



GUIDE SPECIFICATIONS

This guide specification is written according to the Construction Specifications Institute (CSI) formats, including MasterFormat, SectionFormat, and PageFormat.

Carefully review and edit this section to meet the requirements of the project and local building code. Coordinate this section with other specification sections and drawings.

GAF offers information relevant to environmental considerations at their "Green Roof Central" website (http://www.gaf.com/Roofing/Commercial/Green_Roof_Central). The "GAF Green Building Playbook: Using GAF Products on LEED® Projects" contains a wealth of information that assists specifiers in understanding the relationship between roofing materials and the LEED® 2009 and Version 4 Rating Systems.

Delete all "Specifier Notes" when done editing this section.

SECTION 07 54 23

THERMOPLASTIC POLYOLEFIN (TPO) ROOFING

PART 1 - GENERAL

1.1 CONDITIONS AND REQUIREMENTS

- B. The General Conditions, Supplementary Conditions, and Division 01 – General Requirements apply.

1.2 SECTION INCLUDES

Specifier Note: Retain one of the options below after editing the rest of the section.

- B. [Mechanically attached] [Full adhered] [Ballasted] thermoplastic polyolefin (TPO) roofing.

1.3 RELATED REQUIREMENTS

Specifier Note: In this article, specify work specified in other sections that is related to work of this section.

- B. Section 06 10 00 - Rough Carpentry: Wood nailers, curbs, and blocking.

Specifier Note: Delete the following paragraph if the project does not have wood decking.

- C. Section 06 16 00 - Sheathing: Wood roof deck panels.
- D. Section 07 62 00 - Sheet Metal Flashing and Trim: Roof flashings and counterflashings.
- E. Section 07 71 29 - Manufactured Roof Expansion Joints: Roof expansion-joint assemblies incorporated into roofing assembly.
- F. Section 07 92 00 - Joint Sealants.
- G. Section 22 14 23 - Storm Drainage Piping Specialties: Roof drains incorporated into roofing assembly.

Specifier Note: Retain either or both of the following paragraphs if the project has roof mounted solar energy equipment for heating water and/or supplying power.



GUIDE SPECIFICATIONS

- H. Section 23 56 00 - Solar Energy Heating Equipment: Roof mounted equipment supports.
- I. Section 48 14 13 - Solar Energy Collectors: Roof mounted equipment supports.

Specifier Note: The following paragraph is a sample that may be used in this article. Add to or delete from the following as appropriate for the specific project.

- J. Section [xx xx xx] – [Section Title]: [Include brief description of work specified in another section that is related to the work of this section.]

1.4 REFERENCES

Specifier Note: In this article, list references specific to this section.

- B. American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI):
 - 1. ASCE/SEI 7-10 - Minimum Design Loads for Buildings and Other Structures.
- C. California Air Resources Board (CARB):
 - 1. Suggested Control Measure (SCM) for Architectural Coatings, 2007.
- D. California Department of Public Health (CDPH):
 - 1. CDPH Standard Method V1.1-2010.
- E. Factory Mutual (FM Global):
 - 1. FM Global Standard 4470 - Approval Standard for Class 1 Roof Covers.
- F. NSF International/ANSI:
 - 1. NSF/ANSI 347 - Sustainability Assessment for Single Ply Roofing Membranes.
- G. South Coast Air Quality Management District (SCAQMD):
 - 1. SCAQMD Rule 1168 - Adhesive and Sealant Applications, effective July 1, 2005.
- H. U.S. Green Building Council (USGBC):

Specifier Note: Retain one of the following two subparagraphs depending on which version of the LEED® Rating System the project is using.

- 1. Leadership in Energy and Environmental Design (LEED®) for Building Design and Construction (BD+C), 2009 Edition.
- 2. Leadership in Energy and Environmental Design (LEED®) Version 4 for Building Design and Construction (BD+C).

1.5 DEFINITIONS

Specifier Note: In this article, define terms that are unique to this section.

- B. 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 used in this section.

Specifier Note: Retain the following paragraph if project is seeking certification under the LEED® Building Design and Construction (BD+C) 2009 Rating System.



GUIDE SPECIFICATIONS

- C. LEED Terminology Related to Roofing: Refer to LEED® Reference Guide for Green Building Design and Construction (BD+C), 2009 Edition for definitions related to roofing.

Specifier Note: Retain the following paragraph if project is seeking certification under the LEED® Version 4 BD+C Rating System. Refer to Page 673 of the LEED® Version 4 Building Design and Construction Reference Guide for an illustration of a typical TPO Roof Assembly that delineates the dividing line between building interior and exterior as defined by the LEED® Rating System.

- D. LEED® Terminology Related to Roofing: Refer to LEED® Version 4 for Building Design and Construction (BD+C) Rating System EQ Credit 2 for Low-Emitting Materials for definitions of building interior and building exterior.

1.6 SUBMITTALS

Specifier Note: In this article, specify various types of data to be furnished by the contractor before, during, or after construction. Topics included in this article are: product data, shop drawings, samples, design data, test reports, certificates, manufacturers' instructions, manufacturers' field reports, qualification statements, and closeout submittals.

- B. Submit under provisions of Section [01 33 00] [_____].
- C. Product Data: [Insert description of data required.]

Specifier Note: Retain the following paragraph if project is attempting LEED® 2009 certification. Coordinate submittals required with credits being attempted. Delete submittals for credits not being attempted.

- D. LEED® Submittals:
1. Credit SS 7.2: For roof materials, submit product data demonstrating that roof materials comply with Solar Reflectance Index requirement.
 2. Credit MR 4: For roof materials having recycled content, submit product data indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each roof material having recycled content.
 3. Credit EQ 4.1: For adhesives and sealants used inside the weatherproofing system, submit product data including printed statement of VOC content.

Specifier Note: Retain the following paragraph if project is attempting LEED® v4 certification. Coordinate submittals required with credits being attempted. Delete submittals for credits not being attempted.

- E. LEED® Submittals:
1. SS Credit 5, Option 1: For roof materials, submit product data demonstrating that roof materials comply with Solar Reflectance Index requirement.
 2. SS Credit 5, Option 2: For roof materials, submit product data demonstrating that roof materials comply with Solar Reflectance Index requirement.

