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# ICC-ES Report

## ESR-1475

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Reissued 10/2014

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**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**

**SECTION: 07 31 13—ASPHALT SHINGLES**

**REPORT HOLDER:**

**GAF**

**1 CAMPUS DRIVE  
PARSIPPANY, NEW JERSEY 07054**

**EVALUATION SUBJECT:**

**GAF SHINGLE ROOF COVERING SYSTEMS**



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# ICC-ES Evaluation Report

**ESR-1475\***

Reissued October 2014

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**DIVISION: 07 00 00—THERMAL AND MOISTURE  
PROTECTION**
**Section: 07 31 13—Asphalt Shingles**
**REPORT HOLDER:**
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**EVALUATION SUBJECT:**
**GAF SHINGLE ROOF COVERING SYSTEMS**

## 1.0 EVALUATION SCOPE

**Compliance with the following codes:**

- 2015, 2012, 2009 and 2006 *International Building Code*® (IBC)
- 2015, 2012, 2009 and 2006 *International Residential Code*® (IRC)

**Properties evaluated:**

- Weather resistance
- Fire classification
- Wind resistance

## 2.0 USES

The GAF asphalt shingles described in this report comply with IBC Section 1507.2 and IRC Section R905.2 and are Class A roof coverings when installed as described in this report.

## 3.0 DESCRIPTION

### 3.1 Shingles:

**3.1.1 General:** The GAF asphalt shingles comply with ASTM D3462, and have been qualified for wind resistance as noted in Section 4.1.2 and Table 1. The shingles are available as three-tab, five-tab and laminated asphalt shingle roof coverings. See Table 1 and Figure 1 for recognized product names and classifications, shingle types, manufacturing locations, overall dimensions, 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 dimensions, nailing locations and adhesive strip location for field shingles.

**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 Ridge Cap Shingles:** Ridge cap shingles consist 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 for use in covering hips and ridges. See Table 2 for product sizes, exposure to the weather and manufacturing locations. See also Figure 2.

**3.1.4.1 Royal Sovereign® Ridge Cap Shingles:** These ridge cap shingles are field-cut from Royal Sovereign® three-tab strip shingles. The field-cut ridge cap shingles are compatible with any of the GAF shingles recognized in this report.

**3.1.4.2 Z® Ridge Ridge Cap Shingles:** These shingles are strips that are scored for separation into four ridge cap shingles. See Figure 2.

**3.1.4.3 Seal-A-Ridge® Ridge Cap Shingles and Seal-A-Ridge® IR Impact Resistant Ridge Cap Shingles:** These shingles are strips that are scored for separation into three ridge cap shingles. Seal-A-Ridge® IR Impact Resistant Ridge Cap Shingles are also labeled as Seal-A-Ridge® ArmorShield™ Ridge Cap Shingles.

**3.1.4.4 Ridglass® Premium Ridge Cap Shingles:** These shingles are individual, thick, ultra-high profile ridge cap shingles available in three widths. See Figure 2.

**3.1.4.5 Timbertex® Premium Ridge Cap Shingles:** These shingles are strips that are scored for separation into three ridge cap shingles.

### 3.1.5 Starter Shingles:

**3.1.5.1 General:** Starter Strip shingles are factory-made shingles used under the first course of shingles being installed or applied on the roof. See Table 1 for product sizes and manufacturing locations. See also Figure 3.

**3.1.5.2 Pro-Start® Eave/Rake Starter Strip Shingles:** These shingles are strips that are scored for separation

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into two starter shingles. 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 WeatherBlocker™ Premium Eave/Rake Starter Strip Shingles:** These starter shingles are strips with perforations to assist with alignment of various shingle sizes. The mineral surfacing is on the weather side, with fine mineral granules on the underside.

**3.1.5.4 Sequoia® – Canyon™ Starter (Sequoia® – Canyon™ Starter is also labeled as Grand Sequoia®/Grand Canyon® Starter and StarterMatch™ Starter Strip):** These starter shingles are color coordinated to match the Grand Sequoia®, Grand Sequoia® IR, Grand Canyon® and Sienna™ field shingles. The starter shingles must be installed as the second starter at the eaves on Grand Sequoia®, Grand Sequoia® IR, Grand Canyon® and Sienna™ applications.

### 3.2 Fasteners:

Fasteners must comply with ASTM F1667 and must be minimum No. 12 gage [0.105-inch-diameter (2.67 mm) shank],  $\frac{3}{8}$ -inch-diameter-head (9.5 mm), galvanized, stainless steel, aluminum or copper, barbed-, deformed-, or smooth-shank roofing nails. 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.

### 3.3 Underlayment:

Under the 2015 IRC, the roof underlayment must be in accordance with Section R905.1.1 and Table R905.1.1(1). Under the 2015, 2012, 2009 and 2006 IBC, the roof underlayment must be in accordance with Section 1507.2.3. Under the 2015 IRC, the roof underlayment must be in accordance with Section R905.1.1 and Table R905.1.1(1). Under the 2012, 2009 and 2006 IRC, the roof underlayment must be in accordance with Section R905.2.3. Underlayment must comply with ASTM D226 Type I or Type II, or ASTM D4869 Type I or Type II, or ASTM D6757.

