SECTION 07 54 19

Poly Vinyl Chloride SINGLE-PLY ROOFING

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\*\* NOTE TO SPECIFIER \*\* GAF Commercial Roofing Products; poly vinyl chloride single-ply roofing.
This section is based on the products of GAF Commercial Roofing Products, which is located at:
1 Campus Dr.
Parsippany, NJ 07054
Toll Free Tel: 800-ROOF-411
Tel: 973-628-3000
Fax: 973-628-3451
Email: [request info (TechnicalQuestionsGAF@gaf.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=GAF+Commercial+Roofing+Products&coid=38425&rep=&fax=973-628-3451&message=RE:%20Spec%20Question%20(07540gaf):%20%20&mf=)
Web: <https://www.gaf.com>
 [ [Click Here](https://www.arcat.com/arcatcos/cos38/arc38425.html) ] for additional information.
Founded in 1886, GAF is one of the oldest manufacturers of commercial and residential roofing materials in the United States, and its proud tradition of innovation and excellence has made it one of the most respected.
 GAF offers the most comprehensive line of quality roofing systems in the industry. Whether your design calls for an asphalt fiberglass shingle, a conventional built-up roof, modified bitumen, single-ply or composite system, GAF's superior products and roofing specifications will meet your needs for a complete single source installation. Today, GAF employs over 3,300 people in 34 plants throughout the United States, and GAF products are available across the country and through select distribution centers worldwide.
 GAF manufactures and supplies a complete line of products for single-ply roofing systems most commonly used in commercial applications: Thermoplastic Polyolefin (TPO), Poly Vinyl Chloride (PVC), and). Each system offers specific advantages in terms of economy, strength, construction, fire resistance and overall durability.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Poly vinyl chloride roofing, insulation and accessories.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 06 10 00 - Rough Carpentry: Rough Carpentry: Roof blocking installation and requirements.
		2. Section 07 62 00 - Sheet Metal Flashing and Trim: Sheet Metal Flashing and Trim: Metal flashing and counter flashing installation and requirements.
		3. Section 22 30 00 - Plumbing Equipment: Plumbing Specialties: roof drains, scuppers, gutters and downspout installation and requirements.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. Factory Mutual (FM Global) - Approval Guide.
			1. Factory Mutual Standard 4470 - Approval Standard for Class 1 Roof Covers.
		2. Underwriters Laboratories (UL) - Roofing Systems and Materials Guide (TGFU R1306).
		3. ASTM International (ASTM):
			1. ASTM C 208 - Standard Specification for Cellulosic Fiber Insulating Board.
			2. ASTM C 578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
			3. ASTM C 728 - Standard Specification for Perlite Thermal Insulation Board.
			4. ASTM D 1204 - Standard Test Methods for Linear Dimensional Changes in Thermoplastic Sheeting
			5. ASTM C 1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
			6. ASTM C 1371 - Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers
			7. ASTM C 1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
			8. ASTM D 41 - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
			9. ASTM D 312 - Standard Specification for Asphalt Used in Roofing.
			10. ASTM D 1079 - Standard Terminology Relating to Roofing, Waterproofing, and Bituminous Materials.
			11. ASTM D751 - Standard Test Methods for Coated Fabrics
			12. ASTM D 2136 - Standard test Method for Coated Fabrics - Low-Temperature Bend Test
			13. ASTM D 4263 - Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
			14. ASTM D 3045 - Standard Practice for Heat Aging Plastics Without Load
			15. ASTM D 4434 - Standard Specification for Poly(Vinyl Chloride) Sheet Roofing.
			16. ASTM D - 5635 Standard Test Method for Dynamic Puncture Resistance
			17. ASTM D 7635 - Standard Test Method for Measurement of Thickness of Coatings over fabric Reinforcement
			18. ASTM E 903 - Standard Test Method for Solar Absorptance, Reflectance, and Transmission of Materials Using Integrating Spheres
		4. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - Architectural Sheet
		5. National Roofing Contractors Association (NRCA).
		6. American Society of Civil Engineers (ASCE).
			1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
	1. DEFINITIONS
		1. 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.
	2. PERFORMANCE REQUIREMENTS
		1. Provide an installed roofing membrane and base flashing system that does not permit the passage of water, and will withstand the design pressures calculated in accordance with the most current revision of ASCE 7.
		2. GAF must provide all primary roofing materials that are physically and chemically compatible when installed in accordance with manufacturers current application requirements.
	3. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. [ [www.arcat.com/arcatcos/cos32/arc32667.cfm](http://www.arcat.com/arcatcos/cos32/arc32667.cfm) "Product Data ] sheets for each type of product indicated in this section.
		3. Shop Drawings: Provide manufacturers standard details and approved shop drawings for the roof system specified.
		4. Samples: Provide samples of insulations, fasteners, membrane materials and accessories for verification of quality.
	4. QUALITY ASSURANCE
		1. Manufacturer Qualifications: GAF must provide a roofing system that meets or exceeds all criteria listed in this section.
		2. Installer Minimum Qualifications:

\*\* NOTE TO SPECIFIER \*\* Delete installer classification not required.

* + - 1. Installer must be classified as a Master Select contractor as defined and certified by GAF.
			2. Installer must be classified as a Master contractor as defined and certified by GAF.
		1. Source Limitations: Components listed must be provided by a single manufacturer or approved by the primary roofing manufacturer.

\*\* NOTE TO SPECIFIER \*\* Only Diamond Pledge system. Delete if not required.

* + 1. Final Inspection: Manufacturer's representative must provide a comprehensive final inspection after completion of the roof system. All application errors must be addressed and final punch list completed.
	1. PRE-INSTALLATION CONFERENCE
		1. Prior to scheduled commencement of the roofing installation and associated work, conduct a meeting at the project site with the installer, architect, owner, GAF representative and any other persons directly involved with the performance of the work. The installer must record conference discussions to include decisions, agreements, and open issues and furnish copies of recorded discussions to each attending party. The primary purpose of the meeting is to review foreseeable methods and procedures related to roofing work.
	2. REGULATORY REQUIREMENTS
		1. Work must be performed in a safe, professional manner, conforming to federal, state and local codes.
		2. Exterior Fire Test Exposure: Provide a roofing system achieving a UL Class rating for roof slopes indicated.

\*\* NOTE TO SPECIFIER \*\* Delete roof class rating not required.

* + - 1. UL Class A rating.
			2. UL Class B rating.
			3. UL Class C rating.
		1. Windstorm Classification: Provide a roofing system which will achieve the following Factory Mutual wind uplift rating, as listed in the current FM Approval Guide.

\*\* NOTE TO SPECIFIER \*\* Delete roof wind uplift rating not required.

* + - 1. Factory Mutual 1-60.
			2. Factory Mutual 1-75.
			3. Factory Mutual 1-90.
			4. Factory Mutual 1-120.
			5. Factory Mutual 1-135.
			6. Factory Mutual 1-150.
			7. Factory Mutual 1-180.
	1. DELIVERY, STORAGE, AND HANDLING
		1. Deliver all roofing materials to the site in original containers, with factory seals intact. Products must carry either a GAF or GAFMC label.
		2. Store all pail goods in their original undamaged containers in a clean, dry location within their specified temperature range.
		3. Do not expose materials to moisture in any form before, during, or after delivery to the site. Reject delivery of materials that show evidence of contact with moisture.
		4. Remove manufacturer supplied plastic covers from materials provided with such. Use "breathable" type covers such as canvas tarpaulins to allow venting and protection from weather and moisture. Cover and protect materials at the end of each work day. Do not remove any protective tarpaulins until immediately before the material will be installed.
		5. Materials must be stored above 55 degrees F (12.6 degrees C) a minimum of 24 hours prior to application.
		6. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.
	2. PROJECT CONDITIONS
		1. Weather:
			1. Proceed with roofing only when existing and forecasted weather conditions permit.
			2. Ambient temperatures must be above 45 degrees F (7.2 degrees C) when applying hot asphalt or water based adhesives.
	3. WARRANTY

\*\* NOTE TO SPECIFIER \*\* Delete warranty not required.

