameter-head (9.5 mm), galvanized steel, stainless steel, aluminum or copper roofing nails. Fasteners must be of sufficient length to penetrate into the sheathing ³/₄ inch (19.1 mm), or through the sheathing, whichever is less.

3.6 Underlayment:

The roof underlayment must comply with ASTM D226 Type I or Type II, ASTM D4869 Type I or Type II, or ASTM D1970, or must be underlayment recognized in a current ICC-ES evaluation report as complying with the ICC-ES Acceptance Criteria for Nonasphaltic Fiberglass-based Roof Underlayment (AC160) or the ICC-ES Acceptance Criteria for Polypropylene Roof Underlayments (AC207) and recognized for use with Class A asphalt shingles. In

areas where there has been a history of ice forming along the eaves causing a backup of water, ice dam protection in accordance with IBC Section 1507.2.8.2 or IRC Section R905.2.7.1 must be provided.

3.7 Asphalt Cement:

Asphalt roofing cement must comply with ASTM D4586, Type I, Class I, or Type II, Class I.

4.0 INSTALLATION

4.1 New Construction:

4.1.1 General: When installed on new construction in accordance with this section, the shingles are a Class A roof covering. The shingles must be installed in accordance with IBC Section 1507.2 or IRC Section R905.2, except as noted in this report. The roof deck must be code-complying, minimum $\frac{3}{8}$ -inch-thick (9.5 mm) exterior-grade plywood; $\frac{7}{16}$ -inch-thick (11.1 mm) oriented strand board (OSB); or nominally 1-inch-by-6-inch (25 by 152 mm) lumber installed as solid sheathing conforming to IBC Sections 2304.7.2 or 2308.10.8. Minimum roof slope must be 2:12 (16.7%). The maximum roof slope must be as stated in Section 4.1.2 of this report. Installation instructions are included as part of the identification label attached to each bundle of shingles. (See Section 7.0.) Underlayment must be as described in Section 3.6 of this report, and applied in accordance with IBC Section 1507.2.8 or IRC Section R905.2.7.

4.1.2 Application:

4.1.2.1 Eave and Rake Edges of the Roof:

4.1.2.1.1 Roof Slopes of 2:12 to 21:12 (16.7% to 175%): Starter Strip shingles must be attached to the eave and rake edges with four or five fasteners, equally spaced along the nail line as shown in Figure 1. The Starter Strip shingles must overhang the eave and rake edges by $\frac{1}{2}$ to $\frac{3}{4}$ inch (12.7 to 19.1 mm).

4.1.2.1.2 Roof Slopes Greater than 21:12 (175%): Starter Strip shingles must be attached to the eave and rake edges with four or five fasteners, equally spaced along the nail line as shown in Figure 1. The Starter Strip shingles must overhang the eave and rake edges by $\frac{1}{2}$ to $\frac{3}{4}$ inch (12.7 to 19.1 mm).

4.1.2.2 Field of the Roof: The first course of field shingles must be installed over the starter course. Each course of shingles must be offset from the preceding course as shown in Figure 2 and as specified in Table 1. Fastening details, including number and location of fasteners, and maximum exposure to the weather, are described in Table 1 and Figure 1.

Methods of fastening for roof slopes of 2:12 (16.7%) to 21:12 (175%) and for roof slopes greater than 21:12 (175%) are as shown in Figure 1 for the standard and high-wind applications. For slopes greater than 21:12 (175%), the shingles must also be hand-sealed as described in Section 4.1.2.4.

4.1.2.3 High Wind Fastening: Shingles must be fastened with four or five No. 12 gage roofing nails, described in Section 3.6, as shown in Figure 1, when the shingles are installed under the following conditions:

4.1.2.3.1 2012 IBC: When the roof is installed in applications where the ultimate design wind speed, V_{ult} , is 142 mph (177 km/hr) or greater.

4.1.2.3.2 2009 and 2006 IBC: When the roof is installed in applications where the basic wind speed is 110 mph (177 km/h) or greater.

4.1.2.3.3 IRC: When the roof is installed in areas where the basic wind speed is 110 mph (177 km/h) or greater, as defined in IRC Figure R301.2 (4).

4.1.2.4 Shingle Sealing: In colder climates or wind regions where it is questionable whether the factory-applied adhesive will activate and seal the shingles, the shingles must be hand-sealed to the satisfaction of the code official. Hand-sealing must consist of applying a minimum of four 1-inch-diameter (25.4 mm) spots of asphalt roofing cement to the unexposed surface of the underlying course of shingles, equally spaced across each shingle. For three-tab and four-tab shingles, one spot of asphalt roofing cement must be placed under each corner of each tab (two spots per tab); the tab must then be pressed into the cement. For laminated shingles, four equally spaced spots of asphalt roofing cement must be placed under the exposed portion of the shingle; the shingle must then be pressed into the cement.

4.1.2.5 Hip and Ridge Shingles: Hip and ridge shingles must be placed evenly over hips and ridges (or over shingle-over ridge vents), and fastened to the roof deck with two fasteners, located on either side of the shingle, along the nail line as shown in Figures 1 and 3.

4.1.3 Valley Construction: Open valleys are recommended by CertainTeed, although closed-cut valleys may be used for Grand Manor, Centennial Slate, Carriage House, Presidential TL, Presidential Shake and Landmark TL shingles. Closed-cut valleys are recommended by CertainTeed for all other shingles. Acceptable valley construction for closed-cut, California closed-cut, or woven valleys requires that a 36-inch-wide (914 mm), 50-pound-per-100-square-foot (2.4 kg/m²) or greater, smooth-surfaced roll roofing, complying with ASTM D6380, or specialty underlayment complying with ASTM D1970, be installed vertically in the valley over required underlayment. The California valley methods must be limited to Landmark and Centennial Slate shingles for slopes of 4:12 or greater and are further described in Figure 4 of this report. Fasteners must not be placed within 6 inches (152 mm) of the valley centerline. For open valleys, corrosion-resistant metal valley flashing must be centered and placed vertically in the valley over the smooth-surfaced roll roofing, or specialty underlayment.

Corrosion-resistant metal valley flashing must be as follows:

- 2006 IBC: A minimum of 16 inches (406 mm) wide, complying with IBC Table 1507.2.9.2.
- 2012 and 2009 IBC: A minimum of 24 inches (610 mm) wide, complying with IBC Table 1507.2.9.2.
- IRC: A minimum of 24 inches (610 mm) wide, complying with IRC Table R905.2.8.2.