### 3.4 Asphalt Cement:

Asphalt roofing cement used for hand-sealing the shingles 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, underlayment and flashings must be installed in accordance with IBC Section 1507.2 or IRC Section R905.2 except as noted in this report. The shingles must be installed over roof decks of 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 lumber installed as solid sheathing conforming to 2015 IBC Sections 2304.8.2 or 2308.7.10 (2012, 2009 and 2006 IBC Section 2304.7.2 or 2308.10.8) or IRC Sections R803, as applicable, and underlayment in accordance with Sections 3.3 and 4.1.2.3. Minimum roof slope must be 2:12 (16.7 percent).

### 4.1.2 Application:

**4.1.2.1 Fastening:** Fasteners are as described in Section 3.2. Shingles must be fastened to the roof deck with a minimum of four fasteners or as shown in the Standard Nailing Pattern in Figure 1. Spacing of fasteners must be

as shown in Figure 1, and each course of shingles must be offset from the preceding course as shown in the manufacturer's published installation instructions.

**4.1.2.2 Shingle Sealing:** In colder climates or wind regions where it is questionable whether the factory-applied adhesive will activate and seal the shingles, to ensure sealing, the shingles must be hand-sealed with a minimum of three 1-inch-diameter (25.4 mm) spots of asphalt roofing cement equally spaced on the unexposed surface across each shingle. For applications on slopes greater than 21:12, hand-sealing is required. 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 must 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 must then be pressed into the cement. See the manufacturer's published installation instructions for hand-sealing guidelines. The shingles must be hand-sealed to the satisfaction of the code official.

**4.1.2.3 Underlayment:** Under the 2015, 2012, 2009 and 2006 IBC, the roof underlayment must be installed in accordance with Section 1507.2.8. Under the 2015 IRC, the roof underlayment must be installed in accordance with Section R905.1.1 and Tables R905.1.1(2) and Table R905.1.1(3). Under the 2012, 2009 and 2006 IRC, the roof underlayment must be installed in accordance with Section R905.2.7. Minimum roof slope must be 2:12. For roof slopes greater than 4:12, the roof deck must be covered with a minimum of one layer of underlayment as described in Section 3.3 of this report. For slopes between 2:12 and 4:12, two layers of the underlayment described in Section 3.3 of this report are required. In areas where there has been a history of ice forming along the eaves, causing a backup of water, an ice barrier must be provided in accordance with IBC Section 1507.2.8.2 or 2015 IRC Section R905.2.7 (2012, 2009 and 2006 IRC Section R905.2.7.1) as applicable.

### 4.2 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. Staples must not be used to fasten the ridge cap shingles.

### 4.3 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 2015 IBC Section 1511 (2012, 2009 and 2006 IBC Section 1510) or 2015 IRC Section R908 (2012, 2009 and 2006 IRC Section R907). 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  $\frac{3}{4}$  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: 2015 Sections 1511.5 and 1511.6 (2012, 2009 and 2006 Sections 1510.5 and 1510.6).



- IRC: 2015 Sections R908.5 and R908.6 (2012, 2009 and 2006 Sections R907.5 and R907.6).

#### 4.4 Wind Resistance:

GAF asphalt shingles have been tested for wind resistance in accordance with ASTM D3161 or ASTM D7158. Shingles tested in accordance with ASTM D3161 are classified as Class F and qualify for use under 2015 IBC Section 1504.1.1 (2012 and 2009 IBC Section 1507.2.7.1 and 2006 IBC 1504.1.1) or IRC Section R905.2.4.1, as applicable. Shingles tested in accordance with ASTM D7158 are classified as Class H and qualify for use in locations where the maximum basic wind speed is 150 mph (67 m/s) or less with an exposure category of B or C (ASCE 7) and a maximum building height of 60 feet (18.3 m). Installation must be in accordance with IBC Section 1507.2.7 or IRC Section R905.2.6, as applicable.

#### 5.0 CONDITIONS OF USE

The GAF 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 The GAF shingle products are manufactured at the locations noted in Table 1, under a quality control program with inspections by ICC-ES.

#### 6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with ASTM D3462.

- 6.2 Reports of wind resistance testing in accordance with ASTM D7158 and ASTM D3161.

- 6.3 Reports of testing in accordance with UL 790 (ASTM E108).

- 6.4 Quality documentation.

#### 7.0 IDENTIFICATION

Each bundle of shingles must bear a label with the name and address of the GAF 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 D3161 Class F or ASTM D7158, Class H, as applicable.

