ES Report
GAF-Elk Shingle Roof Covering Systems
ESR-1475

Product Evaluation

Updated: 4/08

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DIVISION: 07—THERMAL AND MOISTURE PROTECTION
Section: 07310—Shingles

REPORT HOLDER:

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(800) 365-7353
www.elkcorp.com

EVALUATION SUBJECT:

GAF-ELK SHINGLE ROOF COVERING SYSTEMS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)
- 1997 *Uniform Building Code*™ (UBC)
- 1999 *Standard Building Code*© (SBC)

Properties evaluated:

- Weather resistance
- Fire classification
- Wind resistance

2.0 USES

The GAF-ELK asphalt shingles described in this report comply with ASTM D 3462 and meet the requirements for Class A roof coverings when the shingles are installed as described in this report.

3.0 DESCRIPTION

3.1 Shingles:

3.1.1 General: The GAF-ELK asphalt shingles are available as three-tab, five-tab and laminated asphalt shingle roof coverings. See Table 1 and Figure 1 for recognized product names, manufacturing locations, overall dimensions, installed weights, maximum exposure to the weather and fastening details. The shingles are self-sealing by means of spots of adhesive located on either the weather side or the underside.

3.1.2 Three-tab Shingles and Five-tab Shingles: Three-tab and Five-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 underside.

3.1.3 Laminated Shingles: 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 underside is surfaced with a mineral release agent.

3.1.4 Hip and Ridge Shingles:

3.1.4.1 Field-cut Hip and Ridge Shingles: Hip and ridge shingles may be field-cut from Royal Sovereign shingles. The field-cut hip and ridge shingles are compatible with any of the GAF-ELK shingles recognized in this report.

3.1.4.2 Z® Ridge: The shingles are supplied in $13^{1}/_{4}$-inch-wide-by-$39^{3}/_{8}$-inch-long (337 mm by 1000 mm) strips that are scored for separation into four hip or ridge shingles, each measuring $13^{1}/_{4}$ inches (337 mm) wide by $9^{27}/_{32}$ inches (250 mm) long, for installation with a $5^{5}/_{8}$-inch (143 mm) exposure.

3.1.4.3 Seal-A-Ridge: The shingles are supplied in either 12-inch-wide-by-36 inch-long (305 by 914 mm) strips or $13^{1}/_{4}$-inch-wide-by-$39^{3}/_{8}$-inch-long (337 mm by 1000 mm) strips that are scored for separation into three or four equal-length hip and ridge shingles, respectively. When scored for three shingles, each shingle must measure approximately 12 inches (305 mm) long for a $6^{2}/_{3}$-inch (169 mm) exposure; when scored for four shingles, each shingle must measure approximately $13^{1}/_{4}$ inches long (337 mm) for a $5^{5}/_{8}$-inch (143 mm) exposure. Seal-A-Ridge hip and ridge are also labeled as Seal-A-Ridge ArmorShield. Seal-A-Ridge ArmorShield has a 5-inch (127 mm) exposure.

3.1.4.4 Ridglass SBS High Profile Hip and Ridge: The Ridglass SBS High Profile Hip and Ridge shingles consist of a fiberglass mat coated with SBS rubber-modified asphalt material and with embedded granules over the mat on the weather-exposed side of the sheet and sand surfacing on the underside. The shingles are supplied in 8-, 10- and 12-inch (203, 254 and 305 mm) widths and $16^{1}/_{2}$-inch (419 mm) lengths for installation with a $7^{3}/_{4}$-inch (197 mm) exposure.

3.1.5 Starter Shingles:

3.1.5.1 General: Starter Strip shingles are factory-made shingles used under the first course of shingles.

3.1.5.2 Prostart Starter Strip: The shingles are supplied in 13-inch-by-38-inch-long (330 by 965 mm) strips that are scored for separation into two $6^{1}/_{2}$-inch-by-38-inch (165 mm by 965 mm) strips. The mineral surfacing is on the weather side, with fine mineral granules on the underside. The self-sealing strip edge is applied facing up and along the roof eave or rake edge.

3.1.5.3 Grande Starter: The shingles are supplied in 13-inch-by-38-inch-long (330 by 965 mm) strips. The mineral surfacing is on the weather side, with fine mineral granules on the underside.

3.2 Fasteners:

Fasteners must comply with ASTM F 1667 and must be minimum No. 12 gage [0.105 inch (2.67 mm) diameter shank], $^{3}/_{8}$-inch-diameter-head (9.5 mm), galvanized, stainless steel, aluminum or copper barbed-, deformed-, or smooth-shank roofing nails. In jurisdictions enforcing the UBC, minimum No. 16 gage [0.06 inch (1.5 mm)], $^{15}/_{16}$-inch-crown-width (23.8 mm), corrosion-resistant staples may be used when approved by the code official, for any of the shingles recognized in this report except for the Timberline ArmorShield II, Camelot and Grand Slate shingles, and the SBS High Profile Hip and Ridge shingles. Fasteners must be of sufficient length to penetrate $^{3}/_{4}$ inch (19.1 mm) into the sheathing, or through the sheathing, whichever is less.