Specifier Note: The following credit requires projects to have a Whole-Building Life-Cycle Assessment (LCA) prepared comparing a reference building to the design building. GAF manufac-



tures TPO roofing membranes that have “Product-Specific Type III EPDs” that can contribute to achieving this credit.

3. MR Credit 1, Option 4: For roofing membrane, submit manufacturer’s Environmental Product Declaration (EPD) demonstrating compliance toward credit requirements.
4. MR Credit 2, Option 1: For roofing membrane, submit manufacturer’s Environmental Product Declaration (EPD) demonstrating compliance with credit requirements.
5. MR Credit 3, Option 2: For roof materials, submit documentation demonstrating compliance with credit requirements for recycled content.
6. MR Credit 4, Option 1: For roofing membrane and insulation, submit manufacturer’s Health Product Declaration (HPD) demonstrating compliance with credit requirements.

F. Sustainability Standards Certifications:

1. Submit [two (2)] [Insert number] copies of manufacturer’s Certificate demonstrating compliance with NSF/ANSI 347.

G. Samples: Submit [three (3)] [Insert number] with required color and finish. Show standard color ranges available.

1.7 QUALITY ASSURANCE

Specifier Note: In this article, describe qualifications, regulatory requirements, certifications, field samples, mock-ups, and pre-installation meetings.

- B. Manufacturer Qualifications: Firms regularly engaged in manufacture of thermoplastic polyolefin (TPO) roofing of the types required, whose products have been in satisfactory use in similar service for not less than [10] [Insert number] years. Provide thermoplastic polyolefin (TPO) roofing produced by a manufacturer listed in this section.
- C. Source Limitations: Obtain each type of thermoplastic polyolefin (TPO) roofing membrane through one (1) source from a single manufacturer.
- D. Sustainability Standards Certifications: Comply with requirements of [NSF/ANSI 347] [Insert title of applicable sustainability standards].

1.8 DELIVERY, STORAGE AND HANDLING

- B. Deliver roofing materials to project site in original containers with seals intact and manufacturer’s name, product brand name and type, date of manufacture, approval or listing agency markings clearly indicated. Include instructions for storing and mixing with other components on labels.
- C. Store and handle roofing materials in strict compliance with manufacturer’s written instructions and recommendations.
- D. Protect from damage due to weather, excessive temperature, and construction operations.

1.9 AMBIENT CONDITIONS



GUIDE SPECIFICATIONS

- B. Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.10 WARRANTY

- A. **Manufacturer Warranty:** Provide manufacturer's standard WeatherStopper® Diamond Pledge™ Guarantee with single source coverage and no monetary limitation where the manufacturer agrees to repair or replace components in the roofing system, which cause a leak due to a failure in materials or workmanship.

Specifier Note: Retain those options in subparagraph below that are used on a specific project. Verify availability of manufacturer's total-system warranty and components included.

1. Warranty includes roofing, base flashings, [roof insulation,] [fasteners,] [cover boards,] [substrate board,] [roofing accessories,] [roof pavers,] and other components of roofing system.

Specifier Note: Retain one of the warranty period options in the subparagraph below after verifying availability with manufacturer. 35-year warranty period applies to EverGuard Extreme TPO only.

2. Warranty Period: [Five (5)] [10] [15] [20] [25] [30] [35] years from date of Substantial Completion.

Specifier Note: Retain the following paragraph if specifying an EverGuard® Diamond Pledge™ Warranty on the project.

- B. **Single Source Warranty:** Provide manufacturer's EverGuard® Diamond Pledge™ single source coverage guarantee without monetary limitation, where the manufacturer agrees to repair or replace components in the roofing system, which cause a leak due to a failure in materials or workmanship.

Specifier Note: Retain those options in subparagraph below that are used on a specific project. Verify availability of manufacturer's total-system warranty and components included.

1. Warranty includes roofing, base flashings, [roof insulation,] [fasteners,] [cover boards,] [substrate board,] [roofing accessories,] [roof pavers,] and other components of roofing system.

Specifier Note: Retain one of the warranty period options in the subparagraph below after verifying availability with manufacturer.

2. Warranty Period: [Five (5)] [10] [15] [20] [25] [30] years from date of Substantial Completion.

Specifier Note: Retain the following paragraph if specifying an EverGuard® Diamond Pledge™ Warranty a WellRoof® Guarantee Extension on the project.

- C. **Extended Warranty:** Manufacturer also guarantees to the original or first subsequent owner to extend coverage by 25 percent of the original guarantee length, maximum 35 years, provided that the roof is inspected and maintained in accordance with the manufacturer's maintenance specifications.



GUIDE SPECIFICATIONS

Specifier Note: Retain the following paragraph if specifying a WeatherStopper® System Pledge Guarantee on the project.

- D. Single Source Limited Warranty: Provide manufacturer's standard Weather Stopper® System Pledge Guarantee with single source coverage and a monetary limitation of one (1) dollar per sq ft where the manufacturer agrees to repair or replace components in the roof system, which cause a leak due to failure in materials or workmanship.

Specifier Note: Retain those options in subparagraph below that are used on a specific project. Verify availability of manufacturer's total-system warranty and components included.

1. Warranty includes roofing, base flashings, [roof insulation,] [fasteners,] [cover boards,] [substrate board,] [roofing accessories,] [roof pavers,] and other components of roofing system.

Specifier Note: Retain one of the warranty period options in the subparagraph below after verifying availability with manufacturer. 35-year warranty period applies to EverGuard Extreme® TPO only.

2. Warranty Period: [Five (5)] [10] [15] [20] [25] [30] [35] years from date of Substantial Completion.

Specifier Note: Retain the following paragraph if specifying a Weather Stopper® Integrated Roofing System Pledge Guarantee on the project.

- E. Integrated System Warranty: Provide manufacturer's standard Weather Stopper® Integrated Roofing System Guarantee where the manufacturer agrees to repair or replace the portion of the roofing materials which have resulted in a leak due to a manufacturing defect or defects caused by ordinary wear and tear.