* + 1. Provide manufacturer's standard EverGuard 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.

NOTE TO SPECIFIER \*\* Delete warranty years not required.

* + - 1. Duration: Five (5) years from the date of completion.
			2. Duration: Ten (10) years from the date of completion.
			3. Duration: Fifteen (15) years from the date of completion.
			4. Duration: Twenty (20) years from the date of completion.
		1. Provide manufacturer's standard EverGuard Diamond Pledge Guarantee with single source edge to edge 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.

\*\* NOTE TO SPECIFIER \*\* Delete warranty years not required.

* + - 1. Duration: Five (5) years from the date of completion.
			2. Duration: Ten (10) years from the date of completion.
			3. Duration: Fifteen (15) years from the date of completion.
			4. Duration: Twenty (20) years from the date of completion.

\*\* NOTE TO SPECIFIER \*\* WELL ROOF Advantage is optional. Single source coverage applies to materials and workmanship of listed products within this section when installed in accordance with current GAF application and specification requirements. Contact GAF Technical Services for the full terms and conditions of the guarantee. Delete if not required.

* + 1. WELL ROOF Advantage. Provides 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.

\*\* NOTE TO SPECIFIER \*\* Delete warranty years not required.

* + - 1. Duration: Five (5) years from the date of completion.
			2. Duration: Ten (10) years from the date of completion.
			3. Duration: Fifteen (15) years from the date of completion.
			4. Duration: Twenty (20) years from the date of completion.
			5. Duration: Twenty-Five (25) years from the date of completion.
			6. Extension: GAF also guarantees to the original or first subsequent owner that coverage shall be extended by 25% of the original guarantee length, provided that the roof in inspected and maintained in accordance with the MAINTAINENCE section of this specification.

\*\* NOTE TO SPECIFIER \*\* Single source coverage applies to materials and workmanship of listed products within this section when installed in accordance with current GAF application and specification requirements. Contact GAF Technical Services for the full terms and conditions of the guarantee. Delete if not required.

* + 1. Provide manufacturer's standard EverGuard System Pledge Guarantee with single source coverage and a monetary limitation of one (1) dollar per square foot where the manufacturer agrees to repair or replace components in the roof system, which cause a leak due to failure in materials or workmanship.
			1. Materials and workmanship of listed products within this section when installed in accordance with current GAF application and specification requirements. Contact GAF Technical Services for the full terms and conditions of the guarantee.

\*\* NOTE TO SPECIFIER \*\* Delete warranty years not required.

* + - 1. Duration: Five (5) years from the date of completion.
			2. Duration: Ten (10) years from the date of completion.
			3. Duration: Fifteen (15) years from the date of completion.
			4. Duration: Twenty (20) years from the date of completion.
		1. Provide manufacturer's standard prorated material warranty 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.

\*\* NOTE TO SPECIFIER \*\* Delete warranty years not required. Verify warranty term with manufacturer.

* + - 1. Duration: Five (5) years from the date of completion.
			2. Duration: Ten (10) years from the date of completion.
			3. Duration: Fifteen (15) years from the date of completion.
			4. Duration: Twenty (20) years from the date of completion.
			5. Duration: \_\_\_\_.
1. PRODUCTS
	1. ACCEPTABLE MANUFACTURERS
		1. Acceptable Manufacturer: GAF Commercial Roofing Products, which is located at: 1 Campus Dr.; Parsippany, NJ 07054; Toll Free Tel: 800-ROOF-411; Tel: 973-628-3000; Fax: 973-628-3451; Email: [request info (TechnicalQuestionsGAF@gaf.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=GAF+Commercial+Roofing+Products&coid=38425&rep=&fax=973-628-3451&message=RE:%20Spec%20Question%20(07540gaf):%20%20&mf=); Web: <https://www.gaf.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Delete section if not required.

* 1. AIR AND VAPOR RETARDER SYSTEM

\*\* NOTE TO SPECIFIER \*\* Delete product types not required.

* + 1. Asphalt impregnated kraft paper with fiberglass strand reinforced edges; available in 32" X 405' (10 square) rolls and 96" X 405' (30 square) rolls, Permate Vapor Retarder by GAF.
		2. Specially compounded, flexible, black 4 mil vinyl sheet available in 32" X 405' (10 square) rolls, Lexsuco Vapor Retarder by GAF.

\*\* NOTE TO SPECIFIER \*\* Delete insulation if not required.

* 1. INSULATION

\*\* NOTE TO SPECIFIER \*\* Delete insulation types not required.

* + 1. Rigid polyisocyanurate board, with a strong white or black fibrous glass facer conforming to or exceeding the requirements of ASTM C 1289 / FS HH-I-1972, EnergyGuard Polyiso, with the following characteristics:

\*\* NOTE TO SPECIFIER \*\* Provide project specific information.

* + - 1. Board Thickness: \_\_\_\_\_\_
			2. Thermal Resistance (LTTR value): \_\_\_\_\_\_
		1. Rigid polyisocyanurate board, with an UltraShield coated glass-fiber facer conforming to or exceeding the requirements of ASTM C 1289 / FS HH-I-1972, EnergyGuard Ultra Polyiso, with the following characteristics:

\*\* NOTE TO SPECIFIER \*\* Provide project specific information.

* + - 1. Board Thickness: \_\_\_\_\_\_
			2. Thermal Resistance (LTTR value): \_\_\_\_\_\_
		1. Rigid polyisocyanurate foam insulation with 1/2 inch (13 mm) perlite roof insulation laminated to one side and a strong fibrous glass facer on the other; conforms to or exceeds the requirements of ASTM C 1289 / FS HH-I, EnergyGuard Composite, with the following characteristics:

\*\* NOTE TO SPECIFIER \*\* Provide project specific information.

* + - 1. Board Thickness: \_\_\_\_\_\_
			2. Thermal Resistance (LTTR value): \_\_\_\_\_\_
		1. Rigid polyisocyanurate foam insulation with 1/2 inch (13 mm) cellulose fiber board laminated to one side and a strong fibrous glass facer on the other; conforms to or exceeds the requirements of ASTM C 1289 / FS HH-I, EnergyGuard Composite, with the following characteristics:

\*\* NOTE TO SPECIFIER \*\* Provide project specific information.

* + - 1. Board Thickness: \_\_\_\_\_\_
			2. Thermal Resistance (LTTR value): \_\_\_\_\_\_
		1. Expanded perlite mineral aggregate board conforming to or exceeding the requirements of FS HH-I-529b, ANSI/ASTM C 728, EnergyGuard Perlite, with the following characteristics:
			1. Board Density: 9 lb/cf (144 kg/cm) minimum.

\*\* NOTE TO SPECIFIER \*\* Provide project specific information.