4.2 Installation—Reroofing:

When installed over existing wood shingle or Class A or Class C asphalt shingle roofs in accordance with this section (Section 4.2), the shingle products are recognized as Class A roof coverings. The existing wood or asphalt shingle roof covering must be inspected in accordance with provisions and limitations of IBC Section 1510 or IRC Section R907, as applicable. Prior to the reroofing, hip and ridge covering must be removed, and a single layer of ASTM D226, Type II, nonperforated, felt underlayment must be installed over the existing wood shingles. Except as noted in this section, the shingles must be installed in accordance with Section 4.1 of this report. Fasteners must be of sufficient length to penetrate $\frac{3}{4}$ inch (19.1 mm) into the sheathing, or through the sheathing, whichever is less. Flashing and edging must comply with Section 4.1.3 of this report and the following, as applicable:

- IBC: IBC Sections 1510.5 and 1510.6.
- IRC: IRC Sections R907.5 and R907.6.

5.0 CONDITIONS OF USE

The CertainTeed Asphalt Shingle Roof Covering Systems described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The shingles must be manufactured, identified, and installed in accordance with the applicable codes, this report, and the manufacturer’s published installation instructions. If there is a conflict between the manufacturer’s published installation instructions and this report, this report governs.
- 5.2 The products are manufactured in Avery, Ohio (AV); Ennis, Texas (EN); Fremont, California (FR); Norwood, Massachusetts (NW); Oxford, North Carolina (OX); Peachtree City, Georgia (PT); Portland, Oregon (PO); Shakopee, Minnesota (SH); Shreveport, Louisiana (SP); and Wilmington,

California (WI), under a quality control program with inspections by ICC-Evaluation Service, LLC.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with ASTM D3462.
- 6.2 Reports of wind resistance testing in accordance with ASTM D3161 and ASTM D7158.
- 6.3 Quality documentation.

7.0 IDENTIFICATION

Each bundle of shingles bears a label with the name and address of the CertainTeed Corporation manufacturing plant; the product brand name; the Class A roof classification; the installation instructions; the evaluation report number (ESR-1389); and the name of the inspection agency (ICC-ES). Additionally, in accordance with ASTM D3462, each bundle of shingles is marked with the area of the roof surface covered and the style, type and color of the product.

TABLE 1—PRODUCT DESCRIPTIONS AND MANUFACTURING LOCATIONS

PRODUCTS	SHINGLE TYPE	PLANT LOCATION	PLANT DESIGNATION	DIMENSIONS (width x height) (inches)	WEIGHT (lb per 100 square feet)	MAXIMUM EXPOSURE TO THE WEATHER (inches)	LOCATION OF NAIL "LINE" (distance above shingle butt) (inches)	OFFSET FROM PRECEDING COURSE OF SHINGLES (inches)
<i>SHINGLES</i> (See Note 1)					(Applied)		(See Note 2)	(See Note 3)
Grand Manor	3-Layer Laminated	Oxford, NC	OX	36 x 18	425	8	8 ⁵ / ₈	4 ¹ / ₂
Carriage House	2-Layer Laminated	Oxford, NC	OX	36 x 18	355	8	8 ⁵ / ₈	4 ¹ / ₂
Centennial Slate	2-Layer Laminated	Oxford, NC	OX	36 x 18	355	8	8 ⁵ / ₈	4 ¹ / ₂
Presidential Shake TL	Tri-Laminate	Fremont, CA; Shakopee, MN	FR, SH	40 x 14 ¹ / ₄	480	4	9	5, 15, 5, 15
Presidential Shake	Laminated	Fremont, CA; Shakopee, MN	FR, SH	40 x 14 ¹ / ₄	355	4	9	5, 15, 5, 15
Presidential IR	Laminated Impact Resistant	Shakopee, MN	SH	40 x 14 ¹ / ₄	355	4	9	5, 15, 5, 15
Presidential Solaris	Laminated	Fremont, CA	FR	40 x 14 ¹ / ₄	355	4	9	5, 15, 5, 15
Landmark TL	Tri-Laminate	Fremont, CA; Oxford, NC	FR, OX	40 x 13 ¹ / ₄	340	5 ⁵ / ₈	6 ¹ / ₁₆	5 ⁵ / ₈ , 5 ⁵ / ₈ , 17 ¹ / ₂ , 5 ⁵ / ₈ , 5 ⁵ / ₈
Landmark Premium	Laminated (Metric)	Avery, OH; Norwood, MA; Oxford, NC; Peachtree City, GA; Portland, OR; Shakopee, MN; Shreveport, LA; Wilmington, CA	AV, NW, OX, PT, PO, SH, SP, WI	38 ³ / ₄ x 13 ¹ / ₄	300	5 ⁵ / ₈	6 ¹ / ₈	5 ⁵ / ₈ , 5 ⁵ / ₈ , 16 ¹ / ₄ , 5 ⁵ / ₈ , 5 ⁵ / ₈
Landmark Solaris	Laminated (Metric)	Peachtree, GA; Portland, OR; Wilmington, CA	PT, PO, WI	38 ³ / ₄ x 13 ¹ / ₄	300	5 ⁵ / ₈	6 ¹ / ₈	5 ⁵ / ₈ , 5 ⁵ / ₈ , 16 ¹ / ₄ , 5 ⁵ / ₈ , 5 ⁵ / ₈
Landmark Solaris IR	Laminated (Metric) Impact Resistant	Peachtree, GA	PT	38 ³ / ₄ x 13 ¹ / ₄	300	5 ⁵ / ₈	6 ¹ / ₈	5 ⁵ / ₈ , 5 ⁵ / ₈ , 16 ¹ / ₄ , 5 ⁵ / ₈ , 5 ⁵ / ₈
Landmark Plus, also known as Landmark Pro	Laminated (Metric)	Avery, OH; Norwood, MA; Oxford, NC; Peachtree City, GA; Portland, OR; Shakopee, MN; Shreveport, LA; Wilmington, CA	AV, NW, OX, PT, PO, SH, SP, WI	38 ³ / ₄ x 13 ¹ / ₄	265	5 ⁵ / ₈	6 ¹ / ₈	5 ⁵ / ₈ , 5 ⁵ / ₈ , 16 ¹ / ₄ , 5 ⁵ / ₈ , 5 ⁵ / ₈
Landmark Special	Laminated (Metric) Impact Resistant	Shreveport, LA	SP	38 ³ / ₄ x 13 ¹ / ₄	265	5 ⁵ / ₈	6 ¹ / ₈	5 ⁵ / ₈ , 5 ⁵ / ₈ , 16 ¹ / ₄ , 5 ⁵ / ₈ , 5 ⁵ / ₈
Landmark	Laminated (Metric)	Avery, OH; Ennis, Texas, Norwood, MA; Oxford, NC; Peachtree City, GA; Portland, OR; Shakopee, MN; Shreveport, LA; Wilmington, CA	AV, EN, NW, OX, PT, PO, SH, SP, WI	38 ³ / ₄ x 13 ¹ / ₄	250	5 ⁵ / ₈	6 ¹ / ₈	5 ⁵ / ₈ , 5 ⁵ / ₈ , 16 ¹ / ₄ , 5 ⁵ / ₈ , 5 ⁵ / ₈
XT-30	3-Tab (Metric)	Portland, OR	PO	39 ³ / ₈ x 13 ¹ / ₄	245	5 ⁵ / ₈	6 ¹ / ₈	5 ⁵ / ₈
XT-30	3-Tab (Standard)	Avery, OH; Norwood, MA; Oxford, NC; Shakopee, MN;	AV, NW, OX, SH	36 x 12	245	5	5 ⁵ / ₈	6
XT-30 IR	3-Tab (Standard) Impact Resistant	Shreveport, LA	SP	36 x 12	245	5	5 ⁵ / ₈	6
XT-25	3-Tab (Metric)	Portland, OR	PO	39 ³ / ₈ x 13 ¹ / ₄	225	5 ⁵ / ₈	6 ¹ / ₈	5 ⁵ / ₈
XT-25	3-Tab (Standard)	Avery, OH; Norwood, MA; Oxford, NC; Shakopee, MN; Shreveport, LA	AV, NW, OX, SH, SP	36 x 12	225	5	5 ⁵ / ₈	6
CT-20	3-Tab (Metric)	Portland, OR	PO	39 ³ / ₈ x 13 ¹ / ₄	200	5 ⁵ / ₈	6 ¹ / ₈	5 ⁵ / ₈
CT-20	3-Tab (Standard)	Oxford, NC; Shreveport, LA	OX, SP	36 x 12	200	5	5 ⁵ / ₈	6
Landmark Pro Architect 80	Laminated (Metric)	Portland, OR	PO	38 ³ / ₄ x 13 ¹ / ₄	265	5 ⁵ / ₈	6 ¹ / ₈	5 ⁵ / ₈ , 5 ⁵ / ₈ , 16 ¹ / ₄ , 5 ⁵ / ₈ , 5 ⁵ / ₈