Specifier Note: Retain one of the warranty period options in the subparagraph below after verifying availability with manufacturer. 35-year warranty period applies to EverGuard Extreme® TPO only.

1. Warranty Period: [Five (5)] [10] [15] [20] [25] [30] [35] years from date of Substantial Completion.

- F. Reflectivity Limited Warranty: Provide manufacturer's TPO reflectivity limited warranty to the original building owner, that the TPO white roof membrane will meet or exceed the initial and "aged" ENERGY STAR reflectivity requirements for low slope roofing membranes (65 percent initial, 50 percent aged) when installed and maintained in accordance with the manufacturer's requirements. The aged reflectivity shall meet or exceed these requirements when measured after cleaning the membrane in accordance with manufacturer's recommendations.

Specifier Note: Retain the following paragraph if specifying a 60-, 70- or 80-mil membrane.

- G. Puncture Resistance Limited Warranty: Provide manufacturer's TPO puncture resistance limited warranty to the original building owner, that the TPO roof membrane will provide puncture and tear resistance when installed and maintained in accordance with manufacturer's requirements.



GUIDE SPECIFICATIONS

- H. Prorated Material Warranty: Repair or replace a portion of the roofing materials that have resulted in a leak due to a manufacturing defect or defects caused by ordinary wear and tear.

Specifier Note: Consult with manufacturer regarding available warranty lengths and insert in brackets in the following subparagraph.

1. Warranty Period: [Insert number] years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- B. Basis-of-Design Product: EverGuard® TPO Single-Ply Roofing System manufactured by GAF, Commercial Roofing Products, 1361 Alps Rd, Wayne, NJ 07470; Telephone: 800-ROOF-411; Fax: 973-628-3451; Website: www.gaf.com.
- C. Substitutions will be considered under provisions of Section 01 25 00.

Specifier Note: Retain the following paragraph if required to comply with FM Global, UL, or a local building code, or to comply with provisions of manufacturer's special warranty. Consult manufacturer for requirements.

- D. Source Limitations: Obtain components including [roof insulation] [fasteners] [Insert products] for roofing system from [same manufacturer as membrane roofing] [or] [manufacturer approved by membrane roofing manufacturer].

2.2 PERFORMANCE REQUIREMENTS

- B. General: Provide roofing and base flashings that withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and base flashings shall remain watertight.
1. Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
 2. Roofing system shall resist impact damage when tested according to ASTM D3746 or ASTM D4272.
- C. Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by testing and field experience.
- D. Design roofing system to withstand uplift pressure according to ASCE/SEI 7. Resist the following uplift pressures:
1. Corner Uplift Pressure: [Insert number] lbf/sq ft.
 2. Perimeter Uplift Pressure: [Insert number] lbf/sq ft.
 3. Field-of-Roof Uplift Pressure: [Insert number] lbf/sq ft.
- E. FM Global Listing: Roofing, base flashings, and component materials shall comply with requirements in FM Global 4450 or FM Global 4470 as part of a built-up roofing system, and shall be listed in FM Global's "RoofNav" for Class 1 or noncombustible construction, as applicable. Imprint materials with FM Global markings.

2.3 SUSTAINABILITY CHARACTERISTICS

Project Name
Project Location

Project No.
07 54 23-7

Date
Thermoplastic Polyolefin (TPO) Roofing



GUIDE SPECIFICATIONS

Specifier Note: Retain the following paragraph if project is seeking LEED® 2009 Credit SS 7.2. Requirement is minimum applicable for roofs with slopes of 2:12 or less.

- B. Solar Reflectance Index: Not less than 78 when calculated in accordance with ASTM E1980, based on testing identical products by a qualified testing agency.

Specifier Note: Retain the following paragraph if project is seeking LEED® v4 Credit SS 5, Option 1. Requirement is minimum applicable for roofs with slopes of 2:12 or less.

- C. Solar Reflectance Index: Not less than 64 three-year aged if available or 82 initial when calculated in accordance with ASTM E1980, based on testing identical products by a qualified testing agency.

Specifier Note: Retain the following paragraph if project is seeking LEED® v4 Credit SS 5, Option 2. Requirement is minimum applicable for all roof slopes.

- D. Solar Reflectance Index: Not less than 32 three-year aged if available or 39 initial when calculated in accordance with ASTM E1980, based on testing identical products by a qualified testing agency.

Specifier Note: Retain the two following paragraphs if project is seeking LEED® v4 MR Credits.

- E. Environmental Product Declaration (EPD): Roofing membrane shall have a published and current Product-Specific Type III EPD, certified by an independent third-party agency.
- F. Health Product Declaration (HPD): Roofing membrane and insulation shall have published and current HPDs, issued by the HPD Collaborative.

2.4 TPO ROOFING

- B. Basis-of-Design Products: Subject to compliance with requirements, provide GAF EverGuard® TPO Thermoplastic Polyolefin Membrane and associated products.

Specifier Note: In the following paragraph, retain only the membrane type that is required on a project and delete the others.

- C. TPO Membrane: [EverGuard® TPO (Smooth)] [EverGuard® TPO Fleece-Back (FB)] [EverGuard Extreme® TPO (Smooth)] [EverGuard Extreme® TPO Fleece-Back (FB)] thermoplastic polyolefin membrane.
 1. Thickness: [Insert value], nominal.
 2. Exposed Face Color: [Gray] [Tan] [White] [Insert color].

2.5 AUXILIARY ROOFING MATERIALS

- B. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

Specifier Note: Retain the following subparagraph if project is seeking LEED® 2009 Credit EQ 4.1.

2. Adhesives and sealants that are used on the interior side of weather barrier shall comply with the following limits for VOC content:



GUIDE SPECIFICATIONS

- a. Plastic Foam Adhesives: 50 g/L.
- b. Gypsum Board and Panel Adhesives: 50 g/L.
- c. Multipurpose Construction Adhesives: 70 g/L.
- d. Fiberglass Adhesives: 80 g/L.
- e. Single-Ply Roof Membrane Adhesives: 250 g/L.
- f. Single-Ply Roof Membrane Sealants: 450 g/L.
- g. Non-membrane Roof Sealants: 300 g/L.
- h. Sealant Primers for Nonporous Substrates: 250 g/L.
- i. Sealant Primers for Porous Substrates: 775 g/L.
- j. Other Adhesives and Sealants: 250 g/L.