* + - 1. Board Thickness: \_\_\_\_\_\_
			2. Thermal Resistance (R value): \_\_\_\_\_\_
		1. Overlayment board made of cellulose fiber conforming to or exceeding the requirements of FS LLL-I-535, Class C, ANSI/ASTM C 208, EnergyGuard Fiberboard, with the following characteristics:
			1. Board Thickness: 1/2 inch (13 mm).
			2. Thermal Resistance: 1.32 (2.5 C/W).
		2. ASTM C-578 Type II, expanded polystyrene recover board (EPS), with the following characteristics:
			1. Compressive Strength: 15 psi (0.1 MPa) minimum.
			2. Board Density: 1.35 lb per cubic foot (21.6 kg/cm) minimum.

\*\* NOTE TO SPECIFIER \*\* Provide project specific information.

* + - 1. Board Thickness: \_\_\_\_\_\_
			2. Thermal Resistance: \_\_\_\_\_\_

\*\* NOTE TO SPECIFIER \*\* A separation mat or cover board must be installed over this insulation prior to installing the EverGuard PVC roof membrane.

* + 1. ASTM C-578 Type IX, High density expanded polystyrene board (EPS), with the following characteristics:
			1. Compressive Strength: 25 psi (0.17 MPa) nominal.
			2. Board Density: 1.8 lb per cubic foot (28.8 kg/cm) minimum.

\*\* NOTE TO SPECIFIER \*\* Provide project specific information.

* + - 1. Board Thickness: \_\_\_\_\_\_
			2. Thermal Resistance (R value): \_\_\_\_\_\_

\*\* NOTE TO SPECIFIER \*\* A separation mat or cover board must be installed over this insulation prior to installing the EverGuard® PVC roof membrane.

* + 1. ASTM C-578 Type X, extruded polystyrene board (XPS), with the following characteristics:
			1. Compressive Strength: 15 psi (0.1 MPa) minimum.
			2. Board Density: 1.3 lb per cubic foot (20.8 kg/cm) minimum.

\*\* NOTE TO SPECIFIER \*\* Provide project specific information.

* + - 1. Board Thickness: \_\_\_\_\_\_
			2. Thermal Resistance (R value): \_\_\_\_\_\_

\*\* NOTE TO SPECIFIER \*\* A separation mat or cover board must be installed over this insulation prior to installing the EverGuard® PVC roof membrane.

* + 1. ASTM C-578 Type X, 3/8 inch (9.5 mm) extruded polystyrene fan-fold board (XPS), with the following characteristics:
			1. Compressive Strength: 15 psi (0.1 MPa) minimum.
			2. Board Density: 1.3 lb per cubic foot (20.8 kg/cm) minimum.
			3. Board Thickness: 3/8 inch (5mm).
			4. Thermal Resistance (R value): 1.5.

\*\* NOTE TO SPECIFIER \*\* Delete roof board if not required.

* 1. ROOF BOARD

\*\* NOTE TO SPECIFIER \*\* Delete roof board types not required.

* + 1. Underlayment or overlayment board with a water-resistant and silicone treated gypsum core with glass fiber facers embedded on both sides, and pre-primed on one side. GP Dens-Deck Prime Roof Board, distributed by BMCA.
			1. Board Thickness: \_\_\_\_\_\_
			2. Thermal Resistance (R value): \_\_\_\_\_\_
		2. Underlayment or overlayment board with a water-resistant and silicone treated gypsum core with glass fiber facers embedded on both sides. GP Dens-Deck Roof Board, distributed by BMCA

\*\* NOTE TO SPECIFIER \*\* Provide project specific information.

* + - 1. Board Thickness: \_\_\_\_\_\_
			2. Thermal Resistance (R value): \_\_\_\_\_\_

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. INSULATION ACCESSORIES
		1. Cant Strip: Factory fabricated rigid perlite strip cut at angles to provide a true 45 degree angle between horizontal and vertical surfaces, EnergyGuard Perlite Cant Strip, by BMCA.
		2. Tapered Edge Strip: Factory fabricated rigid perlite strip cut at angles to provide a smooth transition between differences in elevation. EnergyGuard Tapered Edge Strip, by BMCA.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. SEPARATION Membrane
		1. Fire Resistant non woven fiberglass slip sheet used as a separation sheet over polystyrene foam insulation or beneath insulation over wood substrates providing a UL class A fire rating. Each roll contains ten (10) squares (1,000 sq. ft.) of material, 6' x 166.7' (1.83m x 50.8m), 110 lbs nominal weight, VersaShield Solo Fire Resistant Slip Sheet by GAFFire resistant glass fiber mat used as a separation sheet over polystyrene foam insulation or beneath insulation over wood substrates. Each roll contains ten (10) squares (90 sm) of material, 4 feet by 250 feet (1.20 m by 76.90 m), 80 lb (36400 g), Fiberglass Fire Sheet 10.
		2. Fire resistant glass fiber mat used as a separation sheet over polystyrene foam insulation or beneath insulation over wood substrates. Each roll contains four (4) squares (38 sm) of material, 4 feet by 105 feet (1.20 m by 32.30 m), 79 lbs. (35900 g), Fiberglass Fire Sheet 50.
		3. Non-woven polyester UV-stabilized mat, 3 oz/sy (112.5 g/m2) used as a separation sheet beneath membranes as a protection layer and used over membranes in ballast applied assemblies. Each roll contains thirty (30) squares (279 sm) of material, 10 feet by 300 feet (3.07 m by 92.30 m), 75 lb (34100 g), Poly Separation Layer 3 oz.
		4. Non-woven polyester UV-stabilized mat, 6 oz/sy (225 g/ m2) used as a separation sheet beneath membranes as a protection layer and used over membranes in ballast or paver applied assemblies. Each roll contains thirty (30) squares (279 sm) of material, 10 feet by 300 feet (3.07 m by 92.30 m), 125 lbs. (56800 kg), Poly Cushioning Layer 6 oz.
	2. MEMBRANE MATERlALS

\*\* NOTE TO SPECIFIER \*\* Delete membrane materials not required.