Additionally, in accordance with ASTM D3462, 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 SHINGLES – PRODUCT DESCRIPTIONS AND MANUFACTURING LOCATIONS

SHINGLE	SHINGLE TYPE	PLANT LOCATION	DIMENSIONS (height x width) (inches)	MAXIMUM EXPOSURE TO THE WEATHER (inches)	LOCATION OF NAIL LINE <sup>1</sup> (inches)	CLASS
Royal Sovereign®	Three-tab	Fontana, CA	13 <sup>1</sup> / <sub>4</sub> x 39 <sup>3</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>	6	ASTM D3161, Class F ASTM D7158, Class H
		Dallas, TX Minneapolis, MN Mobile, AL Mt. Vernon, IN Myerstown, PA Savannah, GA Tampa, FL Tuscaloosa, AL	12 x 36	5	5 <sup>5</sup> / <sub>8</sub>	ASTM D3161, Class F ASTM D7158, Class H
Marquis WeatherMax®	Three-tab	Mt. Vernon, IN	12 x 36	5	5 <sup>5</sup> / <sub>8</sub>	ASTM D3161, Class F ASTM D7158, Class H
Sentinel®	Three-tab	Dallas, TX Mobile, AL Mt. Vernon, IN Savannah, GA Tuscaloosa, AL	12 x 36	5	5 <sup>5</sup> / <sub>8</sub>	ASTM D3161, Class F ASTM D7158, Class H
		Fontana, CA	13 <sup>1</sup> / <sub>4</sub> x 39 <sup>3</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>	6	ASTM D3161, Class F ASTM D7158, Class H
Slateline®	Five-tab	Mt. Vernon, IN	17 x 40	7 <sup>1</sup> / <sub>2</sub>	9	ASTM D3161, Class F ASTM D7158, Class H
Camelot® Camelot® II	Laminated	Mt. Vernon, IN	17 x 34 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>2</sub>	ASTM D3161, Class F ASTM D7158, Class H
Grand Canyon®	Laminated	Fontana, CA Mt. Vernon, IN	17 x 40	5	11	ASTM D3161, Class F ASTM D7158, Class H
Grand Sequoia®	Laminated	Fontana, CA Mt. Vernon, IN	17 x 40	5	11	ASTM D3161, Class F ASTM D7158, Class H
Grand Sequoia® IR	Laminated	Fontana, CA	17 x 40	5	11	ASTM D3161, Class F ASTM D7158, Class H
Glenwood™	Laminated	Mt. Vernon, IN	12 <sup>1</sup> / <sub>4</sub> x 34 <sup>5</sup> / <sub>16</sub>	4-5	6	ASTM D3161, Class F ASTM D7158, Class H
Timberline® ArmorShield™ II	Laminated	Ennis, TX Tuscaloosa, AL	13 <sup>1</sup> / <sub>4</sub> x 38 <sup>3</sup> / <sub>4</sub>	5 <sup>5</sup> / <sub>8</sub>	6	ASTM D3161, Class F ASTM D7158, Class H

For SI: 1 inch = 25.4 mm, 1 lb/100 ft<sup>2</sup> = 0.0488 kg/m<sup>2</sup>

TABLE 1—GAF SHINGLES – PRODUCT DESCRIPTIONS AND MANUFACTURING LOCATIONS (Continued)

SHINGLE	SHINGLE TYPE	PLANT LOCATION	DIMENSIONS (height x width) (inches)	MAXIMUM EXPOSURE TO THE WEATHER (inches)	LOCATION OF NAIL LINE <sup>1</sup> (inches)	CLASS
Timberline® Natural Shadow®	Laminated	Baltimore, MD Dallas, TX Ennis, TX Fontana, CA Michigan City, IN Minneapolis, MN Mobile, AL Myerstown, PA Shafter, CA Tampa, FL Tuscaloosa, AL	13 <sup>1</sup> / <sub>4</sub> x 39 <sup>3</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>	6	ASTM D3161, Class F ASTM D7158, Class H
Timberline® Natural Shadow® Arctic White	Laminated	Shafter, CA	13 <sup>1</sup> / <sub>4</sub> x 39 <sup>3</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>	6	ASTM D3161, Class F ASTM D7158, Class H
Timberline HD®	Laminated	Baltimore, MD Dallas, TX Ennis, TX Fontana, CA Michigan City, IN Minneapolis, MN Mobile, AL Myerstown, PA Shafter, CA Tampa, FL Tuscaloosa, AL	13 <sup>1</sup> / <sub>4</sub> x 39 <sup>3</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>	6	ASTM D3161, Class F ASTM D7158, Class H
Timberline® Cool Series®	Laminated	Fontana, CA	13 <sup>1</sup> / <sub>4</sub> x 39 <sup>3</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>	6	ASTM D3161, Class F ASTM D7158, Class H
Timberline Ultra HD®	Laminated	Baltimore, MD Dallas, TX Ennis, TX Fontana, CA Michigan City, IN Minneapolis, MN Mobile, AL Myerstown, PA Shafter, CA Tampa, FL Tuscaloosa, AL	13 <sup>1</sup> / <sub>4</sub> x 39 <sup>3</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>	6	ASTM D3161, Class F ASTM D7158, Class H
Timberline® American Harvest®	Laminated	Fontana, CA Michigan City, IN Ennis, TX Myerstown, PA Tuscaloosa, AL	13 <sup>1</sup> / <sub>4</sub> x 39 <sup>3</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>	6	ASTM D3161, Class F ASTM D7158, Class H
Monaco®	Laminated	Mt. Vernon, IN	17 x 40	7 <sup>1</sup> / <sub>2</sub>	8	ASTM D3161, Class F ASTM D7158, Class H
Woodland	Laminated	Mt. Vernon, IN	17 x 40	6 <sup>1</sup> / <sub>2</sub> - 7 <sup>1</sup> / <sub>2</sub>	8	ASTM D3161, Class F ASTM D7158, Class H
Sienna®	Laminated	Fontana, CA	17 <sup>3</sup> / <sub>8</sub> x 40	5 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	ASTM D3161, Class F ASTM D7158, Class H