3.3 Underlayment:

Underlayment must comply with ASTM D 226 Type I or Type II, or ASTM D 4869 Type I or Type II, or ASTM D 6757. In jurisdictions adopting the UBC, underlayment must comply with ASTM D 226 Type I or Type II, or ASTM D 4869 Type I or Type II, or underlayment must be recognized in a current ICC-ES evaluation report as complying with the ICC-ES Acceptance Criteria for Nonasphaltic Fiberglass-based Roof Underlayment (AC160), and must be recognized for use with Class A asphalt shingles. In jurisdictions adopting the IBC or IRC, in areas where there has been a history of ice forming along the eaves causing a backup of water, an ice dam membrane in accordance with IBC Section 1507.2.8.2 or IRC Section R905.2.7.1 must be provided.

3.4 Asphalt Cement:

Asphalt roofing cement used for hand-sealing the shingles must comply with ASTM D 4586, 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, underlayment and flashings must be installed in accordance with IBC Section 1507.2, IRC Section R905.2, SBC Section 1507.3 or UBC Table 15-B-1, except as noted in this report. Except for Slateline shingles, where the roof deck must be code-complying, minimum $^{15}/_{32}$-inch-thick (11.9 mm) exterior-grade plywood, the roof deck must be code-complying, minimum $^{3}/_{8}$-inch-thick (9.5 mm) exterior-grade plywood; $^{7}/_{16}$-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 and 2308.10.8, SBC Sections 2301.4.3 and 2309.3, or UBC Sections 2312.2 and 2320.12.9. Minimum roof slope must be 2:12 (16.7 percent).

Installation of Country Mansion, Grand Sequoia, Grand Canyon or Slateline shingles on roof slopes greater than 20:12 (167 percent), or in high-wind applications at any roof slope, is beyond the scope of this report.

4.1.2 Application:

4.1.2.1 Standard Fastening: Each shingle must be fastened to the roof deck with a minimum of four fasteners, one of which is located 1 inch (25.4 mm) in from each edge, and the balance evenly spaced across the width of the shingle, except for roof slopes of 20:12 (167 percent) and over, where six fasteners must be used. Fasteners must be placed on the fastener line(s). See Figure 1 of this report for typical fastening details. Each course of shingles must be offset from the preceding course as shown in the manufacturer's published installation instructions.

4.1.2.2 High-wind Fastening: The shingles must be fastened with a minimum of six No. 12 gage roofing nails, described in Section 3.2, placed as shown in Figure 1, when required under the following conditions:

4.1.2.2.1 IBC: When the roof is installed in applications where the basic wind speed (3-second gust) is 110 mph (177 km/h) or greater.

4.1.2.2.2 IRC: When the roof is installed in areas where the basic wind speed is 110 mph (3-second gust) (177 km/h) or greater, as defined in IRC Figure R301.2(4).

4.1.2.2.3 SBC: When the roof is installed in applications where the basic wind speed (fastest mile) is 90 mph (145 km/h) or greater.

4.1.2.2.4 UBC: In areas exposed to conditions where the basic (fastest mile) wind speed exceeds 80 mph (129 km/h), on structures a maximum of 40 feet (12 192 mm) in height, in Exposure B areas; but where the maximum basic (fastest mile) wind speed is not greater than 110 mph (177 km/h), on structures a maximum of 30 feet (9144 mm) in height, in Exposure B areas. See UBC Section 1620.

4.1.2.3 Shingle Hand-sealing: In colder climates or wind regions where it is questionable whether the spots of factory-applied adhesive will activate and seal the shingles, or for slopes greater than 20:12 (167 percent), the shingles must be hand-sealed to the satisfaction of the code official. Hand-sealing consists of applying a minimum of three 1-inch-diameter (25.4 mm) spots of asphalt roofing cement on the unexposed surface, equally spaced across each shingle. For three-tab and five-tab shingles, one spot of asphalt roofing cement is placed under each corner of each tab (two spots per tab); the tab shall then be pressed into the cement. For laminated shingles, four equally spaced spots of asphalt roofing cement are placed under the exposed portion of the shingle; the shingle shall then be pressed into the cement.

4.1.2.4 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, described in Section 3.2 of this report, located on either side of the shingle, on the fastener line shown in Figure 1. When used in areas requiring high-wind fastening in accordance with Section 4.1.2.2 of this report, Ridglass SBS High Profile Hip and Ridge shingles must be fastened with four fasteners, and three $^{1}/_{2}$-inch-diameter (12.7 mm) spots of asphalt cement on the unexposed surface on both sides of the shingle. Staples must not be used to fasten the SBS High Profile Hip and Ridge shingles.