TABLE 1—PRODUCT DESCRIPTIONS AND MANUFACTURING LOCATIONS (Continued)

PRODUCTS	SHINGLE TYPE	PLANT LOCATION	PLANT DESIGNATION	DIMENSIONS (width x height) (inches)	WEIGHT (lb per 100 square feet)	MAXIMUM EXPOSURE TO THE WEATHER (inches)	LOCATION OF NAIL "LINE" (distance above shingle butt) (inches)	OFFSET FROM PRECEDING COURSE OF SHINGLES (inches)
Independence	3-Tab Laminated (Standard)	Avery, OH; Oxford, NC; Shakopee, MN	AV, OX, SH	36 x 12	300	5	5 ⁵ / ₈	6
Hatteras	4-Tab	Oxford, NC	OX	36 x 18	235	8	9 ³ / ₈	4 ¹ / ₂
Highland Slate	4-Tab	Oxford, NC	OX	36 x 18	240	8	9 ³ / ₈	4 ¹ / ₂
Highland Slate IR	4-Tab Impact Resistant	Oxford, NC	OX	36 x 18	240	8	9 ³ / ₈	4 ¹ / ₂
ACCESSORY PRODUCTS (See Note 1)								
Shangle Ridge	Hip and Ridge	Oxford, NC	OX	12 x 18	n/a	8	8 ⁵ / ₈	n/a
Cedar Crest	Hip and Ridge	Oxford, NC	OX	12 x 18	n/a	8	8 ⁵ / ₈	n/a
Cedar Crest IR	Hip and Ridge Impact Resistant	Oxford, NC	OX	12 x 18	n/a	8	8 ⁵ / ₈	n/a
Mountain Ridge	Hip and Ridge	Fremont, CA	FR	8 x 12 & 10 x 12	n/a	8	8 ⁵ / ₈	n/a
Shadow Ridge	Hip and Ridge (Standard)	Avery, OH; Norwood, MA; Oxford, NC; Shakopee, MN	AV, NW, OX, SH	12 x 12	n/a	5	5 ⁵ / ₈	n/a
Shadow Ridge	Hip and Ridge (Metric)	Portland, OR	PO	9.84 x 13 ¹ / ₄	n/a	5 ⁵ / ₈	6 ¹ / ₈	n/a
Solaris Hip and Ridge Accessory	Hip and Ridge	Portland, OR	PO	9.84 x 13 ¹ / ₄	n/a	5 ⁵ / ₈	6 ¹ / ₈	n/a
Solaris Accessory	Hip and Ridge	Portland, OR	PO	13 ¹ / ₈ x 13 ¹ / ₄	n/a	5 ⁵ / ₈	6 ¹ / ₈	n/a
Presidential Starter	Starter Shingle	Portland, OR	PO	40 x 13 ¹ / ₄ , bottom layer; 40 x 11 ¹ / ₄ , top layer	n/a	4 (top layer)	4 (bottom layer) 6 (top layer)	n/a
High Performance Starter	Starter Shingle	Oxford, NC	OX	36 x 10	n/a	n/a	max 3, or into solid wood	n/a
Swiftstart	Starter Shingle	Shakopee, MN	SH	38 ³ / ₄ x 7 ⁵ / ₈	n/a	n/a	max 3, or into solid wood	n/a
Universal Starter	Starter Shingle	Avery, OH; Oxford, NC; Shakopee, MN; Shreveport, LA	AV, OX, SH, SP	36 x 7	n/a	n/a	max 3, or into solid wood	n/a

For **SI**: 1 inch = 25.4 mm; 1 lb/100 ft² = 0.0488 kg/m².

NOTES:

1. Includes algae-resistant (AR) versions.
2. Nail "Line" - Distance from lowermost lowest edge of shingle to target nail location.
3. See diagrams for offset sequence.