* + 1. A smooth type, polyester scrim reinforced PVC membrane with a nominal 0.050 inch (50 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120"X100'. Each 8' roll contains approximately 800 sq ft of roofing material, 96"X100'. Each half roll contains approximately 500 sq ft of roofing material, 60"X100' EverGuard PVC 50 mil single-ply roofing membrane by GAF.
		2. A smooth type, polyester scrim reinforced PVC membrane with a nominal 0.060 inch (60 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120"X100'. Each 8' roll contains approximately 800 sq ft of roofing material, 96"X100'. Each half roll contains approximately 500 sq ft of roofing material, 60"X100' EverGuard PVC 60 mil single-ply roofing membrane by GAF.
		3. A smooth type, polyester scrim reinforced PVC membrane with a nominal 0.080 inch (80 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 800 sq ft of roofing material, 120"X80'. Each 8' roll contains approximately 640 sq ft of roofing material, 96"X80'. Each half roll contains approximately 400 sq ft of roofing material, 60"X80'. EverGuard PVC 80 mil single-ply roofing membrane by GAF.
		4. A fleece-backed, polyester scrim reinforced PVC membrane with a fibrous backing and a nominal 0.050 inch (50 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120"X100'. Each 8' roll contains approximately 800 sq ft of roofing material, 96"X100'. Each half roll contains approximately 500 sq ft of roofing material, 60"X100'. EverGuard PVC 50 mil Fleece-Back Membrane by GAF.
		5. A fleece-backed, polyester scrim reinforced PVC membrane with fibrous backing and a nominal 0.060 inch (60 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120"X 100'. Each 8' roll contains approximately 800 sq ft of roofing material, 96"X100'. Each half roll contains approximately 500 sq ft of roofing material, 60"X100'. EverGuard PVC 60 mil Fleece-Back Membrane by GAF.
		6. A fleece-backed, polyester scrim reinforced PVC membrane with fibrous backing and a nominal 0.080 inch (80 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 800 sq ft of roofing material, 120"X80'. Each 8' roll contains approximately 640 sq ft of roofing material, 96"X80'. Each half roll contains approximately 400 sq ft of roofing material, 60"X80'. EverGuard PVC 80 mil Fleece-Back Membrane by GAF.
		7. A smooth type, polyester scrim reinforced PVC membrane with Evaloy and a nominal 0.050 inch (50 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120" X 100'. Each half sheet roll contains approximately 500 sq.ft. of roofing material, 60" X 100'. EverGuard PVC XK 50 mil single-ply roofing membrane by GAF.
		8. A smooth type, polyester scrim reinforced PVC membrane with Evaloy and a nominal 0.060 inch (60 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120" X 100'. Each half sheet roll contains approximately 500 sq.ft. of roofing material, 60" X 100'. EverGuard PVC XK 60 mil single-ply roofing membrane by GAF.
		9. A smooth type, polyester scrim reinforced PVC membrane with Evaloy and a nominal 0.080 inch (80 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 800 sq ft of roofing material, 120"X80'. Each 8' roll contains approximately 640 sq ft of roofing material, 96"X80'. Each half roll contains approximately 400 sq ft of roofing material, 60"X80'. EverGuard PVC XK 80 mil single-ply roofing membrane by GAF.
		10. A fleece-backed, polyester scrim reinforced PVC membrane with Evaloy membrane with a nominal 0.060 inch (60 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120"X 100'. EverGuard PVC XK 60 mil Fleece-Back Membrane-60 mil by GAF.
		11. A fleece-backed, polyester scrim reinforced PVC membrane with Evaloy membrane with a nominal 0.080 inch (80 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120"X100'. EverGuard PVC XK 80 mil Fleece-Back Membrane-80 mil by GAF.

\*\* NOTE TO SPECIFIER \*\* Delete membrane color not required.

* + - 1. Color: White.
			2. Color: Gray.
			3. Color: Tan.
	1. FLASHING MATERlALS

\*\* NOTE TO SPECIFIER \*\* Delete flashing materials not required.

* + 1. A smooth type, polyester scrim reinforced PVC membrane with a nominal 0.050 inch (50 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120"X100'. Each 8' roll contains approximately 800 sq ft of roofing material, 96"X100'. Each half roll contains approximately 500 sq ft of roofing material, 60"X100' EverGuard PVC 50 mil single-ply roofing membrane by GAF.
		2. A smooth type, polyester scrim reinforced PVC membrane with a nominal 0.060 inch (60 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120"X100'. Each 8' roll contains approximately 800 sq ft of roofing material, 96"X100'. Each half roll contains approximately 500 sq ft of roofing material, 60"X100' EverGuard PVC 60 mil single-ply roofing membrane by GAF.
		3. A smooth type, polyester scrim reinforced PVC membrane with a nominal 0.080 inch (80 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 800 sq ft of roofing material, 120"X80'. Each 8' roll contains approximately 640 sq ft of roofing material, 96"X80'. Each half roll contains approximately 400 sq ft of roofing material, 60"X80'. EverGuard PVC 80 mil single-ply roofing membrane by GAF.
		4. A fleece-backed, polyester scrim reinforced PVC membrane with a fibrous backing and a nominal 0.050 inch (50 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120"X100'. Each 8' roll contains approximately 800 sq ft of roofing material, 96"X100'. Each half roll contains approximately 500 sq ft of roofing material, 60"X100'. EverGuard PVC 50 mil Fleece-Back Membrane by GAF.
		5. A fleece-backed, polyester scrim reinforced PVC membrane with fibrous backing and a nominal 0.060 inch (60 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120"X 100'. Each 8' roll contains approximately 800 sq ft of roofing material, 96"X100'. Each half roll contains approximately 500 sq ft of roofing material, 60"X100'. EverGuard PVC 60 mil Fleece-Back Membrane by GAF.
		6. A fleece-backed, polyester scrim reinforced PVC membrane with fibrous backing and a nominal 0.080 inch (80 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 800 sq ft of roofing material, 120"X80'. Each 8' roll contains approximately 640 sq ft of roofing material, 96"X80'. Each half roll contains approximately 400 sq ft of roofing material, 60"X80'. EverGuard PVC 80 mil Fleece-Back Membrane by GAF.
		7. A smooth type, polyester scrim reinforced PVC membrane with Evaloy and a nominal 0.050 inch (50 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120" X 100'. Each half sheet roll contains approximately 500 sq.ft. of roofing material, 60" X 100'. EverGuard PVC XK 50 mil single-ply roofing membrane by GAF.
		8. A smooth type, polyester scrim reinforced PVC membrane with Evaloy and a nominal 0.060 inch (60 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120" X 100'. Each half sheet roll contains approximately 500 sq.ft. of roofing material, 60" X 100'. EverGuard PVC XK 60 mil single-ply roofing membrane by GAF.
		9. A smooth type, polyester scrim reinforced PVC membrane with Evaloy and a nominal 0.080 inch (80 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 800 sq ft of roofing material, 120"X80'. Each 8' roll contains approximately 640 sq ft of roofing material, 96"X80'. Each half roll contains approximately 400 sq ft of roofing material, 60"X80'. EverGuard PVC XK 80 mil single-ply roofing membrane by GAF.
		10. A fleece-backed, polyester scrim reinforced PVC membrane with Evaloy with a nominal 0.060 inch (60 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120"X 100'. EverGuard PVC XK 60 mil Fleece-Back Membrane-60 mil by GAF.
		11. A fleece-backed, polyester scrim reinforced PVC membrane with Evaloy with a nominal 0.080 inch (80 mils) thickness, for use as a single ply roofing membrane. Meets or exceeds the minimum requirements of ASTM D-4434. Each full roll contains approximately 1000 sq ft of roofing material, 120"X100'. EverGuard PVC XK 80 mil Fleece-Back Membrane-80 mil by GAF.

\*\* NOTE TO SPECIFIER \*\* Bitumen for insulation installation. Delete if not required.

* 1. BITUMEN
		1. Asphalt bitumen: ASTM D 312 Type III & IV.
	2. ADHESIVES, SEALANTS AND PRIMERS

\*\* NOTE TO SPECIFIER \*\* Delete materials not required.