4.2 Installation—Reroofing:

When installed over existing Class A or Class C asphalt shingle roofs in accordance with this section, the shingles described in this report are recognized as a Class A roof covering. The existing asphalt shingle roof covering must be inspected in accordance with the provisions and limitations of Section 1510 of the IBC, Section R907 of the IRC, Section 1510 of the SBC, or Sections 1515 and 1516 of Appendix Chapter 15 of the UBC, as applicable. Prior to the reroofing, hip and ridge covering must be removed. 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 $^{3}/_{4}$ inch (19.1 mm) into the sheathing, or through the sheathing, whichever is less. Flashing and edging must comply with the following, as applicable:

- IBC: Sections 1510.5 and 1510.6.
- IRC: Sections R907.5 and R907.6.
- SBC: Sections 1510.5 and 1510.6.
- UBC: Section 1520 of Appendix Chapter 15.

5.0 CONDITIONS OF USE

The GAF-ELK 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. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.

5.2 Application must be in accordance with Section 4.1.2 of this report.

5.3 Installation of Country Mansion, Grand Sequoia, Grand Canyon or Slateline shingles on roof slopes greater than 20:12 (167 percent), or in high-wind applications at any roof slope, is beyond the scope of this report.

5.4 The GAF-ELK shingle products are manufactured in Dallas, Texas; Fontana, California; Mt. Vernon, Indiana; Shafter, California; Ennis, Texas; Fresno, California; and Tuscaloosa, Alabama, under a quality control program with inspections by Underwriters Laboratories Inc. (AA-668).

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with ASTM D 3462 and, for jurisdictions enforcing the UBC, the ICC-ES Acceptance Criteria for Roofing Systems with Asphalt Shingles Made with Glass Felt (AC127), dated July 1999.

6.2 Reports of dynamic wind resistance testing in accordance with ASTM D 3161, modified to use a wind speed of 110 mph (177 km/h).

6.3 Reports of testing in accordance with ASTM E 108 (UBC Standard 15-2).

6.4 Quality control manuals.

7.0 IDENTIFICATION

Each bundle of shingles must bear a label with the name and address of the GAF Materials Corporation or GAF-ELK Corporation manufacturing plant location; the product name; the roof classification (Class A); the installation instructions; the evaluation report number (ESR-1475); a reference indicating compliance with ASTM D 3161 Class F; and the name of the inspection agency (Underwriters Laboratories Inc.).

Additionally, in accordance with ASTM D 3462, each bundle of shingles must be marked with the area of roof surface covered and the style, type and color of the product.