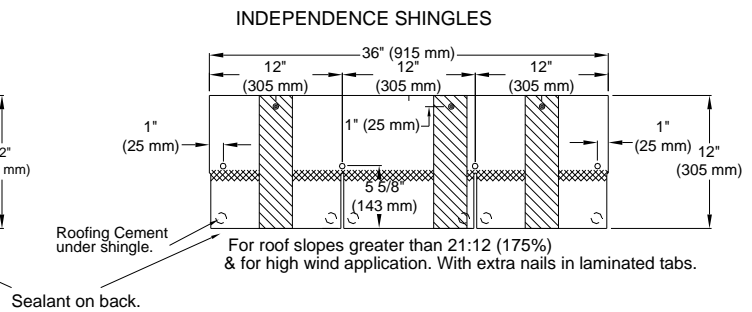
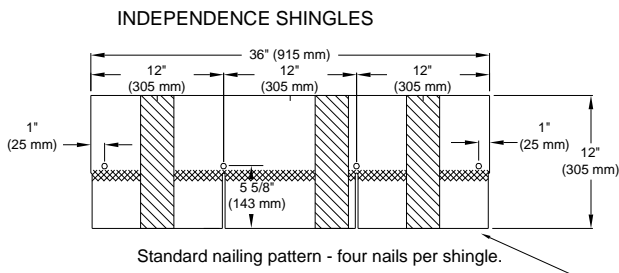
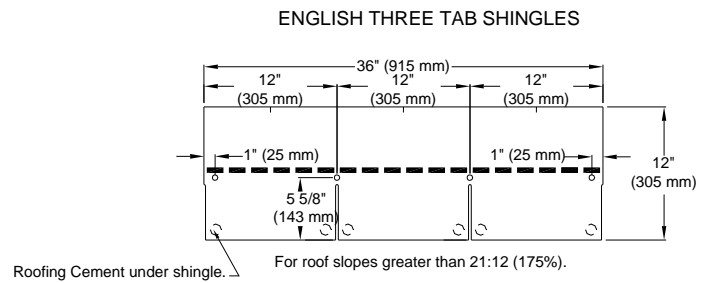
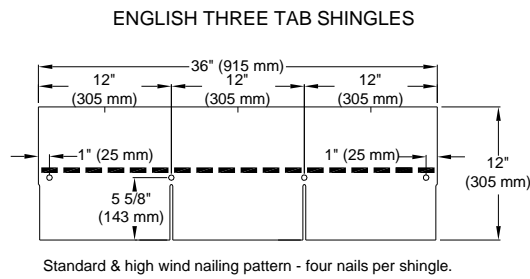
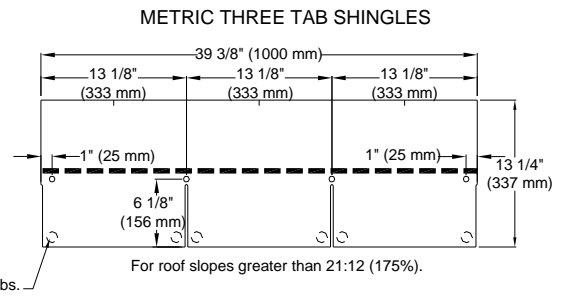
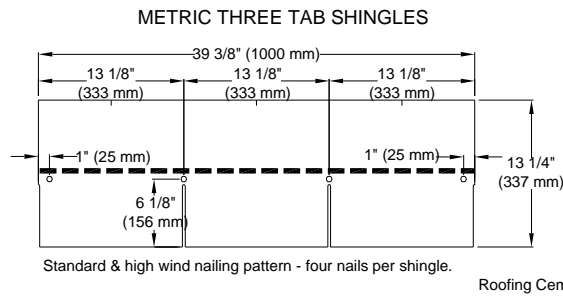


FIGURE 1—SHINGLE PROFILES AND FASTENER PATTERNS

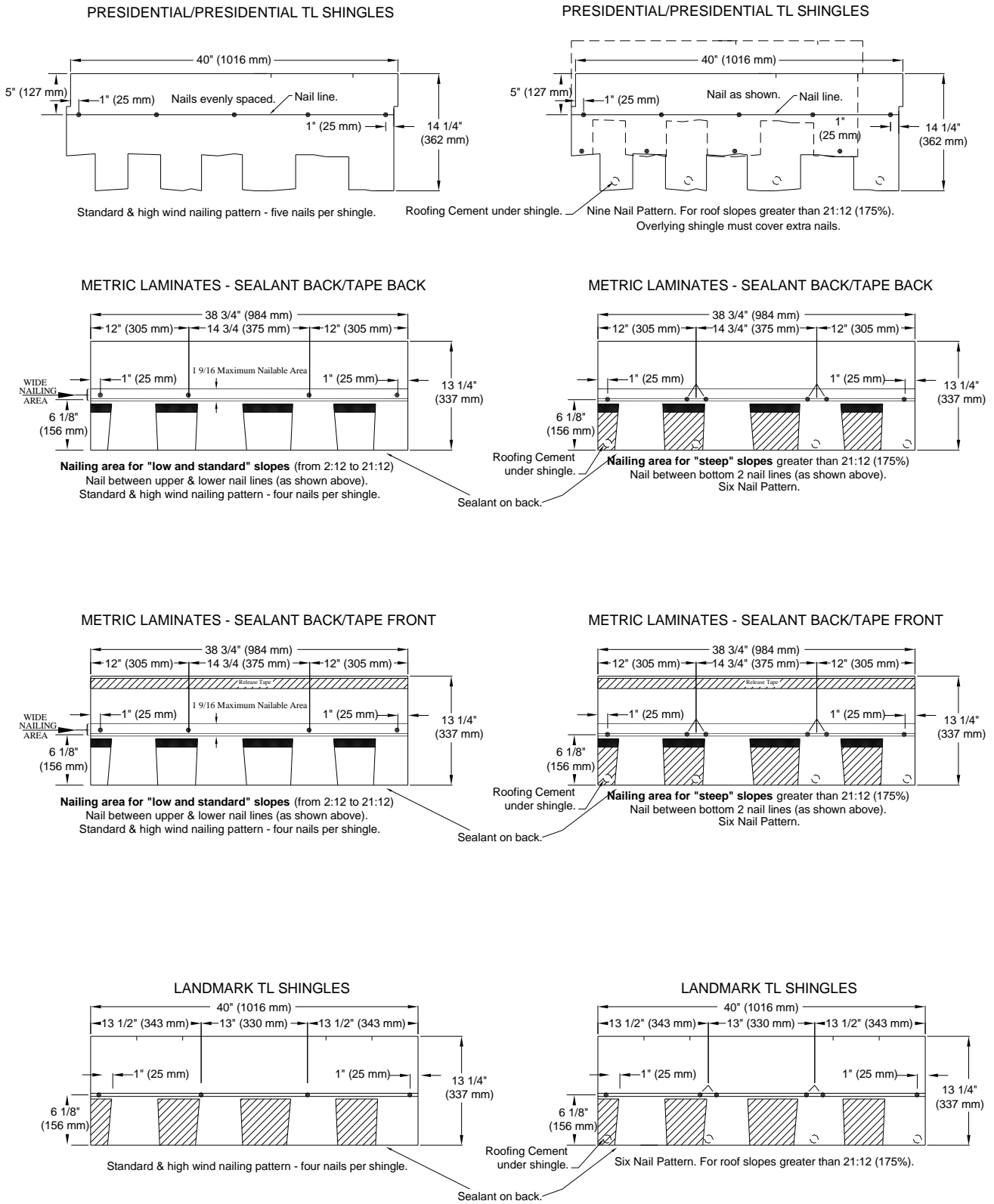


FIGURE 1—SHINGLE PROFILES AND FASTENER PATTERNS (Continued)

