

GAF ASPHALT SHINGLE SPECIFICATION



SECTION 07310

ASPHALT SHINGLE ROOFING

GAF® DESIGN LINE

***Public Safety Building
Lauderdale-by-the-Sea, FL 33308***

PREPARED BY:

GAF® Architectural Information Services

PROJECT NO.: S-12789

Note: GAF® does not practice architecture or engineering. This Design Line is provided as a guide specification and is based on criteria provided to GAF®. GAF® has not observed the jobsite conditions, contract specifications, or other documents and shall not be construed in any manner to be the designer of record.

GAF ASPHALT SHINGLE GUIDE SPECIFICATION

PART I GENERAL

1.01 SECTION INCLUDES

- A. Asphalt roofing shingles.
- B. Leak barrier and roof deck protection.
- C. Metal flashing associated with shingle roofing.
- D. Attic ventilation.

1.02 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry: Framing, wood decking, and roof sheathing.
- B. Section 07620 - Flashing and Sheet Metal: Sheet metal flashing not associated with shingle roofing; gutters and downspouts.
- C. Section 08630 - Unit Skylights: Skylights

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM) - Annual Book of ASTM Standards
 - 1. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 - 3. ASTM B 370 - Standard Specification for Copper Sheet and Strip for Building Construction.
 - 4. ASTM D 2218 – Impact Resistance of Prepared Roof Covering Materials.
 - 5. ASTM D 3018 - Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules.
 - 6. ASTM D 3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method).
 - 7. ASTM D 3462 – Standard Specification for Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules.
 - 8. ASTM D 4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.
 - 9. ASTM D 7158 - Standard Test Method for Wind-Resistance of Sealed Asphalt Shingles (Uplift Force/Uplift Resistance Method).
- B. Underwriters Laboratories (UL) - Roofing Systems and Materials Guide (TFWZ.R21)
 - 1. UL 790 - Tests for Fire Resistance of Roof Covering Materials.
 - 2. UL 997 - Wind Resistance of Prepared Roof Covering Materials.
 - 3. UL 2218 – Impact Resistance of Prepared Roof Coverings Materials.
- C. Asphalt Roofing Manufacturers Association (ARMA)
- D. Sheet Metal and Air Conditioning Contractors National Association, 1nc. (SMACNA) - Architectural Sheet Metal Manual.
- E. National Roofing Contractors Association (NRCA)
- F. American Society of Civil Engineers (ASCE).
 - 1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

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- G. U.S. Green Building Council (USGBC)
- H. Leadership in Energy and Environmental Design (LEED)
- I. ENERGY STAR
- J. Cool Roof Rating Council (CRRC)
- K. Miami Dade County

1.04 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual for definitions of roofing terms related to this section.

1.05 SUBMITTALS

- A. Submit copies of GAF product data sheets, detail drawings and samples for each type of roofing product.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide all primary roofing products, including shingles, underlayment, leak barrier, and ventilation, by a single manufacturer.
- B. Installer Qualifications: Installer must be approved for installation of all roofing products to be installed under this section.

1.07 REGULATORY REQUIREMENTS

- A. Provide a roofing system achieving an Underwriters Laboratories (UL) Class A fire classification.
- B. . Install all roofing products in accordance with all federal, state and local building codes.
- C. All work shall be performed in a manner consistent with current OSHA guidelines.

1.08 PREINSTALLATION MEETING

- A. General: For all projects in excess of 250 squares of roofing, a pre-installation meeting is strongly recommended.
- B. Timing: The meeting shall take place at the start of the roofing installation, no more than 2 weeks into the roofing project.
- C. Attendees: Meeting to be called for by manufacturer's certified contractor. Meeting's mandatory attendees shall include the certified contractor and the manufacturer's representative. Non-mandatory attendees shall include the owner's representative, architect or engineer's representative, and the general contractor's representative.
- D. Topics: Certified contractor and manufacturer's representative shall review all pertinent requirements for the project, including but not limited to, scheduling, weather considerations, project duration, and requirements for the specified warranty.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Store all products in manufacturer's unopened, labeled packaging until they are ready for installation.
- B. Store products in a covered, ventilated area, at temperature not more than 110 degrees F (43 degrees C); do not store near steam pipes, radiators, or in direct sunlight.
- C. Store bundles on a flat surface. Maximum stacking height shall not exceed GAF's recommendations. Store all rolls on end.
- D. Store and dispose of solvent-based materials in accordance with all federal, state and local regulations.