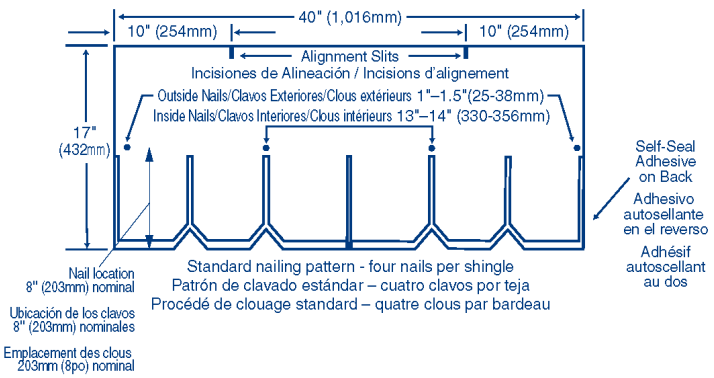
TABLE 1—GAF-ELK SHINGLES - PRODUCT DESCRIPTIONS AND MANUFACTURING LOCATIONS

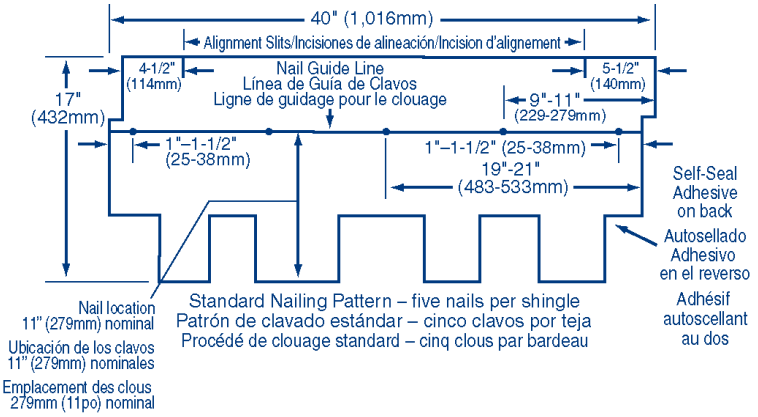
SHINGLE	SHINGLE TYPE	PLANT LOCATION [3]	DIMENSIONS (width × height) (inches)	MAXIMUM EXPOSURE TO THE WEATHER (in.)	LOCATION OF NAIL LINE [1] (inches)
Country Mansion	Laminated	Mt. Vernon, IN	17 x 40	7 1/2	8
Grand Sequoia	Laminated	Fontana, CA	17 x 40	53	11
Grand Canyon	Laminated	Fontana, CA	17 x 40	53	11
Slateline	Five-tab	Mt. Vernon, IN	17 x 40	7 1/2	8 1/8
Timberline-Prestique Lifetime	Laminated	Dallas, TX; Fontana, CA Ennis, TX Shafter, CA Tuscaloosa, AL	13 1/4 x 39 3/8	5 5/8	6
Timberline Natural Shadow	Laminated	Dallas, TX; Fontana, CA Ennis, TX Shafter, CA Tuscaloosa, AL	13 1/4 x 39 3/8	5 5/8	6
Timberline-Prestique 30	Laminated	Dallas, TX; Fontana, CA Ennis, TX Shafter, CA Tuscaloosa, AL	13 1/4 x 39 3/8	5 5/8	6
TIMBERLINE-Prestique 40 Timberline Cool Color Series	Laminated	Dallas, TX; Fontana, CA Ennis, TX Shafter, CA Tuscaloosa, AL	13 1/4 x 39 3/8	5 5/8	6
Timberline ArmorShield II	Laminated	Tuscaloosa, AL	13 1/4 x 39 3/8	5 5/8	6
Capstone	Laminated	Tuscaloosa, AL	12 1/8 x 39 1/2	5	5 3/8
Grand Slate	Laminated	Mt. Vernon, IN	17 x 40	8	9
Camelot	Laminated	Mt. Vernon, IN	17 x 34 1/2	7 1/2	8
Prostart Starter	Starter strip	Tuscaloosa, AL	13 x 38	N/A	N/A
Grande Starter	Starter strip	Tuscaloosa, AL	13 x 38	N/A	N/A
Seal-A-Ridge	Hip and Ridge	Fontana, CA	13 1/4 x 39 3/8	5 5/8	N/A
		Tuscaloosa, AL	12 x 36	6 2/3	N/A
Seal-A-Ridge ArmorShield	Hip and Ridge	Tuscaloosa, AL	12 x 36	5	N/A
Z-Ridge	Hip and Ridge	Ennis, TX Shafter, CA	13 1/4 x 39 3/8	5 5/8	N/A
Ridglass SBS High Profile Hip and Ridge	Hip and Ridge	Fresno, CA	8, 10, or 12 wide x 16 1/2	7 3/4	N/A
Royal Sovereign	Three-tab	Mt. Vernon, IN; Fontana, CA	13 1/4 x 39 3/8	5 5/8	6
		Mt. Vernon, IN; Fontana, CA; Dallas, TX	12 x 36	5	5 5/8
Royal Sovereign	Hip and Ridge	Mt. Vernon, IN; Fontana, CA	13 1/4 x 13 1/8	See Footnote 2	N/A
		Mt. Vernon, IN; Fontana, CA; Dallas, TX	12 x 12	See Footnote 2	N/A

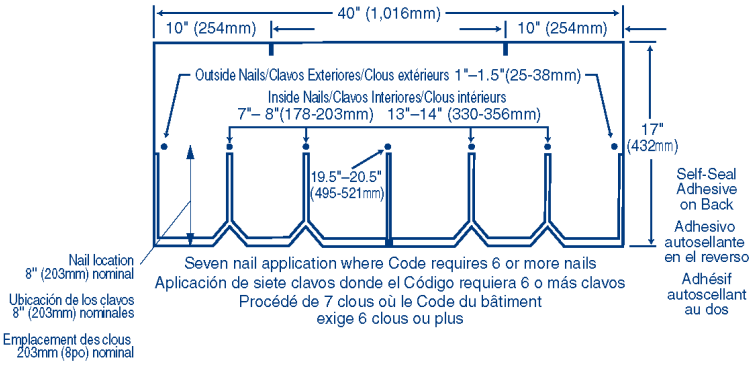
For **SI:** 1 inch = 25.4 mm.

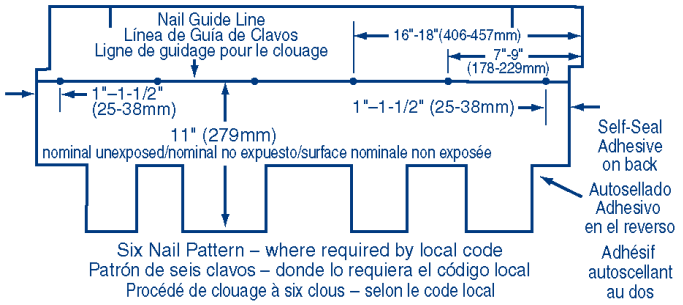
n/a = Not applicable

[1]"nail line" = distance from lowermost edge of shingle to target nail location. See Figure 1.
[2]Weather exposure shall not exceed that permitted for the field of the roof.
[3]Products manufactured at the Tuscaloosa, Alabama, facility may also be manufactured with modified asphalt and carry the designation "with FLX."