* + 1. Solvent-based Bonding Adhesive: Solvent based adhesive for use with EverGuard PVC membranes, EverGuard 2331 Bonding Adhesive, by GAF.
		2. Two-part VOC free low rise polyurethane foam adhesive for use with fleece-back membranes, LRF Adhesive M by GAF.
		3. One-part moisture cure, self-leveling sealant designed for use in pitch pans EverGuard One-Part Pourable Sealer by GAF® .
		4. Solvent based, trowel grade synthetic elastomeric sealant. Durable and UV resistant suitable for use where caulk is typically used. Available in 10 oz. tubes, FlexSeal Caulk Grade by GAF.
		5. One part butyl based high viscosity sealant suitable for sealing between flashing membrane and substrate surface behind exposed termination bars and for sealing between roofing membrane and drain flange. EverGuard Water-Block, by GAF.
		6. 100% solids urethane based two-part sealant suitable for filling sealant pans at irregularly-shaped penetrations. EverGuard Two-Part Pourable Sealant, by GAF.
		7. Asphalt primer: ASTM D 41 Matrix 307 Standard Asphalt Primer, by GAF® .
		8. Insulation Adhesive: Two-part VOC free low rise polyurethane foam adhesive for use with fleece-back membranes, LRF Adhesive O by GAF
		9. Insulation Adhesive: Oly-Bond 500 distributed by GAF.
		10. Insulation Adhesive: Oly-Bond 500 Spot Shot distributed by GAF® .
		11. Insulation Adhesive: Oly-Bond 500 Green distributed by GAF® .
		12. Insulation Adhesive: Oly-Bond 500 Spot Shot Green distributed by GAF® .
		13. Insulation Adhesive: Insta-Stik by Dow Chemical.
	1. ACCESSORlES

\*\* NOTE TO SPECIFIER \*\* Delete mechanical fasteners not required.

* + 1. Mechanical Fasteners

\*\* NOTE TO SPECIFIER \*\* E.G. Fastener. Delete if not required.

* + - 1. DrillTec Standard Screws: Alloy steel fastener with CR-10 coating with a .215 inch (5 mm) diameter thread: Factory Mutual Standard 4470 Approved, #3 Phillips truss head or hex head.
			2. DrillTec ASAP 3P Fastener: Assembled screw and 3 inches (76 mm) locking plastic plate. Alloy steel fastener with CR-10 coating with a .215 inch (5 mm) diameter thread: Factory Mutual Standard 4470 Approved, #3 Phillips truss head.
			3. DrillTec ASAP 3S Fastener: Assembled screw and 3 inches (76 mm) steel plate. Alloy steel fastener with CR-10 coating with a .215 inch (5 mm) diameter thread: Factory Mutual Standard 4470 Approved, #3 Phillips truss head.

\*\* NOTE TO SPECIFIER \*\* E.G. Fastener. Delete if not required.

* + - 1. DrillTec XHD Screws: Heavy duty gauge alloy steel fastener with CR-10 coating with a .275 inch (6.9mm) diameter thread: Factory Mutual Standard 4470 Approved, #3 Phillips truss head for use on heavy steel decks.

\*\* NOTE TO SPECIFIER \*\* E.G. Fastener. Delete if not required.

* + - 1. DrillTec SXHD Screws: Heavy duty gauge alloy steel fastener with CR-10 coating with a .320 inch (8.1 mm) diameter thread: Factory Mutual Standard 4470 Approved, #3 Phillips truss head for use on specific FM assemblies on heavy steel decks.
			2. DrillTec NTB-1HWO Fastener: A large diameter glass fiber filled nylon auger with a 1 inch (25 mm) head. Major thread diameter of .750 inch (19 mm). To be used with 3 inches (76 mm) Steel Round Plate or a 2 inches (51 mm) steel plate with barbs.

\*\* NOTE TO SPECIFIER \*\* E.G. Fastener. Delete if not required.

* + - 1. DrillTec Polymer Screws: A large diameter glass fiber filled nylon auger with a 1 inch (25 mm) head and with locking wire barbs. Major thread diameter of .750 inch (19 mm). To be used with 3 inches (76 mm) Steel Round Plate or 2 inches (51 mm) barbed steel plate.

\*\* NOTE TO SPECIFIER \*\* E.G. Fastener. Delete if not required.

* + - 1. Drill-Tec Spikes: Hammer-in, non-threaded fastener designed to secure insulation and membrane to structural concrete. Alloy steel fastener with a CR-10 coating and a .250 inch (6.3 mm) shank diameter.
			2. DrillTec Lite-Deck Fastener: A large diameter reinforced nylon screw with a #3 square drive flat head. Thread diameter of .375 inch (9.5 mm) and shank diameter of .312 inch (7.9 mm). Uses a 3 inches (76 mm) Metal Round Plate fastening system.
			3. DrillTec CR Base Sheet Fastener: G-90 galvanized, CR-10 Corrosion resistant coating with 1.125 inches (28.6 mm) by1 inch (25 mm) head and 1 3/4 inches (44 mm) leg length. Uses 2 3/4 inches (19 mm) diameter Galvalume steel roof disc.
			4. DrillTec CR 1.2 Base Sheet Fastener: G-90 galvanized, CR-10 Corrosion resistant coating with 1.125 inches (28.6 mm) by1 inch (25 mm) head and 1.2 inches (30 mm) leg length. Uses 2 3/4 inches (70 mm) diameter Galvalume steel roof disc.

\*\* NOTE TO SPECIFIER \*\* E.G. Fastener. Delete if not required.

* + - 1. DrillTec Insulation Plates: Galvalume, 3 inches (76 mm) diameter, suitable for use with DrillTec™ Standard screws, and DrillTec™ Spikes. Special design available for use with DrillTec™ Polymer Screws.

\*\* NOTE TO SPECIFIER \*\* E.G. Fastener. Delete if not required.

* + - 1. DrillTec XHD Plates: Galvalume, 2 3/8 inches (60 mm) diameter, with a barbed underside. suitable for use with DrillTec™ Standard, , and XHD Screws, and DrillTec™ Spikes.

\*\* NOTE TO SPECIFIER \*\* E.G. Fastener. Delete if not required.

* + - 1. DrillTec SXHD Plates: Galvalume, 2 3/4 inches (70 mm) diameter, with a double barbed underside. Required for use with DrillTec™ SXHD Screws, HD Screws and DrillTec™ Spikes for specific FM assemblies.

\*\* NOTE TO SPECIFIER \*\* E.G. Fastener. Delete if not required.