For SI: 1 inch = 25.4 mm, 1 lb/100 ft<sup>2</sup> = 0.0488 kg/m<sup>2</sup><sup>1</sup>Nail line = distance from lowermost edge of shingle to target nail location. See Figure 1.



TABLE 2—ACCESSORY PRODUCTS – PRODUCT DESCRIPTIONS AND MANUFACTURING LOCATIONS

SHINGLE	SHINGLE TYPE	PLANT LOCATION	DIMENSIONS (height x width) (inches)	MAXIMUM EXPOSURE TO THE WEATHER (inches)
Ridglass® Premium Ridge Cap Shingles	Hip and Ridge	Fresno, CA	8, 10 or 12 x 16 1/2 pieces	8
Royal Sovereign®	Hip and Ridge	Fontana, CA	13 1/4 x 39 3/8 strip 13 1/4 x 9 7/8 pieces	See Footnote <sup>1</sup>
		Dallas, TX Minneapolis, MN Mobile, AL Mt. Vernon, IN Myerstown, PA Savannah, GA Tampa, FL Tuscaloosa, AL	12 x 36 strip 12 x 12 pieces	See Footnote <sup>1</sup>
Seal-A-Ridge® Ridge Cap Shingles	Hip and Ridge	Fontana, CA	13 1/4 x 39 3/8 strip 13 1/4 x 9 7/8 pieces	5 5/8
		Tuscaloosa, AL	12 x 36 strip 12 x 12 pieces	6 2/3
		Mobile, AL	12 x 36 strip 12 x 12 pieces	6 2/3
Seal-A-Ridge® ArmorShield™ Ridge Cap Shingles Seal-A-Ridge® IR Impact Resistant Ridge Cap Shingles	Hip and Ridge	Tuscaloosa, AL	12 x 36 strip 12 x 12 pieces	5
		Mobile, AL	12 x 36 strip 12 x 12 pieces	5
Timbertex® Premium Ridge Cap Shingles	Hip and Ridge	Mt. Vernon, IN	12 x 36 strip 12 x 12 pieces	8
Z-Ridge® Ridge Cap Shingles	Hip and Ridge	Ennis, TX Shafter, CA	13 1/4 x 39 1/2 strip 13 1/4 x 9 7/8 pieces	5 5/8
Pro-Start® Eave/Rake Starter Strip Shingles	Starter Strip	Tuscaloosa, AL Mt. Vernon, IN	13 x 38 strip 6 1/2 x 38 pieces	N/A
		Shafter, CA	13 1/4 x 38 strip 6 5/8 x 38 pieces	N/A
		Dallas, TX	13 x 38 strip 6 1/2 x 38 pieces	N/A
Sequoia® – Canyon™ Starter Grand Sequoia®/Grand Canyon® Starter StarterMatch™ Starter Strip	Starter Strip	Fontana, CA	13 1/4 x 40 strip	N/A
WeatherBlocker™ Premium Eave/Rake Starter Strip Shingles	Starter Strip	Mt. Vernon, IN	17 x 40 strip 8 1/2 x 40 pieces	N/A

For SI: 1 inch = 25.4 mm, 1 lb/100 ft<sup>2</sup> = 0.0488 kg/m<sup>2</sup>.