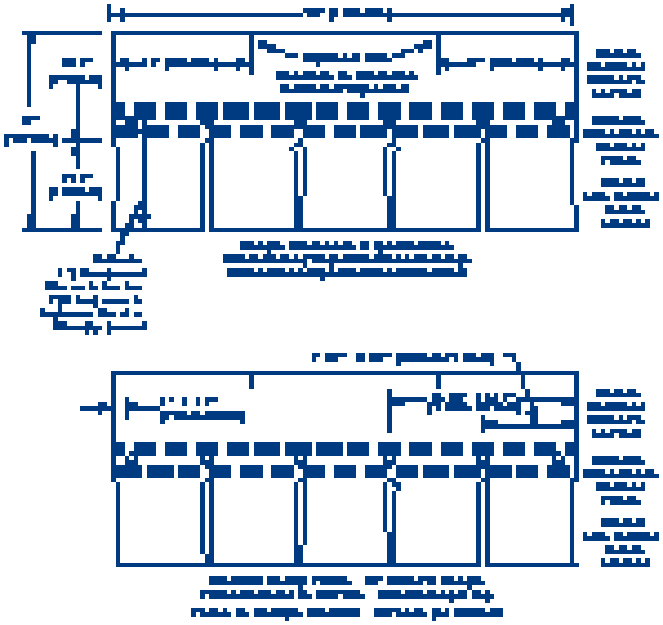


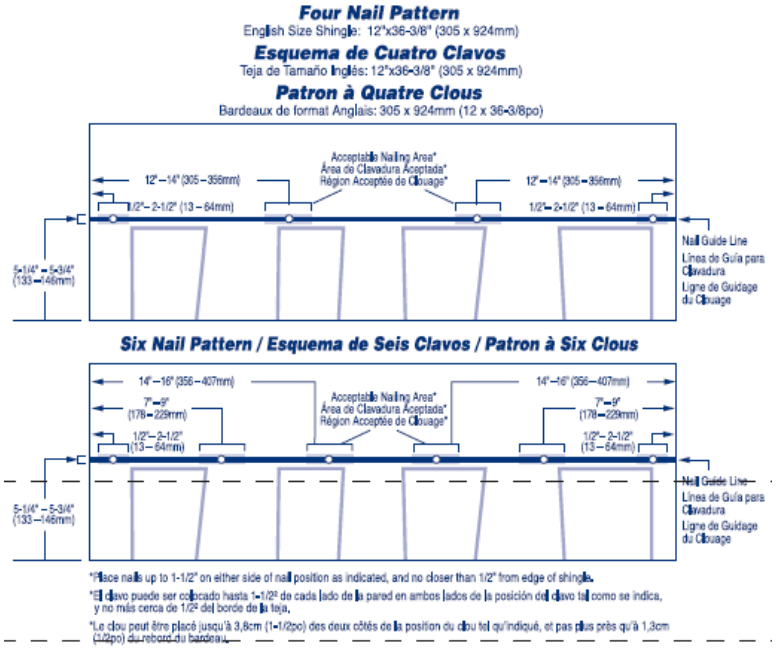




GAF ELK CountryMansion®

GAF ELK Grand Canyon® GRAND SEQUOIA®





GAF ELK SLATELINE®

GAF ELK

TIMBERLINE® PRESTIQUE® LIFETIME HIGH DEFINITION SHINGLES

TIMBERLINE® PRESTIQUE® 40 HIGH DEFINITION SHINGLES

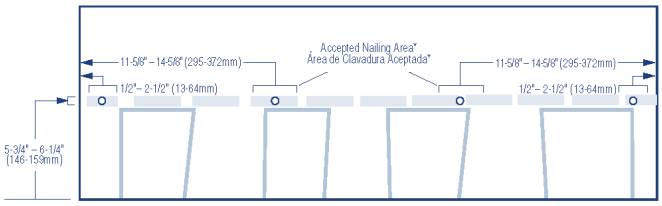
TIMBERLINE® PRESTIQUE® 30 HIGH-DEFINITION SHINGLES

TIMBERLINE® Natural Shadow® SHINGLES

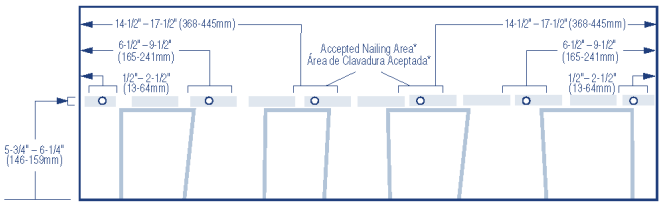
For **SI:** 1 inch = 25.4 mm.

FIGURE 1—TYPICAL INSTALLATION DETAILS

Four Nail Pattern Metric Size Shingle: 13-1/4" x 38-3/4" (337-984mm)
Esquema de Cuatro Clavos Teja de Tamaño Métrico: 13-1/4" x 38-3/4" (337-984mm)



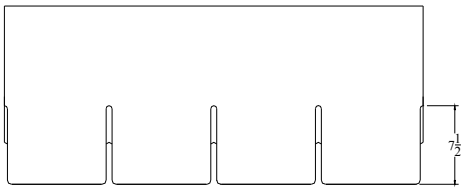
Six Nail Pattern / Esquema de Clavadura de Seis Clavos



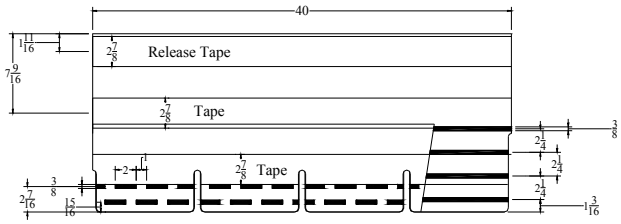
*Place nails up to 1-1/2" on either side of nail position as indicated, and no closer than 1/2" from edge of shingle.
*El clavo puede ser colocado hasta 1-1/2" de cada lado de la pared en ambos lados de la posición del clavo tal como se indica, y no más cerca de 1/2" del borde de la teja.