* + - 1. DrillTec Lite-Deck Plate: Galvalume, plate with extra wide diameter designed specifically for Lite-Deck Fastener.
			2. DrillTec Base Sheet Plate: 2 3/4 inches (70 mm) disk for use with CR Base Sheet Fasteners.
			3. Drill Tec Locking Impact Nail: Factory assembled, G-90 Galvalume coated fastener designed to install base sheets or insulation to gypsum or cementitious wood fiber. 1.8 inches to 4.8 inches (46 mm to 122 mm) lengths available with a 2.7 inches (69 mm) diameter plate.
			4. Threaded Cap Nail: Annular-threaded electro-galvanized with yellow di-chromate coating, with 1 inch (25 mm) round or square cap, as manufactured by the Simplex Nail Corporation.
			5. Two-Piece Tube Nail: 1 inch (25 mm) diameter cap; when the nail is driven down through the tube of first part that was installed, the nail hooks up to provide backout resistance, as manufactured by The Simplex Corporation.
			6. Nail-Tite Type-R Fasteners: Self-locking one-piece fastener for securing base ply when roofing over existing poured gypsum roof decks. Shank: 1 inch (25 mm) tapered cone precision formed from corrosion resistant galvanized (G-90) steel. Cap: 1-1/4 inches (32 mm) round cap formed from corrosion resistant Galvalume (AZ-55) steel, reinforced to resist cupping during driving. The shank is securely wedged to cap forming rigid one-piece fastener, by E. S. Products.
			7. Tape and N12 BAB or N12 FAB Staples, by Senco.
		1. Flashing Accessories:
			1. A smooth type, unreinforced polyvinyl chloride based membrane for use as an alternative flashing/reinforcing material for penetrations and corners. Required whenever preformed vent boots cannot be used, available in White/Gray and White/Tan, 0.055 inches (55 mils) nominal thickness and sheet size: 24in x 50ft. EverGuard PVC Detailing Membrane, by GAF.
			2. An 8 inch (203 mm) wide smooth type, polyester scrim reinforced polyvinyl chloride based membrane strip for use as a cover strip over coated metal and stripping-in coated metal flanges and general repairs: 0.050 inches (50 mils) nominal thickness with 90 foot length (27.4 m), available in White, Tan, Gray, Regal Red, Regal Blue, and Hartford Green EverGuard PVC 8-inch Flashing Strip, by GAF.
			3. Extruded aluminum termination bar with angled lip caulk receiver and lower leg bulb stiffener. Pre-punched slotted holes at 6" (162 mm) on center or 8" (204 mm) on center. 3/4" x 10' (19.05 mm x 3.05 m) with 0.090" (2.27 mm) cross section, Drill-Tec Termination Bar, by GAF® .
			4. 24 gauge steel with 0.040" (1 mm) thick PVC based film as required for fabrication into metal gravel stop and drip edge profiles, metal base and curb flashings, sealant pans, and scupper sleeves. Standard sheet size 4' x 10', Custom sizes available, EverGuard PVC Coated Metal, by GAF.

\*\* NOTE TO SPECIFIER \*\* Delete color options not required.

* + - * 1. Color: White.
				2. Color: Gray.
				3. Color: Tan.
				4. Color: Custom.
			1. Two-part assembly with a rigid extruded termination base plate, and a decorative snap-on fascia cover for single-ply roofs. The system shall have all concealed fasteners with no penetration on horizontal roof surface available in 10' (3.05 m) lengths, EverGuard EZ Fascia EX by GAF® .
			2. A two-part assembly with a rigid terminator base plate, and a decorative snap-on fascia cover for single-ply roofs with raised perimeter edges. The system shall have all concealed fasteners with no penetration on horizontal roof surface available in 10' (3.05 m), EverGuard EZ Fascia by GAF® .
		1. Wall and Curb Accessories:
			1. 0.050" (50 mil) thick reinforced PVC membrane fabricated corners. Available in 4 standard and custom sizes. Four corners are required to flash the curb, EverGuard PVC Corner Curb Wraps, by GAF® .
			2. 0.055" (1.5 mm molded PVC membrane inside corners of base and curb flashing. Hot-air welds directly to Everguard PVC membrane. Size 6" x 6" x 5.5" (152 x 152 x 140 mm) high, EverGuard PVC Preformed Inside Corners by GAF® .
			3. 8" (203 mm) diameter, nominal .055" (55 mil) vacuum formed unreinforced PVC membrane for use in flashing outside corners of base and curb flashings, EverGuard PVC Fluted Corner, by GAF® .
			4. 0.070" (70 mil) thick molded PVC membrane outside corners of base and curb flashing. Hot-air welds directly to EverGuard PVC membrane. Size 3" x 3" (76 mm x 76 mm) with 6" (152 mm) flange, EverGuard® PVC Universal Corners by GAF® .
			5. 55 mil PVC membrane and 24 gauge coated metal prefabricated into standard and custom size thru wall scuppers. Available in custom sizes, EverGuard PVC Scupper, by GAF®
		2. Penetration Accessories:
			1. One-piece spun aluminum body and heavy duty cast aluminum strainer dome containing a gray PVC coated flange and incorporates U-Flow Seal technology for a mechanical watertight connection to PVC or cast iron pipes to prevent water from backup damage. Available in 3" (76 mm), 4" (102 mm) 5" (127 mm) and 6" (152 mm) pipe lengths, EverGuard® PVC Coated Hercules Drain by GAF.
			2. One-piece spun aluminum body and heavy duty cast aluminum strainer dome containing a gray PVC coated flange and is the fastest installed roof drain on the market and has been designed with a maximum inside diameter drain stem designed for improved flow performance. Available in 3" (76 mm), 4" (102 mm), EverGuard PVC Coated SpeedTite Drain by GAF.
			3. 0.070 inch (70 mil) thick molded PVC membrane sized to accommodate most common pipe and conduits, (1 inch to 6 inches (25 mm to 152 mm) diameter pipes),. Hot-air welded directly to EverGuard PVC membrane, supplied with stainless steel clamping rings, EverGuard PVC Preformed Vent Boots by GAF.
			4. 0.050" (1.5 mm) thick molded PVC membrane preformed boots are split to accommodate most common pipes and conduits and are available in two standard and custom sizes, EverGuard PVC Split Pipe Boots, by GAF® .
			5. 0.050" (1.5 mm) thick molded PVC membrane preformed conival boots formed to accommodate most common pipes and conduits and are available in custom sizes, EverGuard PVC Conical Pipe Boots, by GAF® .
			6. 0.050" (1.5 mm) thick molded PVC membrane preformed square boots are split to accommodate most common square penetrations and conduits and available in custom sizes, EverGuard PVC Square Tube Wraps, by GAF® .
			7. 1/8" (125 mil) thick molded penetration pocket to provide structure and foundation for the application of a pourable sealant for a variety of roof penetrations, weldable and available in custom sizes, EverGuard PVC Pourable Sealer Pocket.
		3. Field of Roof Accessories:
			1. 0.04" (1.02 mm) thick factory fabricated assemblies with foam supported bellows and metal nailing flanges used to accommodate three-dimensional joints in a roof structure for both field and wall expansion joint in both flat-mounted and curb-mounted styles. Available in 50, 100 & 250 feet (15.2, 30.3 and 76.2 m) continuous lengths. Metalastic Prefabricated Expansion Joint Covers by GAF.
			2. 125 mil thick extruded and embossed PVC roll 30 inches (762 mm) by 50 feet (15.24 m) heat welds directly to roofing membrane. Unique herringbone traction surface, EverGuard PVC Walkway Rolls, GAF.
			3. 0.055" (1.4 mm) thick smooth type, 4" (102 mm) circumference unreinforced PVC membrane designed for use as a conforming membrane seal over T-joints in 60 & 80 mil membrane applications. EverGuard PVC T-Joint Patches, by GAF.

\*\* NOTE TO SPECIFIER \*\* Delete stone ballast if not required.

* 1. STONE BALLAST
		1. Stone ballast must be smooth, water worn gravel with rounded edges and corners, relatively free of sand, loam, and other foreign substances, and contain less than 4 percent fines.

\*\* NOTE TO SPECIFIER \*\* Delete paver ballast if not required.

* 1. PAVER BALLAST
		1. Non-Interlocking Pavers: Commodity precast pavers engineered and fabricated for roof ballast application with drainage channel bottom and shiplap edges.
		2. Interlocking Pavers: Extruded polystyrene insulation panels with integral latex-modified mortar top face, 2 inches (51 mm) thick. Insulated pavers to be provided with tongue and groove interlocking edges, natural gray color.
1. EXECUTION
	1. EXAMINATION
		1. Verify that the surfaces and site conditions are ready to receive work.
		2. Verify that the deck is supported and secured.
		3. Verify that the deck is clean and smooth, free of depressions, waves, or projections, and properly sloped to drains, valleys, eaves, scuppers or gutters.
		4. Verify that the deck surfaces are dry and free of ice or snow.
		5. Verify that all roof openings or penetrations through the roof are solidly set, and that all flashings are tapered.
	2. SUBSTRATE PREPARATION

\*\* NOTE TO SPECIFIER \*\* Delete roof deck not required.