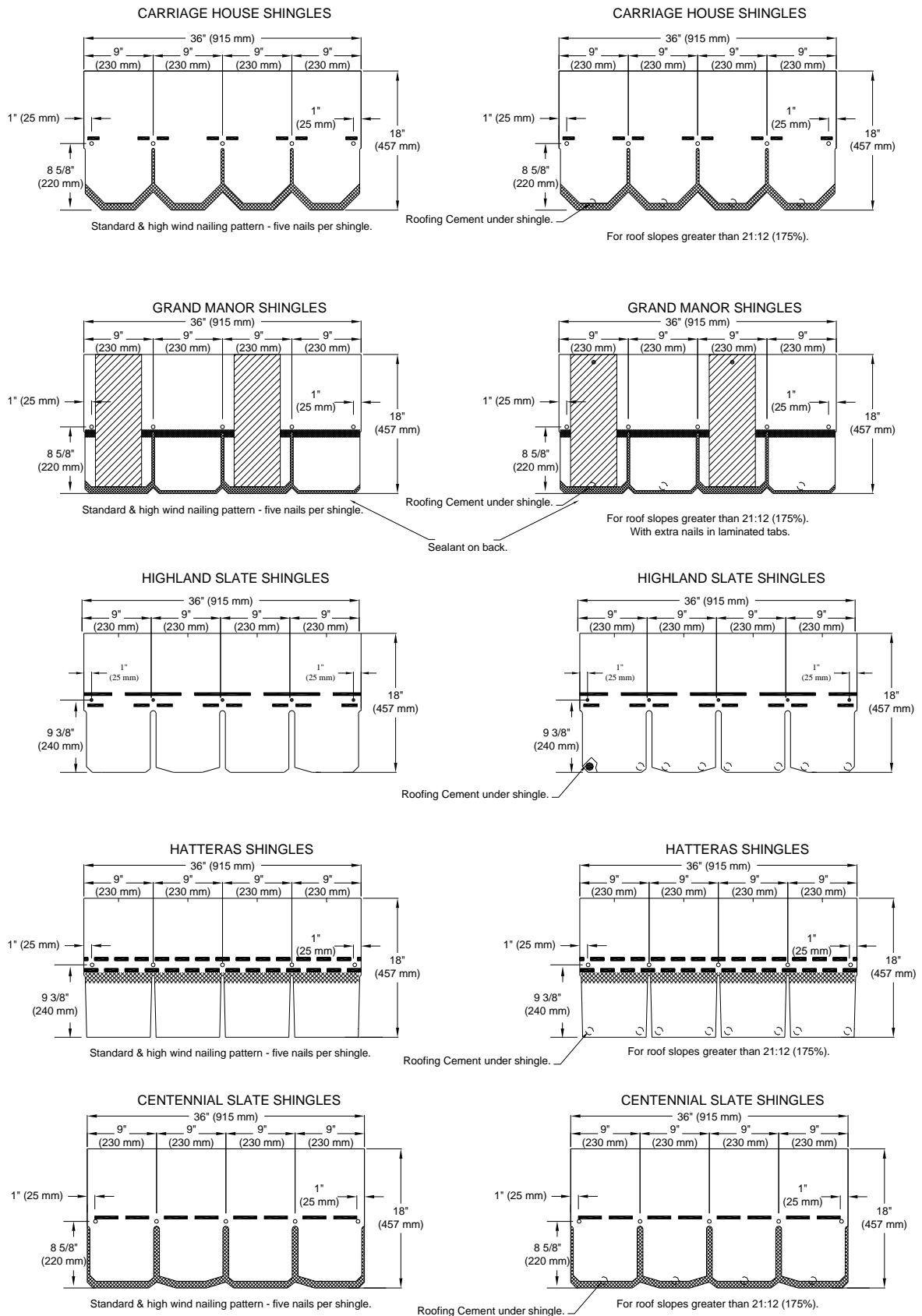
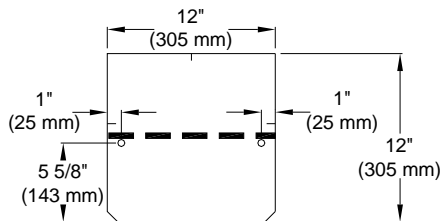


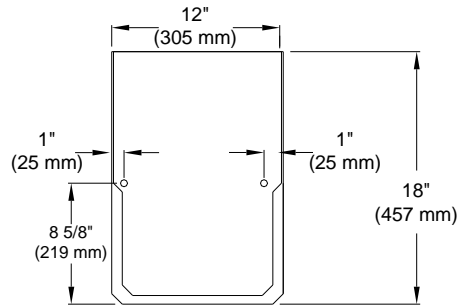
FIGURE 1—SHINGLE PROFILES AND FASTENER PATTERNS (Continued)

**ENGLISH
SHADOW RIDGE SHINGLES**



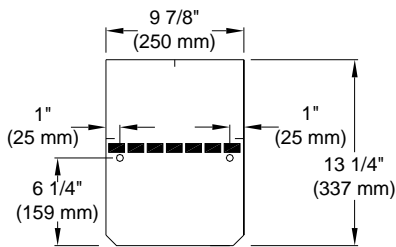
Nailing pattern all applications - two nails per shingle.

SHANGLE RIDGE SHINGLES



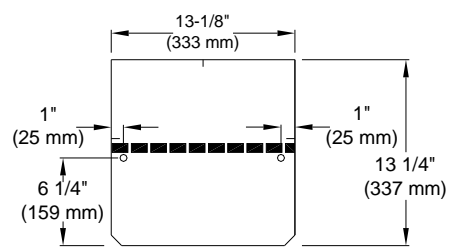
Nailing pattern all applications - two nails per shingle.