Specifier Note: LEED® v4 Credit EQ 2 requires the use of compliant adhesives and sealants applied on site on the interior side of the waterproofing membrane. Since the sealants and adhesives used in the TPO roof assembly are typically on the exterior side of the waterproofing membrane, the following subparagraph should be deleted. Retain the following subparagraph only if adhesives and sealants will be used on the interior side of the waterproofing membrane.

3. Adhesives and sealants wet-applied on site on the interior side of the waterproofing membrane must meet the applicable chemical content and testing requirements of CDPH Standard Method V1.1 and SCAQMD Rule 1168, as analyzed by the methods specified in Rule 1168.

Specifier Note: Substitute EverGuard® TPO Membrane in the same thickness as the field membrane for flashing in the following paragraph if desired. EverGuard® TPO FB membrane may also be used as optional flashing membranes for all TPO roof systems.

- C. Sheet Flashing: EverGuard® Membrane Flashing; of the same type and thickness of material as roofing membrane, in same color as TPO membrane sheet.
- D. Flashing Accessories: EverGuard® TPO pre-formed flashing accessories; of the same type and thickness of material as roofing membrane.

Specifier Note: In the following paragraph retain the adhesive as appropriate for the specific project. Select the second adhesive for projects seeking LEED® certification or where release of odors would be undesirable.

- E. Solvent-Based Bonding Adhesive: [EverGuard® TPO Bonding Adhesive for smooth membranes and insulation] [EverGuard® TPO Low VOC Bonding Adhesive for smooth membranes].
- F. Water-Based Bonding Adhesive: EverGuard® WB 181 Water-Based Bonding Adhesive; for use with smooth TPO, TPO fleece-back and PVC fleece-back membranes only.
- G. Low Rise Foam (LRF) Adhesives:
 1. LRF-M Type for membrane and insulation.
 2. LRF-O Type for membrane only.
 3. OlyBond® for insulation only.
 4. GAF 2-Part Roofing Adhesive for membrane and insulation.
- H. Sealants:



GUIDE SPECIFICATIONS

1. EverGuard® Two-Part, urethane-based and EverGuard® One-Part Pourable Sealants for use in pitch pans.
2. TOPCOAT® Flexseal™ Caulk Grade Sealant; white, solvent-based synthetic elastomeric sealant for use behind termination bars, stainless steel clamps, drain bowls, and other areas between the substrate and membrane.
3. EverGuard® TPO Cut Edge Sealant.

I. Primers:

1. EverGuard® TPO Primer
2. EverGuard® Low-VOC TPO Primer.

J. Cleaners:

1. EverGuard® CleanWeld™ Conditioner; low-VOC cleaner.
2. EverGuard® TPO Seam Cleaner.

K. Slip Sheet: Manufacturer's standard, of thickness required for application.

L. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8-inch thick; with anchors.

M. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately one (1) inch wide by 0.05-inch thick, prepunched.

N. Fasteners:

1. DRILL-TEC™ membrane fasteners and plates, insulation fasteners and plates, and flashing fasteners and termination bars as appropriate for the deck type encountered.
2. Fasteners used in flashings will be determined by the substrate encountered.

O. Miscellaneous Accessories:

2.6 SUBSTRATE BOARDS

Specifier Note: Retain one (1) of the following four (4) paragraphs and delete the others. Confirm suitability of each board for use in the manufacturer's roofing system assembly.

- B. Substrate Board: ASTM C1396, Type X gypsum board, 5/8-inch thick.
- C. Substrate Board: ASTM C1177, glass-mat, water-resistant gypsum substrate, [1/4-inch] [1/2-inch] [Type X, 5/8-inch] thick.
- D. Substrate Board: ASTM C1278, cellulosic-fiber-reinforced, water-resistant gypsum substrate, [1/4-inch] [3/8-inch] [1/2-inch] [5/8-inch] thick.
- E. Substrate Board: ASTM C728, perlite board, [3/4-inch] [one (1) inch] thick, seal coated.
- F. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening substrate board to roof deck.

2.7 VAPOR RETARDER



GUIDE SPECIFICATIONS

- B. Polyethylene Film: ASTM D4397, six (6) mils thick, minimum, with maximum permeance rating of 0.13 perm.
- C. Laminated Sheet: Polyethylene laminate, two (2) layers, reinforced with cord grid, with maximum permeance rating of 0.06 perm.
- D. Self-Adhering-Sheet Vapor Retarder: ASTM D1970, polyethylene film laminated to layer of rubberized asphalt adhesive, minimum 40-mil total thickness; maximum permeance rating of 0.1 perm; cold applied, with slip-resisting surface and release paper backing. Provide primer when recommended by vapor-retarder manufacturer.
- E. Self-Adhering-Sheet Vapor Retarder: Polyethylene film laminated to layer of butyl rubber adhesive, minimum 30-mil total thickness; maximum permeance rating of 0.1 perm; cold applied, with slip-resisting surface and release paper backing. Provide primer when recommended by vapor-retarder manufacturer.
- F. Glass-Fiber Felts: ASTM D 2178, Type IV, asphalt impregnated.

2.8 INSULATION

Specifier Note: Retain the option in the first sentence of the following paragraph if the manufacturer permits the use of insulation manufactured by others. Retain the second option in the following paragraph if the project will be insured by FM Global.

- B. General: Preformed roof insulation boards manufactured [or approved] by TPO roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated [and that produce FM Global-approved roof insulation].

Specifier Note: Retain one of the following five insulation types and delete the others. Confirm acceptability of retained insulation with roofing system manufacturer.

- C. Extruded-Polystyrene Board Insulation: EnergyGuard™ EXP Insulation; ASTM C578, Type II, 1.5-lb/cu ft minimum density and minimum 15 psi compressive strength.
- D. Expanded-Polystyrene Board Insulation: EnergyGuard™ EXP Insulation with plastic facer; ASTM C578, Type II, 1.5-lb/cu ft minimum density and minimum 15 psi compressive strength.
- E. Polyisocyanurate Board Insulation: EnergyGuard™ Polyisocyanurate Roof Insulation; ASTM C1289, Type II, Class 1, Grade 2, glass-fiber mat facer on both major surfaces.