* + 1. Steel Deck:

\*\* NOTE TO SPECIFIER \*\* FM requirements may supercede those set forth in this section. Consult the current FM Guide for more information.

* + - 1. Metal decks must be a minimum uncoated thickness of 24 gauge (0.8 mm) and must have a G-90 galvanized finish on all panels.
			2. Decks must comply with the gauge and span requirements in the current Factory Mutual FM Approval Guide and be installed in accordance with Loss Prevention Data Sheet 1-28 or specific FM approval.

\*\* NOTE TO SPECIFIER \*\* Delete if re-roofing not required.

* + - 1. When re-roofing over steel decks, surface corrosion must be removed, and repairs to severely corroded areas made. Loose or inadequately secured decking must be fastened, and irreparable or otherwise defective decking must be replaced.
		1. Structural Concrete Deck:
			1. Minimum deck thickness for structural concrete is 4 inches (102 mm).

\*\* NOTE TO SPECIFIER \*\* Concrete decks that are poured over non-vented metal decks or pans that remain in place may trap moisture in the deck beneath the roof system and are not acceptable.

* + - 1. Only poured in place concrete decks that provide bottom side drying are acceptable.
			2. The roof deck must be properly cured prior to application of the roofing system. Curing agents must be checked for compatibility with roofing materials. Prior to the installation of the roof assemblies, evaluation of the surface moisture and deck's dryness by the use of ASTM D 4263 or hot bitumen test procedures must be conducted.
			3. The deck must be smooth, level and cannot be wet or frozen.
			4. Treat cracks greater than 1/8 inch (3 mm) in width in accordance with the deck manufacturer's recommendations.
			5. Sumps for the roof drains must be provided in the casting of the deck.
			6. When insulation or roofing is to be adhered with hot asphalt, prime the deck with asphalt/concrete primer, ASTM D 41 at the rate of one gallon per 100 square feet (0.4 l/sm). Allow the primer to dry prior to the application of the roofing system.

\*\* NOTE TO SPECIFIER \*\* Delete if re-roofing not required.

* + - 1. With retrofit roof applications, it is required that the deck be inspected for defects. Defects are to be corrected per the deck manufacturer's recommendations prior to the roofing application.
		1. Wood Deck (Plank / Heavy Timber):

\*\* NOTE TO SPECIFIER \*\* Tongue and groove or shiplap lumber is preferred to square edge material since subsequent shrinkage or warping of square edge planks may cause ridging of the roof system above adjacent boards.

* + - 1. Wood boards must be at least 1 inch (25 mm) nominal thickness and have a nominal width of 4 feet-6 inches (1.37 m).
			2. All boards must have a bearing on rafters at each end and be securely nailed.
			3. Lumber must be kiln dried.
			4. Preservatives or fire retardants used to treat decking must be compatible with roofing materials.
			5. Decking must be kept dry and roofed promptly after installation.
			6. Knotholes or large cracks in excess of 1/4 inch (6 mm) must be covered with securely nailed sheet metal.

\*\* NOTE TO SPECIFIER \*\* Delete if re-roofing not required.

* + - 1. In all retrofit roof applications, it is required that deck be inspected for defects. Any defects are to be corrected per the deck manufacturer's recommendations and standards of the APA/Engineered Wood Association prior to new roof application.
		1. Plywood Deck:
			1. Plywood sheathing must be exterior grade, minimum 4 ply, and not less than 15/32 inch (12 mm) thick.
			2. Preservatives or fire retardants used to treat the decking must be compatible with roofing materials.
			3. The deck must be installed over joists that are spaced 24 inches (610 mm) o.c. or less.
			4. The deck must be installed so that all four sides of each panel bear on and are secured to joist and cross blocking. "H" clips are not acceptable.
			5. Panels must be installed with a 1/8 inch to 1/4 inch (3mm to 6mm) gap between panels and must match vertically at joints to within 1/8 inch (3mm).
			6. Decking must be kept dry and roofed promptly after installation.
		2. Oriented Strand Board (OSB) Deck:
			1. Oriented Strand Board must carry a Structural 1 rating when used as a decking material.
			2. Preservatives or fire retardants used to treat decking must be compatible with roofing materials.
			3. The deck must be installed over joists that are spaced 24 inches (610 mm) o.c. or less.
			4. The deck must be installed so that all four sides of each panel bear on and are secured to joist and cross blocking; the APA/Engineered Wood Association (APA) recommendations. "H" clips are not acceptable.
			5. Panels must be installed with a 1/8 inch to 1/4 inch (3mm to 6mm) gap between panels and must match vertically at joints to within 1/8 inch (3mm).
			6. Decking must be kept dry and roofed promptly after installation.
			7. Tape and staple fastening systems may be used on wood decks when they comply with local building codes.
		3. Lightweight Insulating Concrete Deck:

\*\* NOTE TO SPECIFIER \*\* Individual deck manufacturer's standards apply when their specifications exceed the minimum thickness, compressive strength, or density requirements.

* + - 1. Lightweight insulating concrete decks are required to have a minimum thickness of 2 inches (51 mm), a minimum compressive strength of 125 psi (0.86 MPa) and a minimum density of 22 pcf (352 kg/sm).
			2. The lightweight insulating deck/fill must be installed by an applicator approved by the deck manufacturer.
			3. The roof system must be installed immediately following deck curing to prevent damage from exposure to precipitation. The deck manufacturer determines the minimum curing time and maximum exposure limitations.
			4. LWIC must not be poured during rainy periods. Deck areas that have frozen before they have cured must be removed and replaced. Decks which receive precipitation prior to installation of the roof membrane must be checked for moisture content and dryness.
			5. The moisture content of existing LWIC must be under 20 percent when insulation is to be fastened directly to it. Where moisture content exceeds 20 percent, a layer of Stratavent Eliminator Venting Base Sheet must be installed prior to the insulation.
			6. Where the mean January temperature (Reference current ASHRAE Fundamentals Handbook) is below 40 degrees F (4.4 degrees C), lightweight insulating concrete decks must be poured and roofed between April 1 and October 31. This type of deck is unacceptable in Alaska.
			7. Lightweight insulating concrete decks are acceptable only on slopes up to 1 inch per foot (83 mm/m).
		1. Cementitious Wood Fiber:
			1. Decks must be protected from the weather during storage and application; any wet or deformed decking must be removed and replaced.
			2. Cementitious wood fiber decks must not be installed over high humidity occupancies.
			3. Cementitious wood fiber decks must have a minimum design load as recommended by the manufacturer.
			4. All cementitious wood fiber deck panels must be anchored against uplift and lateral movement.
			5. The deck must be installed level. Any deflection, irregularities, or otherwise damaged panels must be corrected or replaced.
		2. Gypsum:
			1. Gypsum decks must be smooth and free from deflections or ridges.
			2. When installing base sheet fasteners, an average fastener withdrawal resistance as recommended by the fastener manufacturer must be obtained; however, at no time must it be less than 40 lb (178 N) per fastener.
			3. Wet or frozen poured gypsum decks are not suitable to receive a roof.
			4. Poured-in-place gypsum roof decks contain a large percentage of moisture. All necessary precautions must be taken to avoid the entrapment of moisture under the roofing system. In addition to ventilation of the underside to allow for proper curing, topside and perimeter venting must be implemented.
		3. Recover:
			1. Suitable roofs for recover must be free of dust, dirt, debris, and any contaminants that may adversely affect the performance of the new roof. Areas of substantial deck deflection or membrane imperfections must be corrected prior to installing any new roofing.
			2. For recover installations over single-ply, fluid applied, coal tar and metal roofs, contact GAF Technical Services for prior approval and technical requirements.
			3. Taking test cuts to verify the existing roof construction and condition. Three test cuts must be made for roofs under 100 squares (930 sm) and one test cut per 100 squares (930 sm) above the minimum amount.
			4. Existing substrates and insulation (if applicable) must be dry over the majority of the roof area. Wet or deteriorated areas of insulation and substrate must be removed and replaced with new materials. When adhering insulation or new roofing directly to the existing roof surface, the existing roof system components must be well attached to each other and their substrate.
			5. All applicable code requirements must be met for recover over an existing roofing system.