<sup>1</sup>Weather exposure must not exceed that permitted for the field of the roof

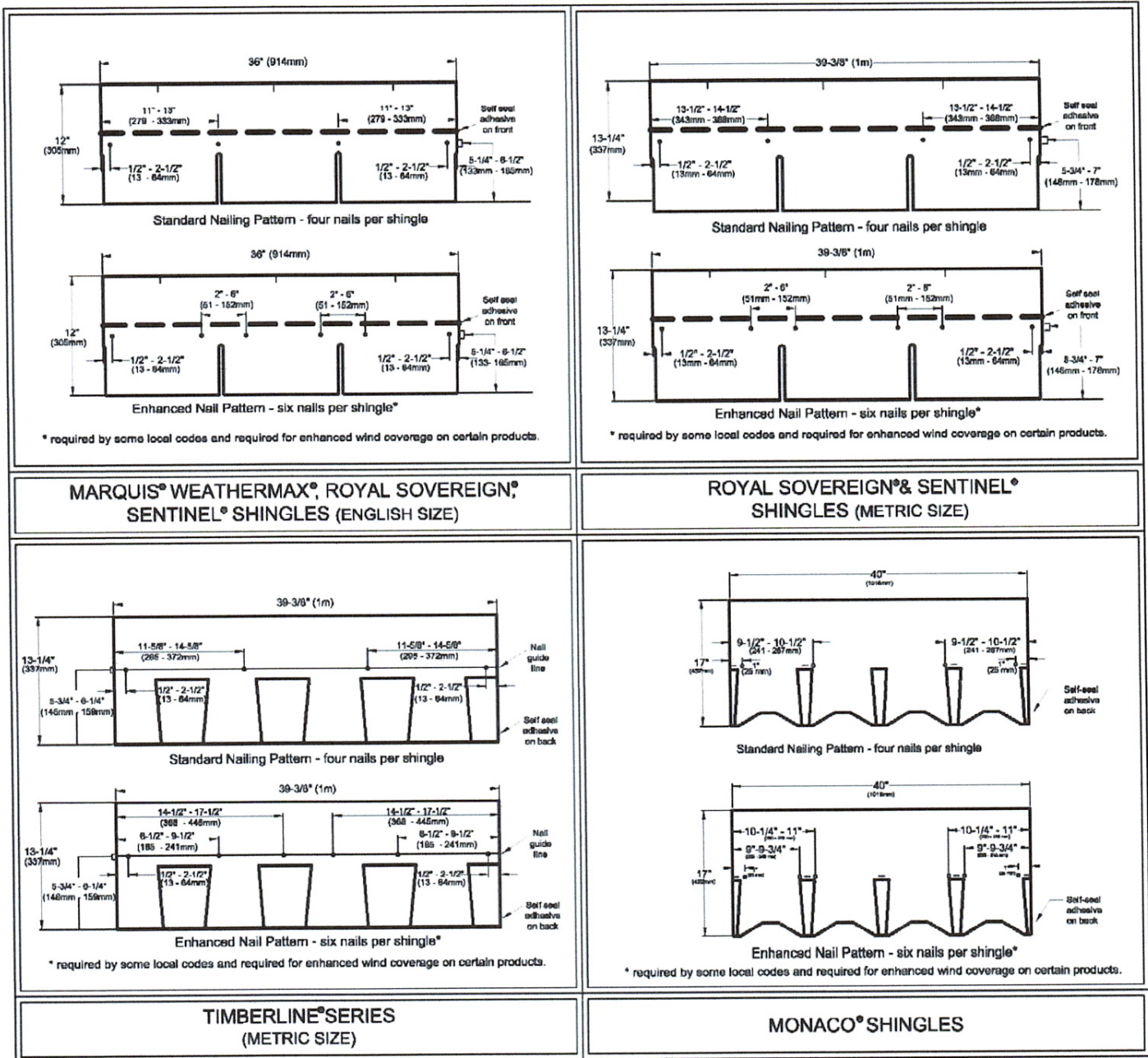


FIGURE 1—GAF SHINGLES



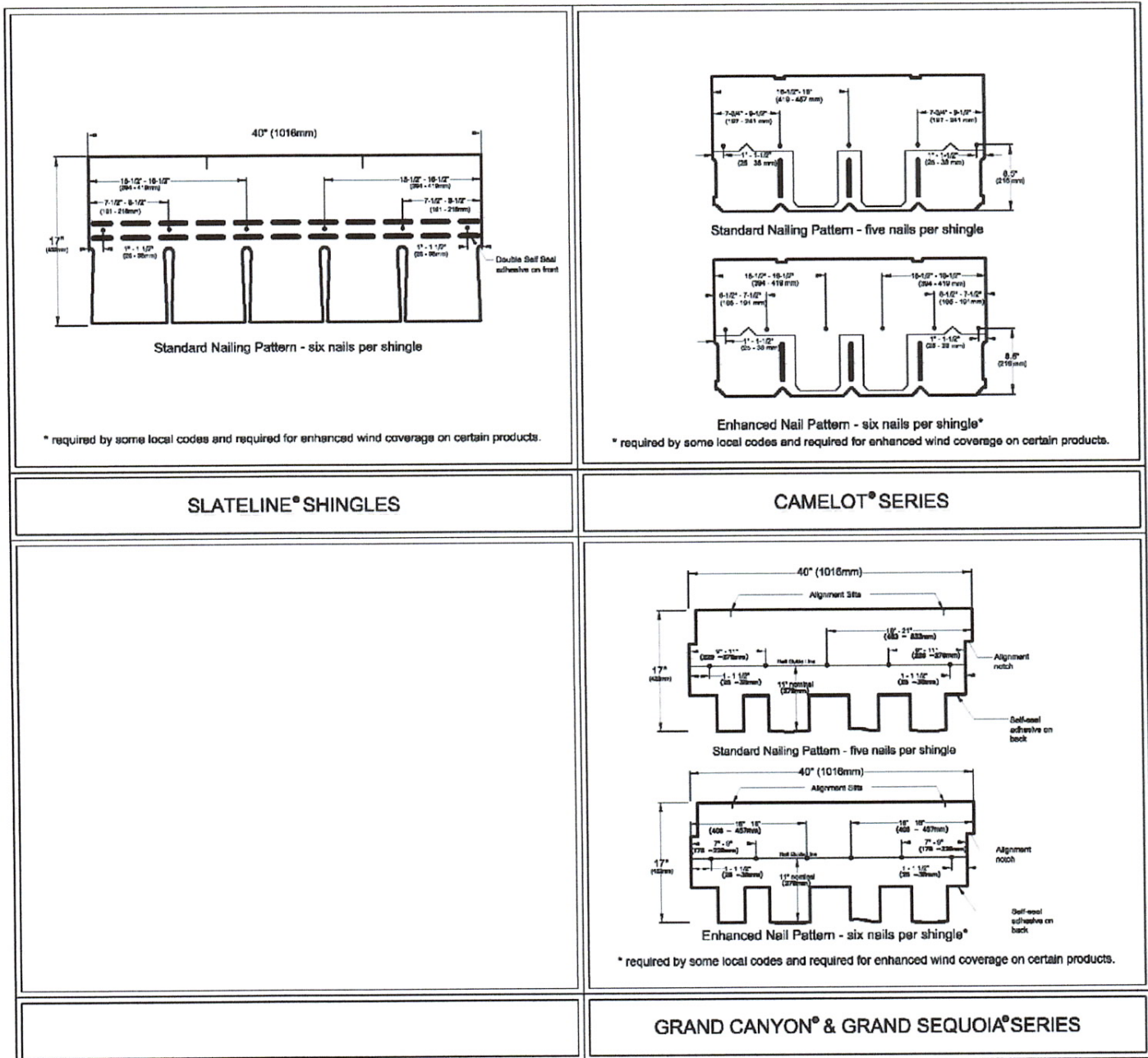


FIGURE 1—GAF SHINGLES (Continued)