GAF ELK Timberline ARMORSHIELD II
Impact-Resistant Shingles–To Achieve Insurance Industry Recommended Criteria
Tejas De Impacto Resistente Para Lograr Seguro Industrial Para Los Criterios Recomendados

Top



Back

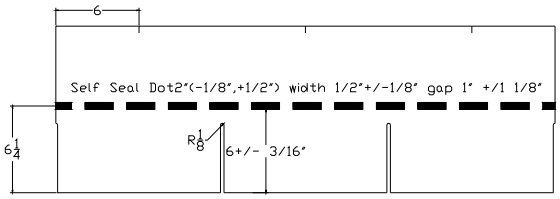


Self Seal Dots as shown
two rows 2 X 3/8 dots
1" gap between

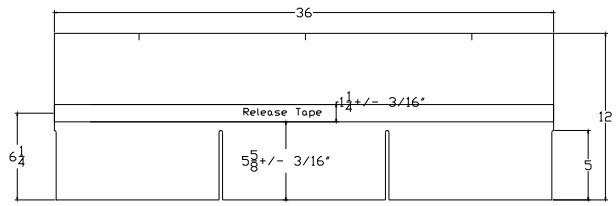
Laminating Adhesive 4 rows
3/8" wide located as shown

GAF ELK GRAND SLATE
Lifetime Designer Shingles

Shingle Face

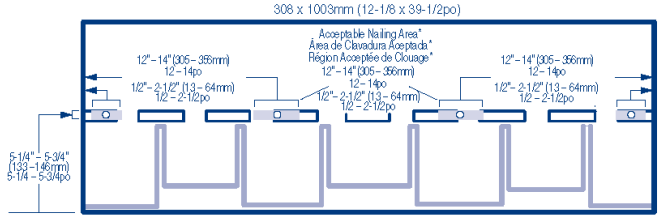


Shingle Back

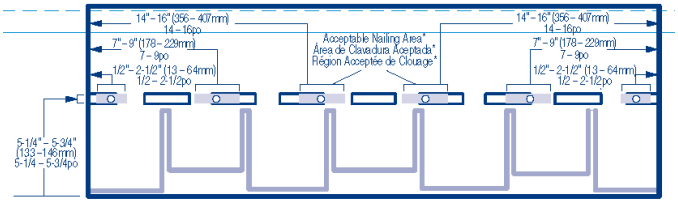


GAF ELK ROYAL SOVEREIGN SHINGLES/TEJAS
SENTINEL SHINGLES/TEJAS

Four Nail Pattern
12-1/8"x39-1/2" (308 x 1003mm)
Esquema de Cuatro Clavos
12-1/8"x39-1/2" (308 x 1003mm)
Patron à Quatre Clous
308 x 1003mm (12-1/8 x 39-1/2po)

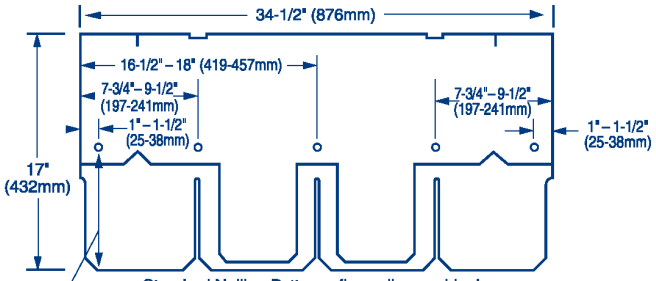


Six Nail Pattern / Esquema de Seis Clavos / Patron à Six Clous

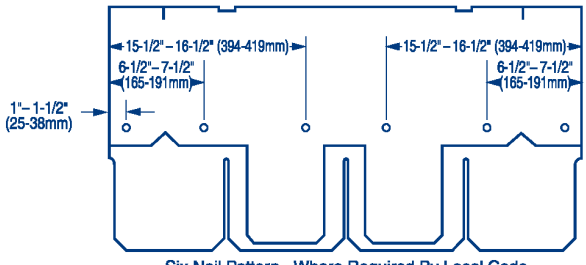


*Place nails up to 1-1/2" on either side of nail position as indicated, and no closer than 1/2" from edge of shingle.
*El clavo puede ser colocado hasta 1-1/2" de cada lado de la pared en ambos lados de la posición del clavo tal como se indica, y no más cerca de 1/2" del borde de la teja.
*Le clou peut être placé jusqu'à 3,8cm (1-1/2po) des deux côtés de la position du clou tel qu'indiqué, et pas plus près qu'à 1,3cm (1/2po) du rebord du bardeau.