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1.10 WEATHER CONDITIONS

- A. Proceed with work only when existing and forecasted weather conditions will permit work to be performed in accordance with GAF's recommendations

1.11 WARRANTY

- A. Provide to the owner a **GAF® Shingle & Accessory Ltd. Warranty.**

1. Manufacturing defects for shingles: 100% coverage for materials for:
 - a Single family detached homes owned by individuals the first
 - 10 years non-prorated, then 20% thereafter for all GAF lifetime shingles.
 - 5 years non-prorated, then 20% thereafter for GAF Marquis Weathermax and GAF Royal Sovereign Shingles.
 - 3 years non-prorated, then 20% thereafter for GAF Sentinel Shingles.
 - b Any other type of owner or building – 40 years with the first 5 years non - prorated.
2. Warranted against algae discoloration for 10 years
3. Accessories:
 - a When you install three or more GAF® accessory products with any Lifetime shingles, your GAF® accessory products carry a lifetime warranty against manufacturing defects and a Smart Choice® Protection period of 10 years for single family homes, and 40 years (with Smart Choice® Protection period of 5 years) for any other type of structure.
 - b When you install less than three GAF® accessory products, your accessories carry a 40-year warranty against manufacturing defects and a Smart Choice® Protection period of 5 years.

PART II PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: GAF, 1361 Alps Rd. Wayne NJ 07470. Tel: 1-973-628-3000.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.02 SHINGLES

- A. Self sealing, granule surfaced, asphalt shingle with a strong fiberglass reinforced Micro Weave® core and StainGuard® protection, which prevents pronounced discoloration from blue-green algae through formulation/unique blends of granules. Architectural laminate styling provides a wood shake appearance with a 5 5/8 inch exposure. Features GAF's patented High Definition® color blends and enhanced shadow effect. UL 790 Class A rated with UL 997 Wind Resistance Label; ASTM D 7158, Class H; ASTM D 3161, Type 1; ASTM D 3018, Type 1; ASTM D 3462; AC438; CSA A123.5-98; Dade County Approved, Florida Building Code Approved, Texas Dept of Insurance Approved, ICC Report Approval. **Timberline® HD Lifetime High Definition Shingles, by GAF®.**

1. Color: As selected from manufacturers' full range.

2.03 HIP AND RIDGE SHINGLES

- A. Distinctive self sealing hip and ridge cap shingle complementing the color of selected roof shingle. Each bundle covers approx. 25 lineal feet (7.62mm) with a 6 2/3 inch (169mm) exposure. **Seal-A-Ridge® Ridge Cap Shingles by GAF.**

2.04 STARTER STRIP

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- A. Self sealing starter shingle designed for all roof shingles. Each bundle covers approx. 120 lineal feet (36.58m). **ProStart™ Starter Strip** by GAF.

2.05 SHINGLE UNDERLAYMENT

- A. #30 Roofing Underlayment - By Others: Water repellent breather type cellulose fiber building paper. Meets or exceeds the requirements of ASTM D-4869 Type II.

2.06 ROOFING CEMENT

- A. Asphalt Plastic Roofing Cement meeting the requirements of ASTM D 4586, Type I or II.

2.07 ROOF ACCESSORIES

- A. Exterior acrylic rust resistant aerosol roof accessory paint. Each 6 oz can is available in boxes of 6 and in a wide variety of colors to compliment the roof. **Shingle-Match™** Roof Accessory Paint by GAF.

2.08 ATTIC VENTILATION

A. Ridge Vents

1. Rigid plastic ridge ventilator designed to allow the passage of hot air out of attics. For use in conjunction with eave/ soffit intake ventilation products. Provides 18.0 sq inches (11613 sq.mm/m) in NFVA per lineal foot. Each package contains 40 lineal feet (12.19m) of vent. **Cobra® Rigid Vent 3™** ridge vent (includes 3" (76mm) galvanized ring shank nails), by GAF

B. Fascia and Soffit/Under Eave Vents

1. Flexible ridge ventilator designed to allow the passage of air into thru the fascia. 1"x3" (25 mm x 76mm) provides a NFVA of 11 square inches per foot and 1½" x3" (38 mm x 76 mm) provides a NFVA of 16 square inches per foot. **Cobra® Fascia Vent**, by GAF.
2. PVC soffit/undereave premium intake ventilation providing 9 sq.in, of NFVA. Each section is 12ft. long, 6in. high and 1.25in. thick. **Cobra® Fascia Flow™** Premium Intake Ventilation.