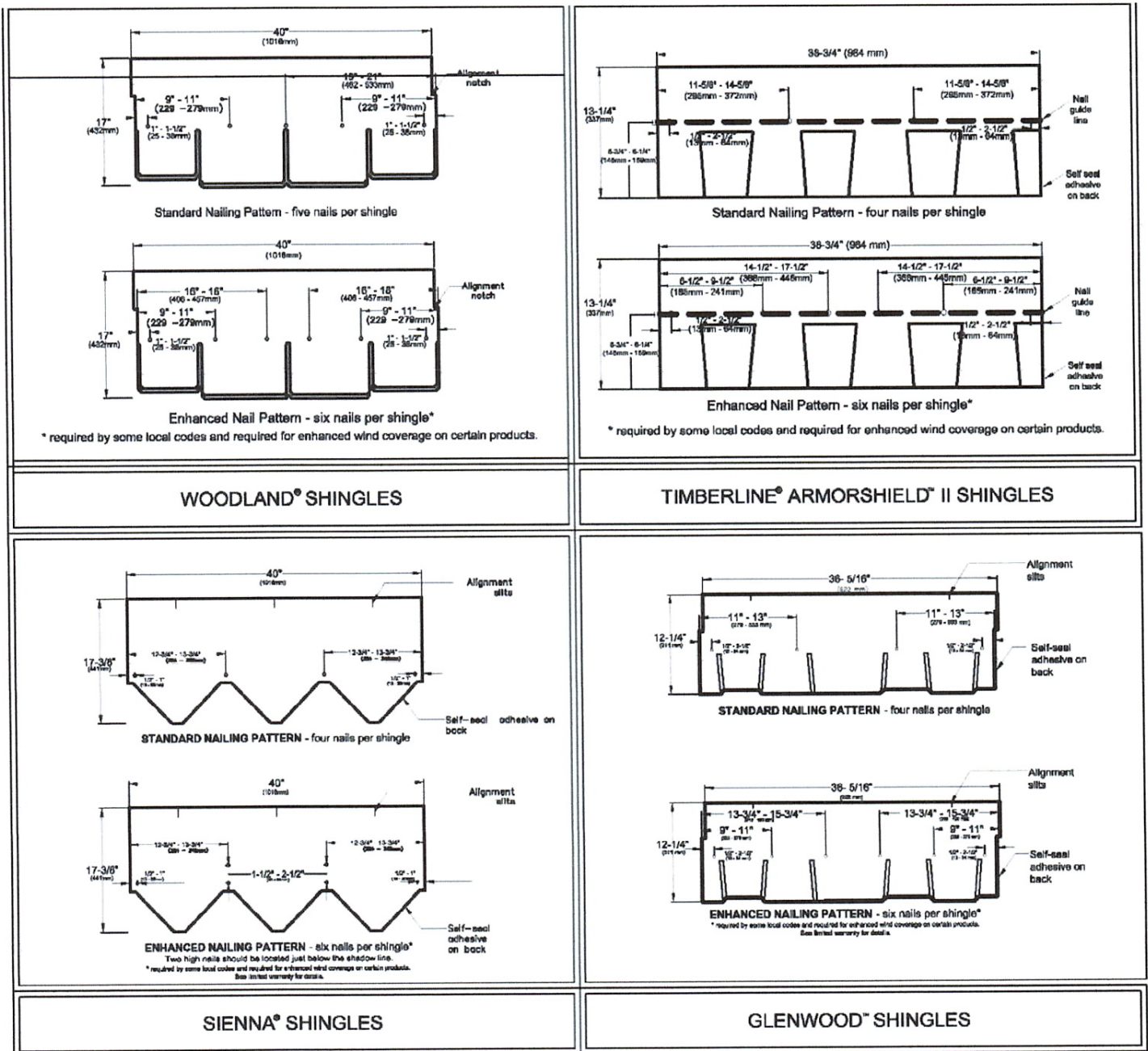


FIGURE 1—GAF SHINGLES (Continued)