GAF ELK CAPSTONE
Lifetime Designer Shingles / Tejas de Diseño de por Vida / Bardeaux à Vie Designer



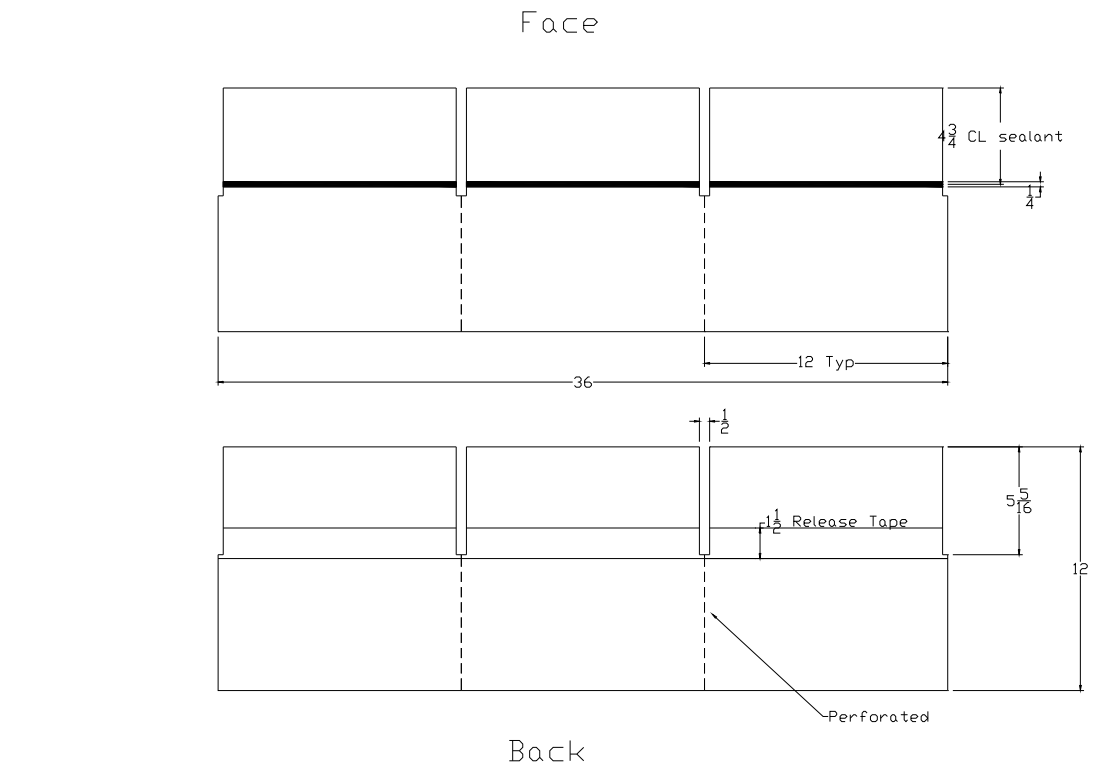
Standard Nailing Pattern - five nails per shingle
Patrón Estándar de Clavado - cinco clavos por teja
Patron de Clouage Standard - cinq clous par bardeau



Six Nail Pattern - Where Required By Local Code
Patrón de Seis Clavos - Donde lo Requiera el Código Local
Patron à Six Clous - Là où c'est Requis par le Code Local

GAF ELK CAMELOT
Lifetime Designer Shingles

FIGURE 1—TYPICAL INSTALLATION DETAILS (Continued)