Specifier Note: Retain the following subparagraph if attempting certification under the LEED® 2009 Rating System.

- 1. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than [Insert number] percent.
- F. Perlite Board Insulation: EnergyGuard™ Perlite Roof Insulation; ASTM C728, rigid, mineral-aggregate thermal insulation board composed of expanded perlite, cellulosic fibers, binders, and waterproofing agents with top surface seal coated.
- G. Cellulosic-Fiber Board Insulation: Blue Ridge Structodek® High Density Fiberboard Roof Insulation; ASTM C208, Type II, Grade 2, fibrous-felted, rigid insulation boards consisting of wood fiber or other cellulosic-fiber and water-resistant binders, asphalt impregnated, chemically treated for deterioration.



GUIDE SPECIFICATIONS

- H. Tapered Insulation: EnergyGuard™ Tapered Composite Board Insulation; provide factory-tapered insulation boards fabricated to slope of roof indicated on Drawings or a minimum of 1/4-inch per 12 inches if not indicated.
- I. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.9 INSULATION ACCESSORIES

- B. General: Provide roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with roofing.
- C. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roof insulation [and cover boards] to substrate, and acceptable to roofing system manufacturer.

Specifier Note: Retain one of the five following cover boards. Consult with manufacturer for appropriate board to use in specific roofing system.

- D. Cover Board: ASTM C1289, Type 2, Class 4, Grade 1; EnergyGuard™ HD polyisocyanurate insulation with glass-based facers; minimum 80 psi compressive strength.
- E. Cover Board: ASTM C1289, Type 2, Class 4, Grade 2; EnergyGuard™ HD Plus polyisocyanurate insulation with glass-based facers; minimum 110 psi compressive strength.
- F. Cover Board: ASTM C208, Class E; Blue Ridge Structodek® High Density Fiberboard; Type II, Grade 2, cellulosic-fiber insulation board, 1/2-inch thick.

Specifier Note: Retain one of the three options in the following paragraph. Retain one thickness as appropriate for the roof assembly. Retain the "factory primed" option if retaining "Dens Deck Prime."

- G. Cover Board: ASTM C1177; Georgia-Pacific [Dens Deck] [Dens Deck Prime] [Dens Deck DuraGuard] glass-mat, water-resistant gypsum substrate, [1/4-inch] [1/2-inch] [5/8-inch] thick[, factory primed].

Specifier Note: Retain one thickness in the following paragraph as appropriate for the roof assembly.

- H. Cover Board: ASTM C1278; USG Securock® Gypsum-Fiber Roof Board, cellulosic-fiber-reinforced, water-resistant gypsum substrate, [1/4-inch] [1/2-inch] [5/8-inch] thick.

Specifier Note: Retain the following subparagraph if attempting certification under the LEED® 2009 Rating System.

- 1. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than [Insert number] percent.

2.10 PROTECTION LAYER

Specifier Note: Retain one of the following four slip sheets and delete the others.

- B. Slip Sheet:



GUIDE SPECIFICATIONS

1. EverGuard™ Polymat Slip Sheet; three (3) oz/sq yd.
2. EverGuard™ Polymat Cushioning Slip Sheet; six (6) oz/sq yd
3. VersaShield® Solo™ for mechanically attached, fully adhered, and ballasted portions of the roof.
4. StormSafe™ Anchor Sheet.

2.11 OTHER ACCESSORIES

- B. Wood Nailers: No. 2 or better lumber in accordance with Section 06 10 00. Do not use asphaltic or creosote-treated lumber.
- C. Roofing Nails: Galvanized or non-ferrous type and size as required to suit application.
- D. Temporary Sealant: Polyurethane foam sealant or similar as required to provide temporary watertight sealing of roofing.

2.12 BALLAST

Specifier Note: Select one of the options in the following paragraph based upon availability of material in the area of the project's location.

- B. Stone Ballast: [Smooth faced stone] [Crushed stone] that withstands weather exposure without significant deterioration and does not contribute to membrane degradation.
- C. Interlocking Roof Pavers: Interlocking, lightweight concrete units; grooved back, with four-way drainage capability; beveled, doweled, or otherwise profiled.
- D. Non-Interlocking Roof Pavers: Heavyweight, hydraulically pressed concrete units, square edged, factory cast for use as roof pavers; absorption not greater than five (5) percent, ASTM C140; no breakage and maximum 1 percent mass loss when tested for freeze-thaw resistance.

2.13 WALKWAYS

- B. Flexible Walkway Rolls: EverGuard® TPO Walkway Roll; designed to be heat-welded to top of roofing membrane; [gray color] [safety yellow color with diamond tread pattern]; 50 ft rolls.

PART 3 - EXECUTION

3.1 EXAMINATION

- B. Examine conditions under which roofing system components are to be installed. Notify the [Architect/Engineer] [Construction Manager] in writing of conditions detrimental to proper completion of the work.
- C. Verify that openings and penetrations in roof are in place, curbs are set and braced, and roof-drains are set securely in place.
- D. Verify that blocking, curbs, and nailers are anchored securely to deck at penetrations and terminations and that thickness of nailers matches the insulation.

Specifier Note: Retain the following paragraph if the roof deck is steel.

- E. Steel Roof Deck: Verify that surface plane flatness and fastening of roof deck meets the requirements of Section [05 31 00] [Insert section number].



Specifier Note: Retain the following paragraph and subparagraph if the roof deck is concrete.

F. Concrete Roof Deck:

1. Verify that the roofing system manufacturer's recommended minimum drying time for concrete has passed.
2. Verify that concrete deck is visibly dry and free of moisture. Test for capillary moisture using method recommended by roofing system manufacturer.
3. Verify that removal of concrete-curing compounds that will impair adhesion of roofing components to roof deck is complete.