**METRIC
SHADOW RIDGE &
SOLARIS HIP & RIDGE ACCESSORY
SHINGLES**



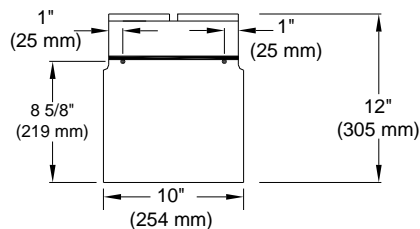
Nailing pattern all applications - two nails per shingle.

**METRIC
SOLARIS ACCESSORY
SHINGLES**



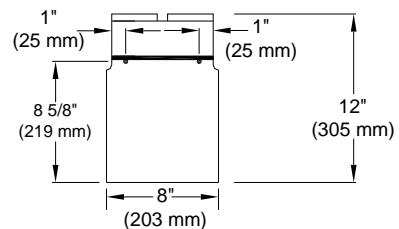
Nailing pattern all applications - two nails per shingle.

**10"
MOUNTAIN RIDGE SHINGLES**



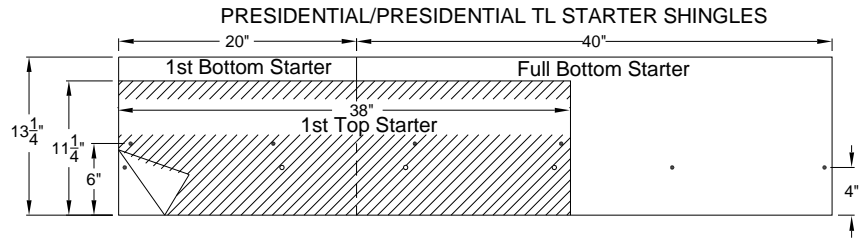
Nailing pattern all applications - two nails per shingle.

**8"
MOUNTAIN RIDGE SHINGLES**



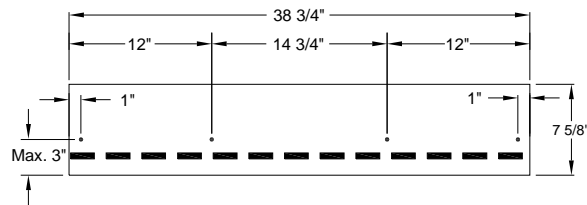
Nailing pattern all applications - two nails per shingle.

FIGURE 1—SHINGLE PROFILES AND FASTENER PATTERNS (Continued)



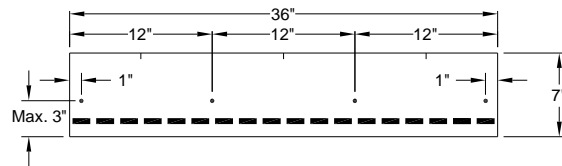
Standard nailing pattern for all slopes from 2/12 (16.7%) up to and exceeding 21/12 (175%) & for high wind application.

SWIFTSTART SHINGLES



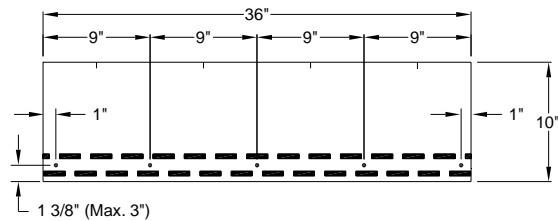
Standard nailing pattern for all slopes from 2/12 (16.7%) up to and exceeding 21/12 (175%) & for high wind application.

UNIVERSAL STARTER SHINGLES



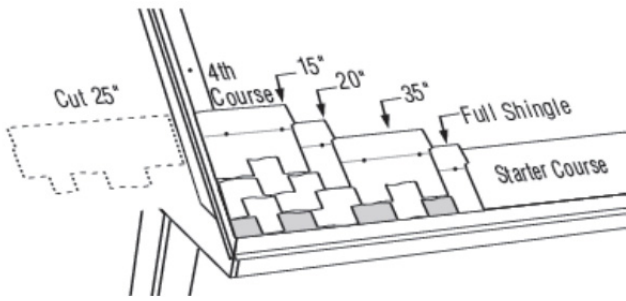
Standard nailing pattern for all slopes from 2/12 (16.7%) up to and exceeding 21/12 (175%) & for high wind application.

HIGH-PERFORMANCE STARTER SHINGLES

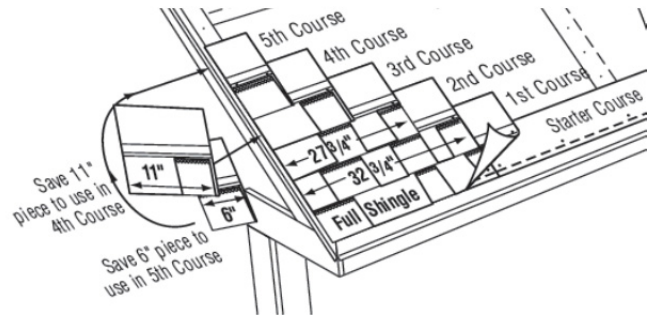


Standard nailing pattern for all slopes from 2/12 (16.7%) up to and exceeding 21/12 (175%) & for high wind application.

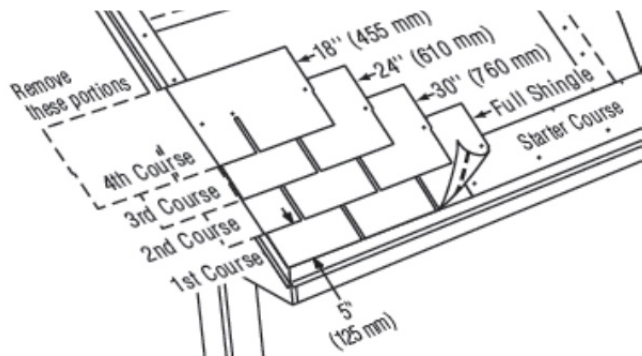
FIGURE 1—SHINGLE PROFILES AND FASTENER PATTERNS (Continued)