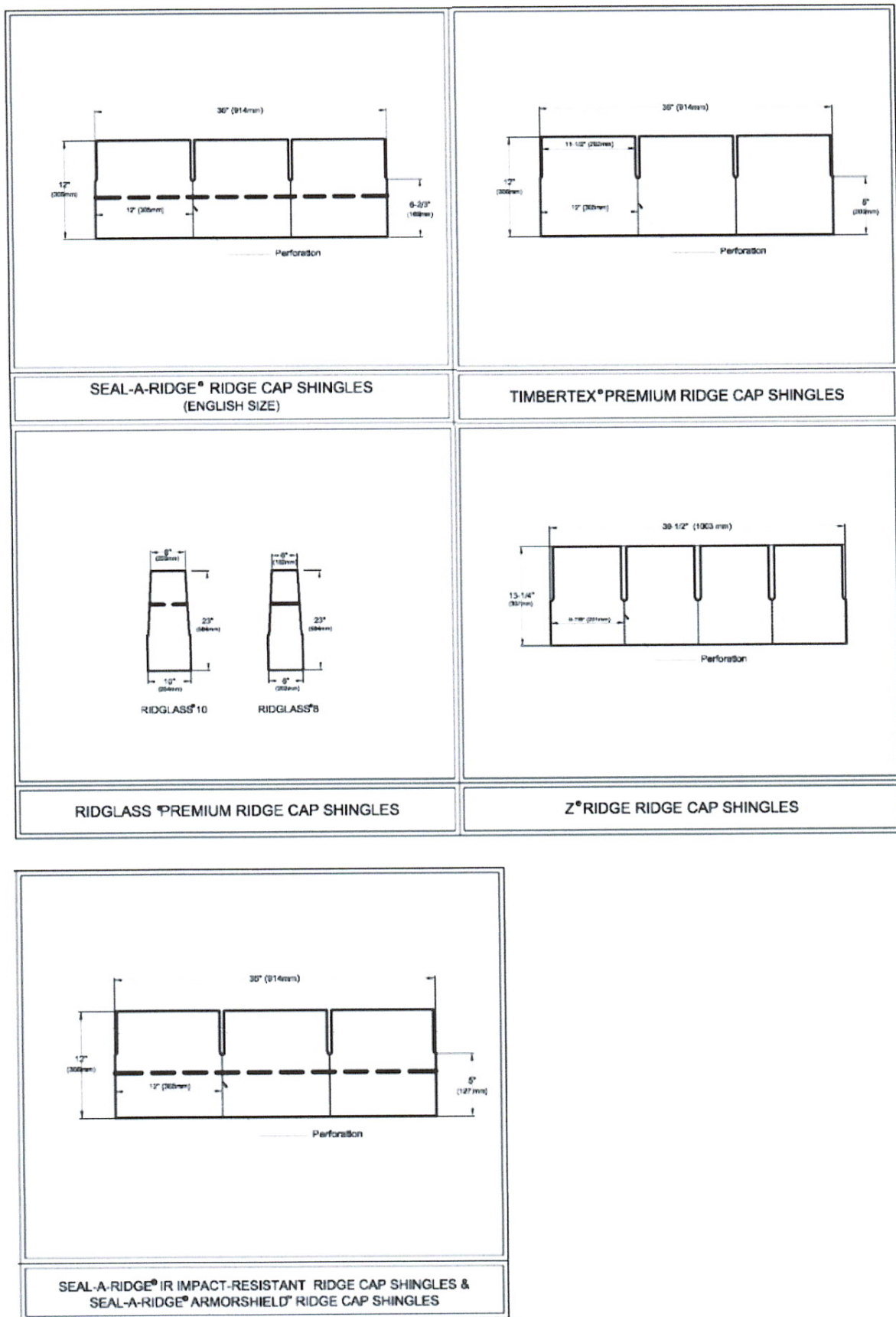


FIGURE 2—RIDGE SHINGLES

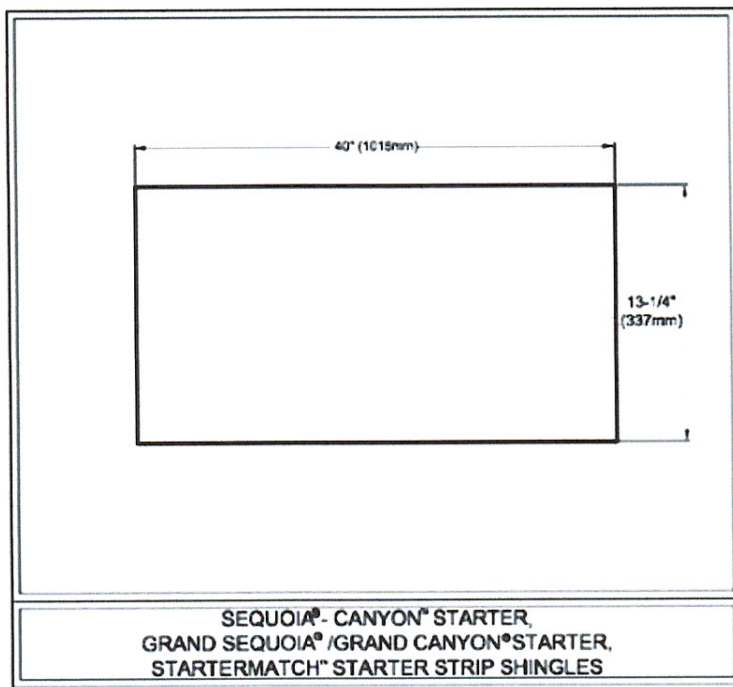