G. Do not proceed with work until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- B. Clean dust, debris, moisture, and other substances detrimental to roofing installation from the roof deck in accordance with the roofing system manufacturer's written instructions. Remove sharp projections.
- C. Keep roof drains and conductors free of materials that could cause clogging or that cause spilling or migrating onto surfaces of other construction. When no work is taking place or when rain is forecast, remove roof-drain plugs.

3.3 ROOFING INSTALLATION, GENERAL

- B. Install roofing system in accordance with roofing system manufacturer's written instructions.
- C. Complete terminations and base flashings. Provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.4 SUBSTRATE BOARD INSTALLATION

- B. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.

3.5 VAPOR-RETARDER INSTALLATION

Specifier Note: Retain one of the following four vapor retarders and delete the others.

- B. Install polyethylene film vapor retarder over area to receive vapor retarder, lap sides and ends of each sheet a minimum of two (2) inches and six (6) inches, respectively. Seal side and end laps continuously with [tape] [adhesive].
- C. Install laminate-sheet vapor retarder over area to receive vapor retarder, lap sides and ends of each sheet a minimum of two (2) inches and six (6) inches, respectively. Seal side and end laps with tape.
- D. If required by manufacturer, prime substrate. Install self-adhering-sheet vapor retarder over area to receive vapor retarder, lap sides and ends of each sheet a minimum of 3-1/2 inches and six (6) inches, respectively. Seal laps by rolling.



GUIDE SPECIFICATIONS

- E. Install built-up vapor retarder by lapping two (2) glass-fiber felt plies 19 inches over preceding felt. Embed each felt in a solid mopping of hot roofing asphalt. Apply glaze coat of hot roofing asphalt over completed surface.
- F. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system.

3.6 INSULATION INSTALLATION

- B. Schedule installation of roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- C. Install roof insulation in compliance with roofing system and insulation manufacturer's written instructions.

Specifier Note: Retain the following paragraph if tapered insulation is required on the project.

- D. Install tapered insulation under area of roofing to provide slopes indicated on Drawings.
- E. Install insulation under roofing to achieve required thickness. Where overall insulation thickness is greater than [2.7] [Insert number] inches, install two (2) or more layers and stagger joints of each succeeding layer from joints of previous layer a minimum of six (6) inches in each direction.

Specifier Note: Retain the following subparagraph if a composite top layer is required over one or more layers of non-composite molded-polystyrene or polyisocyanurate board insulation.

- 1. Where composite and non-composite insulation are installed in two (2) or more layers, use non-composite board insulation for bottom layer and intermediate layers, if applicable, and composite board insulation for top layer.
- F. Where necessary, trim surface of insulation at roof drains so completed surface is flush and does not restrict flow of water.
- G. Install insulation such that long joints are laid out in a continuous straight line with staggered end joints between rows, abutting edges and ends between boards. Fill gaps that exceed 1/4-inch with insulation.

Specifier Note: Retain the following article if installing the roofing system using the adhered method.

3.7 ADHERED ROOFING INSTALLATION

- B. Install roofing over entire area to receive roofing in accordance with roofing manufacturer's written instructions. Unroll roofing and allow to relax before installing.
- C. Align roofing accurately. Maintain uniform minimum three (3) inch side and end laps.

Specifier Note: Retain the following paragraph if using a bonding adhesive to adhere a smooth reinforced roofing membrane to the substrate. Delete if not using a smooth reinforced membrane.

- D. Apply bonding adhesive to substrate and underside of roofing at rate specified by manufacturer. Allow to partially dry before installing roofing. Do not apply to splice area of roofing.



GUIDE SPECIFICATIONS

Specifier Note: Retain the following paragraph if using a fleece-back membrane and adhering it to substrate using a low rise foam adhesive.

- E. Apply low rise foam adhesive in ribbons spaced 12 inches o.c. maximum in the roof field and six (6) inches o.c. maximum at the perimeter and corners to install fleece-back membranes at manufacturer's prescribed bead spacing. Do not apply to wet or damp substrates.
- F. In addition to adhering, mechanically secure roof membrane at perimeter, base of internal walls and curbs, and at all penetrations at 12-inch o.c. maximum spacing. Fasten membrane at penetrations with a minimum of four (4) fasteners.
- G. Clean area of seams, overlap roofing, and hot-air weld side and end laps of roofing and sheet flashings in accordance with manufacturer's written instructions, to ensure a watertight seam installation.
 - 1. Verify seam weld continuity by testing as recommended by manufacturer. Seal cut edges with edge sealant.
 - 2. Verify field strength of seams a minimum of twice daily. Repair seam test areas.
 - 3. Repair tears, voids, and lapped seams in roofing that do not comply with requirements.
- H. Spread a bed of sealant over roof drain flanges and securely seal roofing in place using clamping ring.

Specifier Note: Retain the following article if installing the roofing system using the mechanically fastened method.

3.8 MECHANICALLY FASTENED ROOFING INSTALLATION

- B. Install roofing over entire area to receive roofing in accordance with roofing manufacturer's written instructions. Unroll roofing and allow to relax before installing.
- C. Place roof membrane so that wrinkles and buckles are not formed. Smooth sheets to remove any wrinkles or buckles from prior to permanent securement. Install full-width rolls in the field of the roof. Install half-width rolls in the perimeter area of the roof.
 - 1. Install roof membrane so that laps run across roof slope toward drainage points.
- D. Overlap roof membrane a minimum of six (6) inches for side laps and a minimum of three (3) inches for end laps.

Specifier Note: Retain the first subparagraph below if using a fleece-back membrane on the project.

- 1. Make end laps for fleece-back membranes by butting adjacent sheets and heat welding an eight (8) inch wide reinforced membrane flashing strip over joints.
 - 2. Round exposed sheet corners a minimum of one (1) inch.
- E. Mechanically fasten roof membrane in the side lap area to the roof deck with fasteners and plates of a type and spacing appropriate to the deck type and as recommended by the membrane manufacturer.
 - 1. Mechanically fasten roof membrane with screws and plates to roof deck at locations where roof deck slope changes in excess of one (1) inch in 12 inches.