2.09 NAILS

- A. Standard round wire, zinc-coated steel or aluminum; 10 to 12 gauge, smooth, barbed or deformed shank, with heads 3/8 inch (9mm) to 7/16 inch (11mm) in diameter. Length must be sufficient to penetrate into solid wood at least 3/4 inch (19mm) or through plywood or oriented strand board by at least 1/8 inch (3.18mm).

2.10 METAL FLASHING

- A. .24 gauge hot-dip galvanized steel sheet, complying with ASTM A 653/A 653M, G90/Z275.
- B. 16-oz/sq ft (0.56mm) copper sheet, complying with ASTM B 370.
- C. 0.032-inch (0.8mm) aluminum sheet, complying with ASTM B 209.

PART III EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until the roof deck has been properly prepared.
- B. If roof deck preparation is the responsibility of another installer, notify the architect or building owner of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean deck surfaces thoroughly prior to installation of eaves protection membrane and underlayment.
- B. At areas that receive eaves protection membrane, fill knotholes and cracks with latex filler.

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- C. Install crickets on the upslope side of all chimneys in the north, any chimney wider than 24" (610mm), and on all roofs steeper than 6/12.

3.03 INSTALLATION OF UNDERLAYMENTS

A. General:

- 1. Install using methods recommended by GAF, in accordance with local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.

B. Eaves:

- 1. Install eaves edge metal flashing tight with fascia boards; lap joints 2 inches (51mm) and seal with plastic cement or high quality urethane sealant; nail at the top of the flange.
- 2. In the north, and on all roofs between 2/12 and 4/12 (low slopes) install GAF leak barrier up the slope from eaves edge a full 36 inches (914mm) or to at least 24 inches (610 mm) beyond the interior "warm wall". Lap ends 6 inches (152mm) and bond.

C. Valleys:

- 1. Install eaves protection membrane at least 36 (914mm) inches wide and centered on the valley. Lap ends 6 inches (152mm) and seal.
- 2. Where valleys are indicated to be "open valleys", install metal flashing over GAF leak barrier before GAF roof deck protection is installed; DO NOT nail through the flashing. Secure the flashing by nailing at 18 inches (457 mm) on center just beyond edge of flashing so that nail heads hold down the edge.

D. Hips and Ridges:

- 1. Install GAF leak barrier along entire lengths. If ridge vents are to be installed, position the GAF leak barrier so that the ridge slots will not be covered.

E. Roof Deck:

- 1. Install one layer of GAF roof deck protection over the entire area not protected by GAF leak barrier at the eaves or valley. Install sheets horizontally so water sheds and nail in place.
- 2. On roofs sloped at more than 4 in 12, lap horizontal edges at least 2 inches (51mm) and at least 2 inches (51mm) over eaves protection membrane.
- 3. On roofs sloped between 2 in 12 and 4 in 12, lap horizontal edges at least 19 inches (482 mm) and at least 19 inches (482mm) over eaves protection membrane.
- 4. Lap ends at least 4 inches (102 mm). Stagger end laps of each layer at least 36 inches (914 mm).
- 5. Lap GAF roof deck protection over GAF leak barrier in valley at least 6 inches (152mm).

F. Penetrations:

- 1. Vent pipes: Install a 24 inch (610 mm) square piece of eaves protection membrane lapping over roof deck underlayment; seal tightly to pipe.
- 2. Vertical walls: Install eaves protection membrane extending at least 6 inches (152mm) up the wall and 12 inches (305mm) on to the roof surface. Lap the membrane over the roof deck underlayment.
- 3. Skylights and roof hatches: Install eaves protection membrane from under the built-in counterflashing and 12 inches (305mm) on to the roof surface lapping over roof deck underlayment.