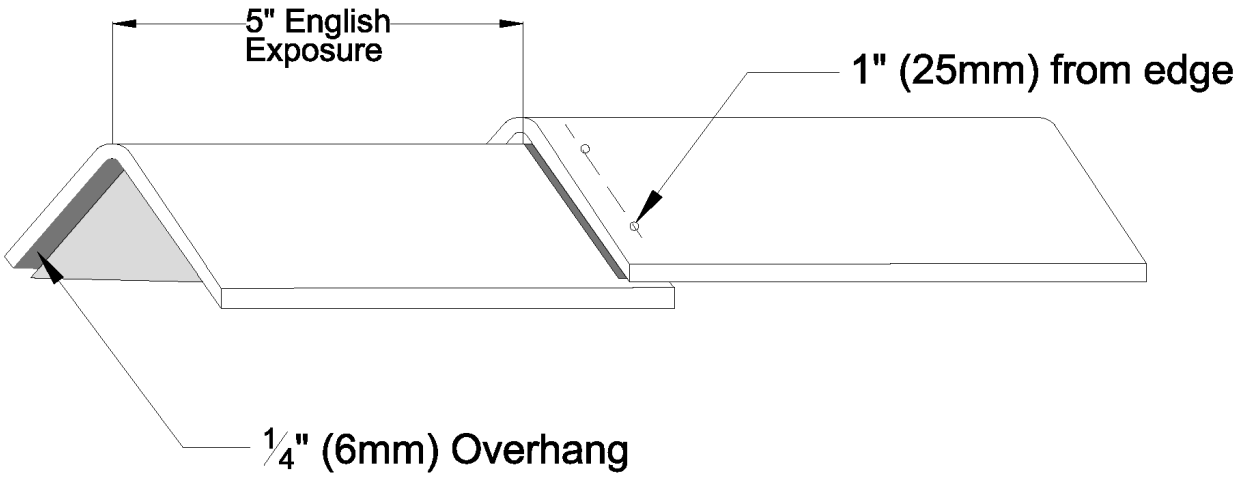
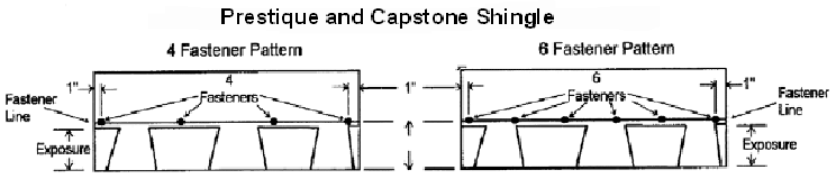
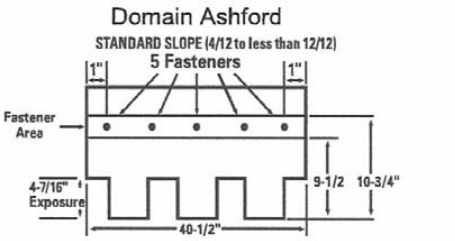
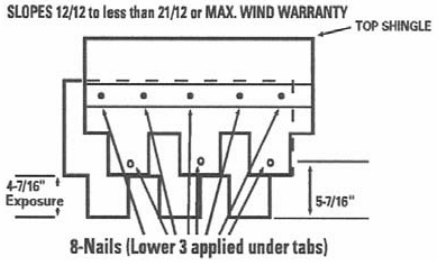


FIGURE 1—TYPICAL INSTALLATION DETAILS (Continued)





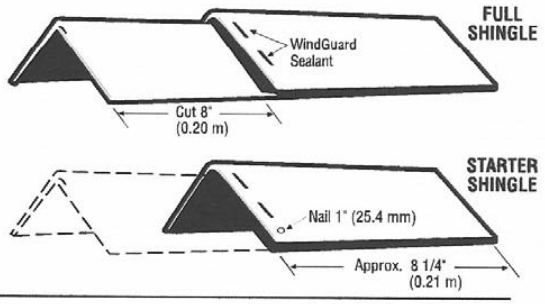


Ridglass

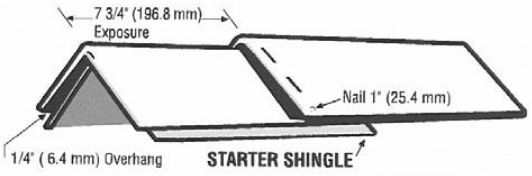
SBS High Profile Hip & Ridge Installation

1. **NAILING:** Nails must be corrosion resistant with heads a minimum of 3/8" (9.5 mm) in diameter. All fasteners must penetrate at least 3/4" (19.1 mm) into the wood deck or completely through plywood sheathing.

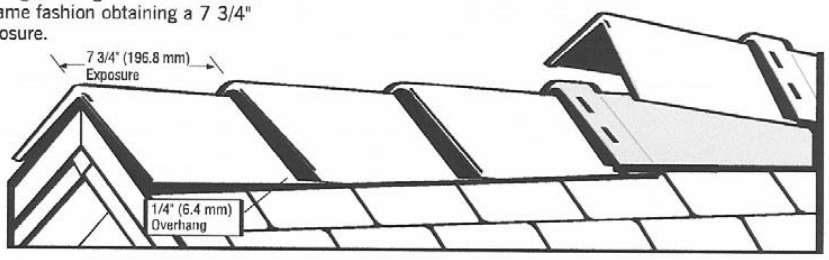
2. **STARTER SHINGLE INSTALLATION:** To create a starter shingle, cut off the 8" (0.20 m) exposed portion of a full hip and ridge shingle leaving the dimensional fold portion, which will be approximately 8 1/4" (0.21 m) long. Starting at the eaves for hips and opposite the prevailing wind for ridges, install starter shingle. Fasten through the dimensional fold with one nail on each side of starter shingle.



3. **HIP AND RIDGE INSTALLATION:** Beginning with a complete hip and ridge shingle, cover starter shingle with the 8" (0.20 m) exposed portion overlapping the front end of the starter shingle by 1/4" (6.4 mm) and nail into place. One nail should be applied on each side of hip and ridge shingle 9" (0.23 m) back from exposed end and 1" (25.4 mm) in from each side.



To proceed, overlap the first hip and ridge shingle extending 1/4" (6.4 mm) past dimensional fold with complete hip and ridge shingle, then nail shingle through dimensional fold. Continue installation in same fashion obtaining a 7 3/4" (196.8 mm) finished exposure.



COLD WEATHER

When applying in cold climate (under 50°F / 10°C), unpack carton on the roof and allow the shingles to warm before applicantion.

FIGURE 1—TYPICAL INSTALLATION DETAILS (Continued)