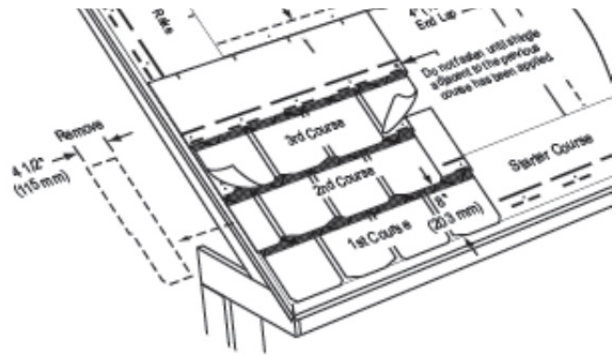
Presidential Shake and Presidential TL



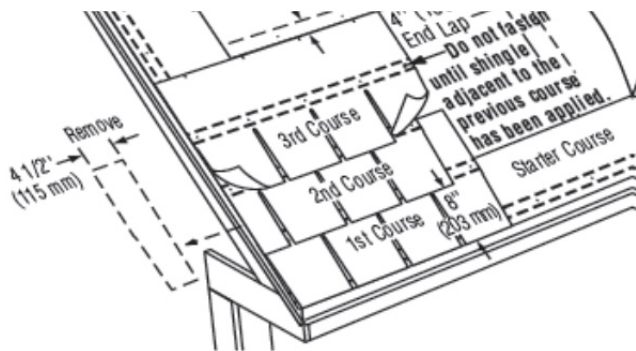
Metric Size Landmark Series including Landmark TL



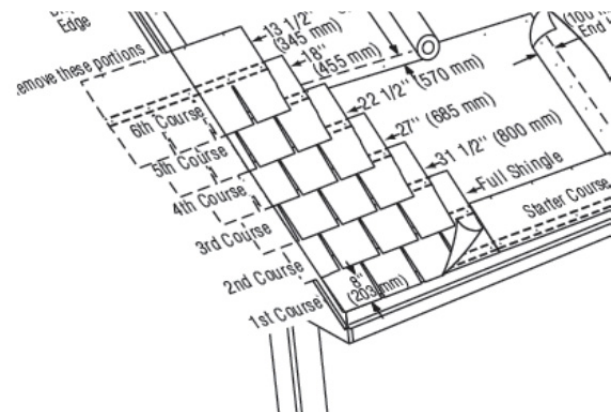
Independence



Highland Slate

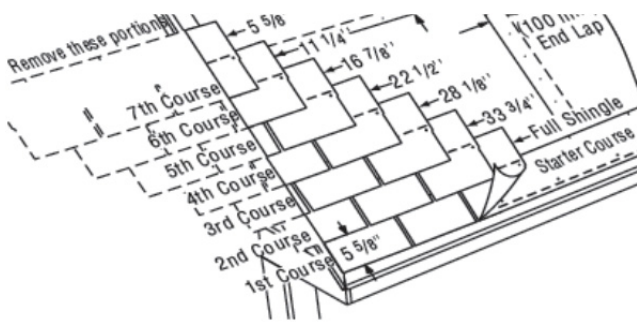


Hatteras (single column rack method)

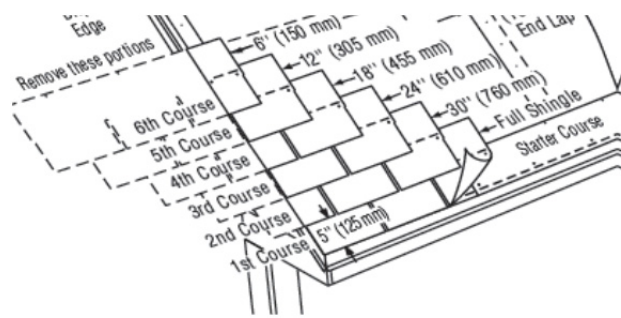


Hatteras (six course diagonal method)

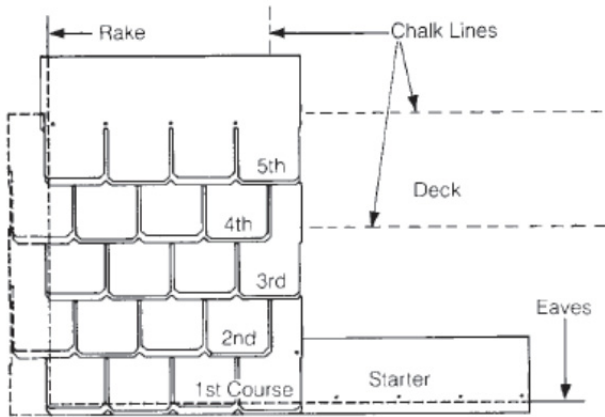
FIGURE 2—APPLICATION OFFSETS



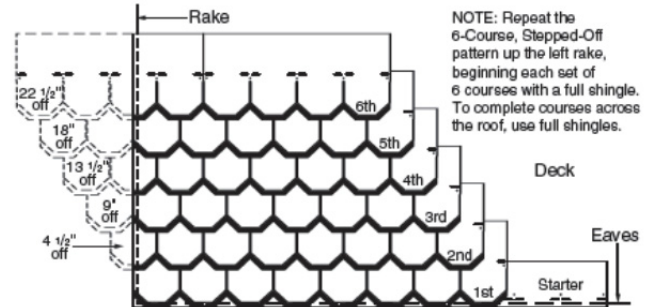
Metric 3-Tab Shingles



English 3-Tab Shingles

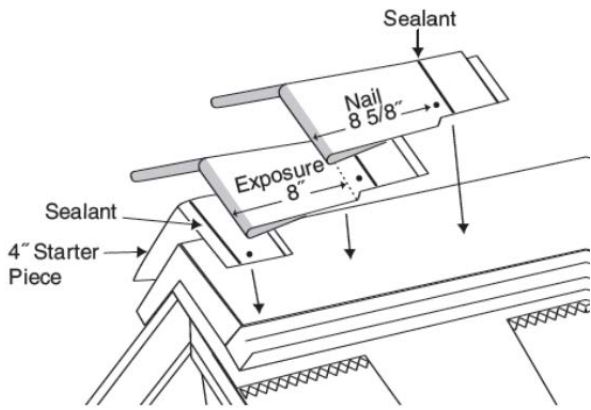


Grand Manor, Carriage House & Centennial Slate (single column vertical rack method)

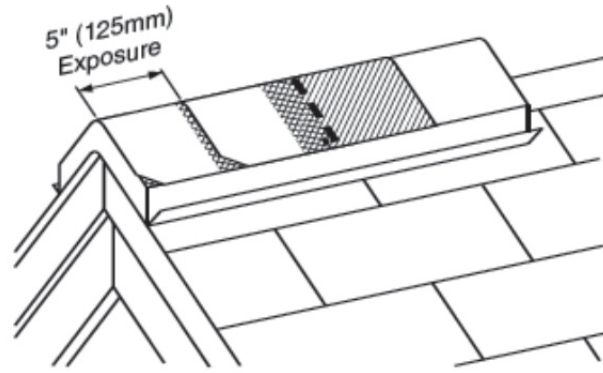


Carriage House (diagonal method)