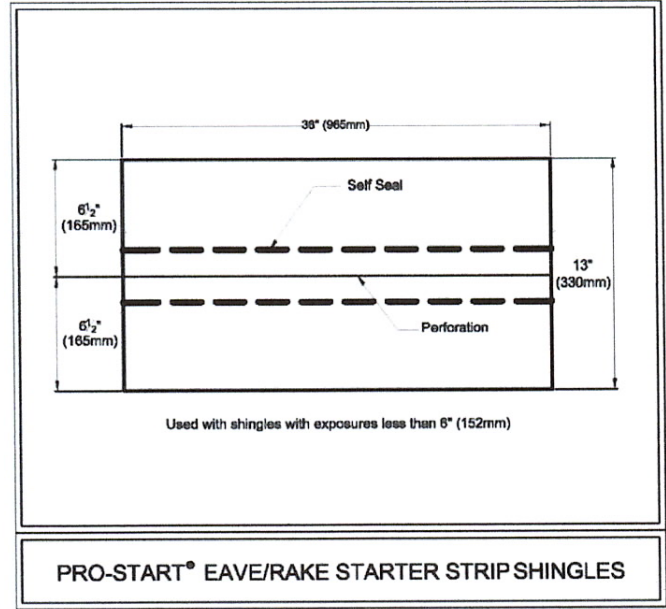
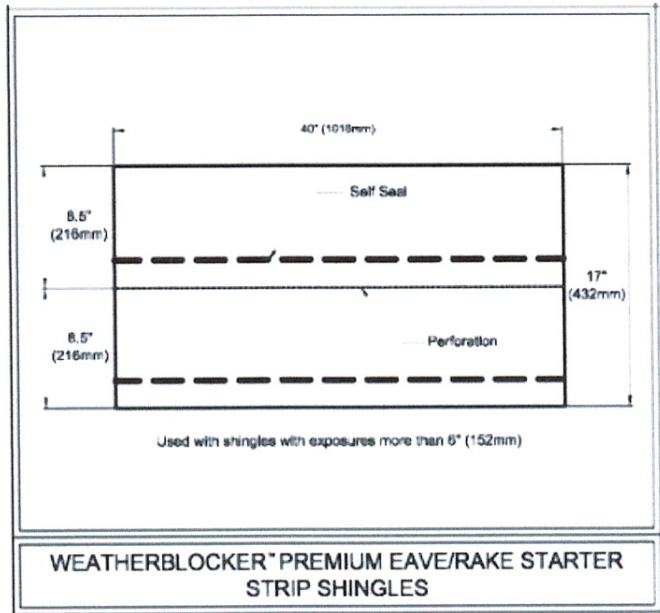


FIGURE 3—STARTER SHINGLES