GUIDE SPECIFICATIONS

2. Heat-weld roof membrane to coated metal flanges of flashing and curbs.
- F. Prepare roof membrane surface for seaming by cleaning off dirt and contaminants and removing any dew, rain, or other sources of moisture in accordance with manufacturer's instructions.
- G. Field Seaming: Fabricate field seams using a current-generation automatic hot-air welding machine and a 10,000-watt voltage-controlled generator minimum.
 1. Fabricate detail seams using automated hot-air welders where possible.
 2. Heat-weld membrane laps together. Make welds continuous, without voids or partial welds. Insure that welds are free of burns and scorch marks.
 3. Make weld width a minimum of one (1) inch and a maximum of 1-1/2 inches.
 4. Seal cut edges of reinforced membranes with cut edge sealant.
 5. Use probe to verify seam weld continuity of lap edges.

Specifier Note: Insert a different number if manufacturer recommends a different number of field strength tests.

6. Verify field strength of seams a minimum of [twice] [Insert number] daily, and repair seam sample areas.
7. Repair seams found not to be in compliance with requirements.

Specifier Note: Retain the following article if installing the roofing system using the ballasted method.

3.9 BALLASTED ROOFING INSTALLATION

- B. Install roofing over entire area to receive roofing in accordance with roofing manufacturer's written instructions. Unroll roofing and allow to relax before installing.
- C. Place roof membrane so that wrinkles and buckles are not formed. Smooth sheets to remove any wrinkles or buckles from prior to permanent securement. Install full-width rolls in the field and perimeter areas of the roof.
 1. Install roof membrane so that laps run across roof slope toward drainage points.
- D. Overlap roof membrane a minimum of three (3) inches for side and end laps of ballasted systems that utilize smooth reinforced membranes.

Specifier Note: Retain the first subparagraph below if using a fleece-back membrane on the project.

1. Make end laps for fleece-back membranes by butting adjacent sheets and heat welding an eight (8) inch wide reinforced membrane flashing strip over joints.
2. Round exposed sheet corners a minimum of one (1) inch.
- E. Mechanically fasten roof membrane at perimeter, at base of internal walls and curbs, and at all penetrations using fasteners and plates of a type and spacing appropriate to the deck type and as recommended by the membrane manufacturer.
- F. Prepare roof membrane surface for seaming by cleaning off dirt and contaminants and removing any dew, rain, or other sources of moisture in accordance with manufacturer's instructions.



GUIDE SPECIFICATIONS

- G. Field Seaming: Fabricate field seams using a current-generation automatic hot-air welding machine and a 10,000-watt voltage-controlled generator minimum.
1. Fabricate detail seams using automated hot-air welders where possible.
 2. Heat-weld membrane laps together. Make welds continuous, without voids or partial welds. Insure that welds are free of burns and scorch marks.
 3. Make weld width a minimum of one (1) inch and a maximum of 1-1/2 inches.
 4. Seal cut edges of reinforced membranes with cut edge sealant.
 5. Keep seam areas clear of ballast until seams have been tested for continuity.
 6. Use probe to verify seam weld continuity of lap edges.

Specifier Note: Insert a different number if manufacturer recommends a different number of field strength tests.

7. Verify field strength of seams a minimum of [twice] [Insert number] daily, and repair seam sample areas.
8. Repair seams found not to be in compliance with requirements.

Specifier Note: Select one of the options in the first paragraph below and delete the others. Retain the first option beneath stone ballast or where pavers have a smooth and regular underside and integral drainage channels. Retain the second option beneath pavers that are used as walkways, work surfaces, or as heavyweight perimeter ballast. Insert another weight where manufacturer recommends a different separation mat.

- H. Separation Mat: Install a [three (3) oz/sq yd] [six oz/sq yd] [Insert number] separation slip sheet over roofing membrane and under [stone ballast] [pavers].
1. Loose lay separation mat over membrane and ensure that wrinkles and buckles do not form.
 2. Overlap separation mat a minimum of six (6) inches on sides and ends.
 3. Immediately install ballast or pavers over the loose-laid separation mat.

Specifier Note: Retain "Stone Ballast" paragraph below if using stone ballast.

- I. Stone Ballast: Install stone uniformly over roofing at the rate recommended by roofing system manufacturer, taking care to minimize damage to roofing system. Lay ballast as roofing is installed, leaving roofing ballasted at the end of each workday.

Specifier Note: Retain either of the following subparagraphs as appropriate to the specific project. Confirm selection with manufacturer.

1. Ballast Application Rate for Size 4 (Nominal 1-1/2-inch) Aggregate: 10 lbs/sq ft.
2. Ballast Application Rate for Size 2 (Nominal 2-1/2-inch) Aggregate: 13 lbs/sq ft.

Specifier Note: Retain "Interlocking Paver Ballast" paragraph below if using interlocking pavers as ballast.

- J. Interlocking Paver Ballast: Install interlocking concrete paver ballast in accordance with manufacturer's written instructions. Stagger and interlock pavers.
1. Use perimeter securement of interlocking pavers and/or paver clips in accordance with paver manufacturer's recommendations.
 2. Strap adjacent pavers in accordance with paver manufacturer's recommendations.



GUIDE SPECIFICATIONS

Specifier Note: Retain "Non-Interlocking Paver Ballast" paragraph below if using non-interlocking pavers as ballast.

- K. Non-Interlocking Paver Ballast: Install non-interlocking concrete paver ballast in accordance with manufacturer's written instructions.
 - 1. Use perimeter securement of non-interlocking pavers in accordance with paver manufacturer's recommendations.

3.10 BASE FLASHING INSTALLATION

- B. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions.
- C. Flash all perimeter, curb, and penetration conditions with coated metal, membrane flashing, and flashing accessories as appropriate to the site conditions.
- D. Reinforce all coated metal and membrane flashing corners with preformed corners or non-reinforced membrane.
- E. Heat-weld flashing membranes and accessories to achieve a minimum two (2) inch wide seam using a hand welder or a minimum one (1) inch to maximum 1-1/2-inch wide seam using an automatic machine welder.
 - 1. Clean seam areas, overlap, and firmly roll sheet flashings into adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

Specifier Note: Retain the following paragraph if adhered reinforced membrane flashings are required.