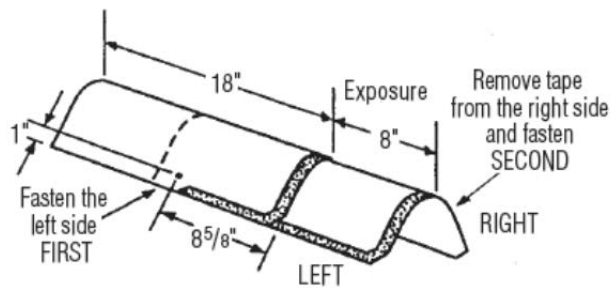
FIGURE 2—APPLICATION OFFSETS (Continued)



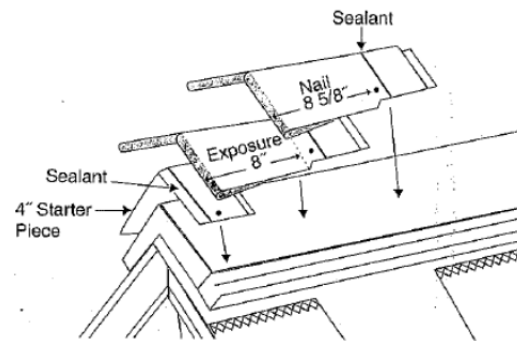
Mountain Ridge – for use with Presidential Shake, Presidential TL or Landmark TL



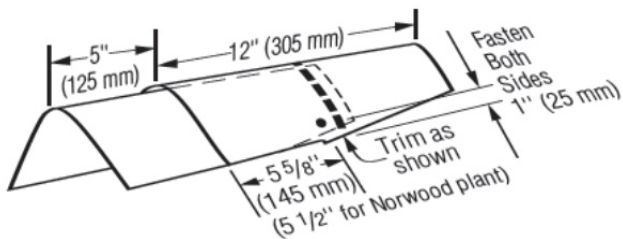
Shadow Ridge – for use with Landmark Series and Independence



Shangle Ridge – for use with Grand Manor, Carriage House and Centennial Slate

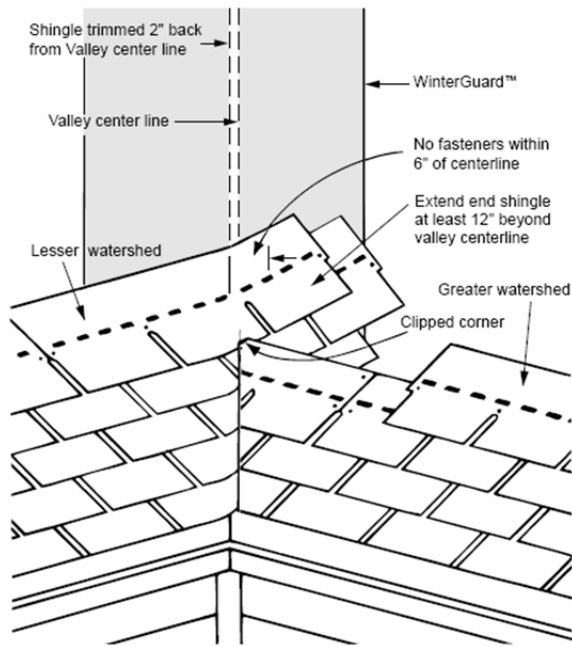


Cedar Crest – for use with Presidential TL, Presidential, Landmark Series incl. TL, Highland Slate and Hatteras

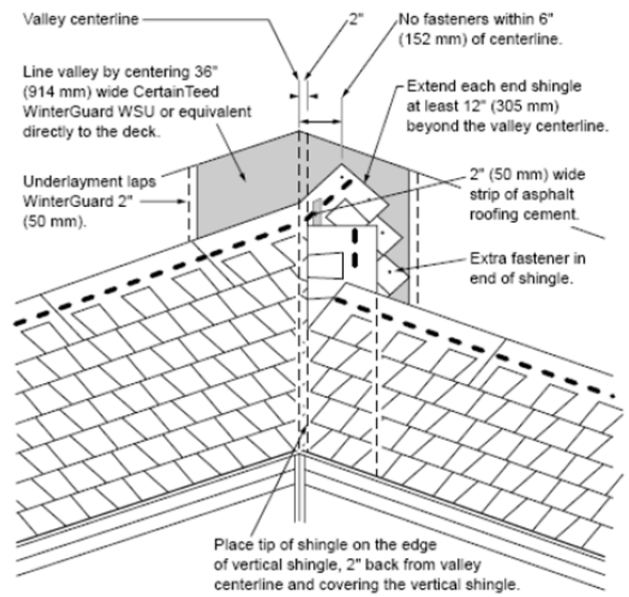


Hip & Ridge for Standard Strip Shingles

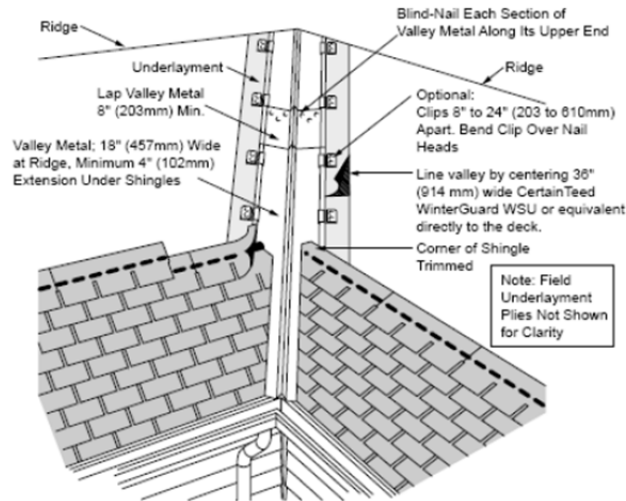
FIGURE 3—RIDGE CAP APPLICATION



Closed-cut valley application – preferred method for all shingle installations, acceptable for Grand Manor, Carriage House, Centennial Slate, Presidential TL, Presidential Shake and Landmark TL.



California closed-cut valley application – acceptable alternate for use with Landmark series, New Horizon and Centennial Slate shingles



Open valley application – strongly recommended method for Grand Manor, Carriage House, Centennial Slate, Presidential TL, Presidential Shake and Landmark TL shingles.

FIGURE 4—VALLEY APPLICATIONS