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4. Chimneys: Install eaves protection membrane around entire chimney extending at least 6 inches (152mm) up the wall and 12 inches (305mm) on to the roof surface. Lap the membrane over the roof deck underlayment.
5. Rake Edges: Install metal edge flashing over eaves protection membrane and roof deck underlayment; set tight to rake boards; lap joints at least 2 inches (51mm) and seal with plastic cement; secure with nails.

3.04 INSTALLATION OF SHINGLES

A. General:

1. Install in accordance with GAF's instructions and local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
2. Minimize breakage of shingles by avoiding dropping bundles on edge, by separating shingles carefully (not by "breaking" over ridge or bundles), and by taking extra precautions in temperatures below 40 degrees F (4 degrees C).
3. Handle carefully in hot weather to avoid scuffing the surfacing, or damaging the shingle edges.

B. Placement and Nailing:

1. Beginning with the starter strip, trim shingles so that they "nest" within the shingle located beneath it. This procedure will yield a first course that is typically 3" (76mm) to 4" (102mm) rather than a fully exposed shingle.
2. For maximum wind resistance along rakes, install any GAF starter strip containing sealant or cement shingles to underlayment and each other in a 4" (102mm) width of asphalt plastic roof cement.
3. Laterally, offset the new shingles from the existing keyways, to avoid waves or depressions caused by excessive dips in the roofing materials.
4. Using the bottom of the tab on existing shingles, align subsequent courses.
5. *Note: DO NOT install standard sized shingles (5" exposure) over metric (5 5/8" exposure) shingles, as it will overexpose the shingles and reveal the nails. Use standard alignment methods to assure proper shingle placement.
6. Secure with 4, 5, or 6 nails per shingle per GAF's instructions or local codes.
7. Placement of nails varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.
8. Nails must be driven flush with the shingle surface. Do not overdrive or under drive the nails.
9. Shingle offset varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.

C. Valleys

1. Install valleys using the "open valley" method:
 - a. Snap diverging chalk lines on the metal flashing, starting at 3 inches (76mm) each side of top of valley, spreading at 1/8 inch per foot (9mm per meter) to the eaves.
 - b. Run shingles to chalk line.
 - c. Trim last shingle in each course to match the chalk line; do not trim shingles to less than 12 inches (305mm) wide.

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- d Apply a 2 inch (51mm) wide strip of plastic cement under ends of shingles, sealing them to the metal flashing.
- 2. Install valleys using the "closed cut valley" method:
 - a Run the first course of shingles from the higher roof slope across the valley at least 12 inches (305mm).
 - b Run succeeding courses of shingles from the lower roof slope across the valley at least 12 inches (305mm) and nail not closer than 6 inches (152mm) to center of valley.
 - c Run shingles from the upper roof slope into the valley and trim 2 inches (51mm) from the center line.
- D. Penetrations
 - 1. All Penetrations are to be flashed according to GAF, ARMA and NRCA application instructions and construction details.
- E. Skylights and Roof Hatches
 - 1. Consult the manufacturer of the skylight or roof hatch for specific installation recommendations.
 - 2. Skylights and roof hatches shall be installed with pre-fabricated metal flashings specifically designed for the application of the unit.
- 3.05 INSTALLATION OF ATTIC VENTILATION
 - A. General
 - 1. Ventilation must meet or exceed current F.H.A., H.U.D. and local code requirements.
 - B. Ridge / Soffit ventilation
 - 1. Install ridge vent along the entire length of ridges:
 - 2. Cut continuous vent slots through the sheathing, stopping 6 inches (152mm) from each end of the ridge.
 - 3. On roofs without ridge board, make a slot 1 inch (25mm) wide, on either side of the peak (2" (51mm) overall).
 - 4. On roofs with ridge board, make two slots 1-3/4 inches (44.5mm) wide, one on each side of the peak (3 1/2" (89mm) overall).
 - 5. Install ridge vent material along the full length of the ridge, including uncut areas.
 - 6. Butt ends of ridge vent material and join using roofing cement.
 - 7. Install eaves vents in sufficient quantity to equal or exceed the ridge vent area.
- 3.06 PROTECTION
 - A. Protect installed products from foot traffic until completion of the project.
 - B. Any roof areas that are not completed by the end of the workday are to be protected from moisture and contaminants.

END OF SECTION