- F. Adhered Reinforced Membrane Flashings - Smooth Surface: Use thickness of flashing membrane that is the same as that of roofing membrane.

Specifier Note: Retain the following paragraph if loose reinforced membrane flashings are required.

- G. Loose Reinforced Membrane Flashings: Use counterflashing when an extended length-guarantee is required. Exposed termination bars are not acceptable.
 - 1. Carefully position membrane flashing prior to application to avoid wrinkles and buckles.
 - 2. Heat-weld all laps smooth reinforced flashing membrane in accordance with manufacturer's written instructions.
 - 3. Maximum flashing height is 24 inches with incremental attachment.

Specifier Note: Retain the following paragraph if adhered fleece-back reinforced membrane flashings are required.

- H. Adhered Reinforced Membrane Flashings - Fleece-Back:
 - 1. Apply bonding adhesive to substrate at rate of 100 sq ft/gallon for water-based adhesive.
 - 2. Apply bonding adhesive in accordance with manufacturer's written instructions.
 - 3. Make non-selvage edge laps by butting adjacent sheets and heat-welding an eight (8) inch wide flashing strip of flashing membrane over the joints.



GUIDE SPECIFICATIONS

4. Make end laps by butting adjacent sheets and heat-welding an eight (8) inch wide
 5. Seal all cut edges with cut edge sealant.
- I. Non-Reinforced Membrane Flashings:
1. Use non-reinforced membrane as a field-fabricated penetration/reinforcement flashing only where preformed corners and pipe boots cannot be properly installed.
 2. Construct non-reinforced membrane penetration flashings in two (2) sections; one (1) vertical piece that extends up the penetration and one (1) horizontal piece that extends onto roof membrane. Overlap and heat-weld the two (2) pieces together.
 3. Adhere non-reinforced vertical membrane flashing to penetration surface.
 4. Finish penetration with sealant recommended by membrane flashing manufacturer. Install sealant between pipe and membrane, install clamping band, and then sealant on top of band.
- J. Roof Edging: Use roof edge flashing at gravel stop/drip edges and parapet wall exterior edges.
1. Flash roof edges with coated metal flanged edging with minimum three (3) inch wide flange nailed at spacing recommended by manufacturer.
- K. When using bonding adhesive, use adhesive specific to membrane and ambient weather conditions.
1. Apply bonding adhesive using a roller, brush, or spray equipment.
 2. Apply bonding adhesive to both substrate surface and underside of flashing membrane.
 3. Carefully position membrane flashing prior to application to avoid wrinkles and buckles.
 4. Heat-weld all laps in smooth reinforced flashing membrane in accordance with manufacturer's written instructions.
- L. Minimum flashing height is eight (8) inches.
- M. Install horizontal mechanical attachment a maximum distance of six (6) inches from wall.

Specifier Note: Retain the following article if walkways are required on the project.

3.11 WALKWAY INSTALLATION

- B. Install walkway rolls at all roof access locations including ladders, hatchways, stairs, and doors.
- C. Install walkway rolls at other designated locations including roof-mounted equipment and areas of repeated roof traffic.
- D. Space walkway rolls at six (6) inches apart to allow for drainage.
- E. Heat-weld walkway rolls to roof membrane surface continuously around the walkway roll or pad perimeter.



GUIDE SPECIFICATIONS

- F. Do not install walkway rolls within defined ballast enhanced perimeter and corner areas. Use concrete pavers in these areas.
- G. Total area of walkway rolls should not exceed two (2) percent of total roof area.

3.12 FIELD QUALITY CONTROL

Specifier Note: Retain the following paragraph to identify who will perform inspections.

- B. [Owner will engage] [Engage] a qualified testing agency to inspect substrate conditions, surface preparation, membrane application, flashings, protection, and drainage components, and to furnish reports to Architect.
- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation upon completion.
- D. Inspect completed roof sections on a daily basis. Inspector must probe all heat-welded seams and perform an adequate number of seam cuts to determine seam consistency.
- E. Immediately correct defects, irregularities, and deficiencies identified during inspections. Patch over all voids that are found using repair method recommended by roofing manufacturer. Do not reweld seam voids more than 24 hours after initial welding has been performed.
- F. Perform remedial work using materials similar to the ones originally employed and in a manner consistent with the balance of the roofing installation so as to minimize the number of repair patches.
- G. Excessive patchwork will require replacement of the entire affected membrane section from lap to lap.

3.13 CLEANING AND PROTECTION

- B. Protect completed roofing system from damage and wear for duration of construction period. When remaining construction does not affect or endanger roofing, inspect roofing for deterioration and damage, and describe its nature and extent in a written report. Provide copies of report to Architect and Owner.
- C. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and in accordance with roofing warranty requirements.
- D. Remove bonding adhesive, bituminous markings, and other contaminants from finished surfaces. In areas where finished surfaces are soiled by asphalt or any other contaminant caused by work of this or other sections, clean finished surfaces in accordance with written instructions of manufacturer of soiled surface.
- E. Cut out and remove roof membrane contaminated with solvent-based adhesive, bituminous markings, and other contaminants from finished surface. Repair roof membrane sheet damage by first cleaning affected area with an all-purpose cleaner, then rinse off soapy residue. Reactivate membrane using appropriate cleaner, wipe with a damp (not saturated) rag. Complete repair by installing a patch of the same material in accordance with specific roofing system requirements.



GUIDE SPECIFICATIONS

Specifier Note: Retain the following article if specific roofing installer warranty provisions are required on a project.

3.14 ROOFING INSTALLER'S WARRANTY

B. [Insert sample provisions of roofing installer's warranty.]

END OF SECTION



GAF, Commercial Roofing Products

1361 Alps Road • Wayne, NJ 07470

1-800-ROOF-411 • FAX: 973-628-3451

©2014 GAF All Rights Reserved

New-February 2014 – For latest specs visit:

http://www.gaf.com/Document_Library/Warranties_Technical_Documents/Low_Slope_CSI_Specifications

A copyright license to reproduce this specification is hereby granted to architects and specification writers.