\*\* NOTE TO SPECIFIER \*\* It is highly recommended and in certain circumstances, required, that a moisture survey be made to determine the extent of wet insulation and moisture entrapment. Contact GAF Technical Services for more information on moisture surveys.
 \*\* NOTE TO SPECIFIER \*\* GAF does not recommend partial recover or re-roofing of a single roof area due to the potential for defects in the portion of the roof system not replaced or negatively affecting the performance of the new membrane. When required by project conditions or budget considerations, GAF requires full separation of the old and new roof areas by means of a full curb mounted expansion joint or area divider installed to provide a complete watertight seal or break between areas. Tie-in constructions, in which the old and new membranes are adhered directly to each other and stripped in are not acceptable for coverage under certain guarantees.

* 1. INSTALLATION - GENERAL
		1. Install GAF's EverGuard PVC roofing system according to all current application requirements in addition to those listed in this section.

\*\* NOTE TO SPECIFIER \*\* Provide selected specification number if required. Delete if provision not used.

* + 1. GAF EverGuard PVC Specification #: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
		2. Start the application of membrane plies at the low point of the roof or at the drains, so that the flow of water is over or parallel to, but never against the laps.

\*\* NOTE TO SPECIFIER \*\* Insulation bitumen. Delete if not required.

* 1. BITUMEN HANDLING
		1. Do not mix different types of asphalt.
		2. Use only ASTM D 312, Type III or Type IV Steep Asphalt. Type III asphalt may be used on slopes up to 1/2" per foot (40 mm/m). Type IV asphalt must be used on all slopes greater than 1/2" per foot (40 mm/m).
		3. Application with hot asphalt requires continuous, uniform interply mopping rates of 25 lbs. +/- 20% per 100 square feet of roof area (1.2 kg/m 2). rates up to 60lbs per 100 sq.ft may be required if the substrate surface is rough or porous.
		4. Application temperature of the asphalt must be at the Equiviscous Temperature (EVT) with a tolerance of +/- 25 degreesF (13.9 degreesC), at which a viscosity of 125 centipoise is attained. When using mechanical asphalt applicators, the target viscosity should be 75 centipoise.
		5. For all SBS modified asphalt flashings; the minimum application temperature of the asphalt must be at the EVT temperature, typically between 425 degreesF and 475oF, whichever is greater, with a rolling bank (puddle) of mopping asphalt across the full width of the roll.
		6. Do not heat the asphalt to or above its flash point or hold the asphalt at temperatures above the finished blowing temperature for more than 4 hours.
		7. Do not keep heated tankers above 325 degreesF (163 degreesC) overnight.

\*\* NOTE TO SPECIFIER \*\* Permate vapor retarder Delete if not required.

* 1. AIR/VAPOR BARRIER
		1. GENERAL
			1. Air/vapor barrier sheet shall typically be installed when required by design professional to address internal air pressure or humidity conditions.
			2. Insulation must be installed over the air/vapor barrier sheet and mechanically attached to the deck.
		2. APPLICATION
			1. Install air/vapor barrier sheet loose-applied to the deck or fire board so that wrinkles and buckles are not formed.
			2. Overlap air/vapor barrier sheets a minimum of 6" (152 mm) for side and end laps. Tape laps together with duct tape or double sided tape.
			3. Seal perimeter and penetration areas with foam sealant.

\*\* NOTE TO SPECIFIER \*\* Insulation. Delete if not required.

* 1. INSULATION - GENERAL
		1. Do not apply roof insulation or roofing until all other work trades have completed jobs that require them to traverse the deck on foot or with equipment. A vapor retarder coated lightly with asphalt may be applied to protect the inside of the structure prior to the insulation and final roofing installation. Before the application of the insulation, any damage or deterioration to the vapor retarder must be repaired.
		2. Do not install wet, damaged or warped insulation boards.
		3. Install insulation boards with staggered board joints in one direction (unless taping joint).
		4. Install insulation boards snug. Gaps between board joints must not exceed 1/4 inch (6 mm). All gaps in excess of 1/4 inch (6 mm) must be filled with like insulation material.
		5. Wood nailers must be 3-1/2 inches (89 mm) minimum width or 1 inch (25 mm) wider than metal flange. They must be of equal thickness as the insulation with a minimum 1 inch (25 mm) thickness. All nailers must be securely fastened to the deck.
		6. Do not kick insulation boards into place.
		7. Miter and fill the edges of the insulation boards at ridges, valleys and other changes in plane to prevent open joints or irregular surfaces. Avoid breaking or crushing of the insulation at the corners.
		8. Insulation must not be installed over new lightweight insulating concrete.
		9. Roof tape, if required over insulation joints, must be laid evenly, smoothly and embedded in a uniform coating of hot steep asphalt with 4" (102 mm) end laps. Care must be taken to assure smooth application of tape, and full embedment of the tape in the asphalt.
		10. Do not install any more insulation than will be completely waterproofed each day.
	2. INSULATION - BASE LAYER

\*\* NOTE TO SPECIFIER \*\* Mechanically fastened. Delete if not required.

* + 1. The insulation must be securely attached to the roof deck. A minimum FMRC 1-60 attachment is recommended. Refer to FMRC Approval Guide for FM fastening patterns. Factory Mutual requires fastener density increased in corner areas for FM 1-60 and perimeter, and corner area fastener density increases for FM 1-90 or greater. Refer to FM Loss Prevention Data Sheets 1-7, 1-28, and 1-49.
		2. Use only fasteners with a minimum 3"(76 mm) stress plate when mechanically attaching insulation. Do not attach insulation with nails.

\*\* NOTE TO SPECIFIER \*\* Asphalt Adhered. Delete if not required.

* + 1. Install insulation layers, maximum 4 feet by 4 feet (1.22 m by 1.22 m) board size, in a full and uniform mopping of hot asphalt applied at the rate of 25 lb/square (1.2 kg/sm) +/- 20 percent. Press each board firmly into place. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 6 inches (152 mm) to eliminate continuous vertical gaps.

\*\* NOTE TO SPECIFIER \*\* Oly Bond. Delete if not required.

* + 1. The substrate must be free of debris, dust, dirt, oil, grease, and standing water before applying the adhesive.
		2. Install insulation layers applied with beads of Oly Bond 500 spaced 12 inches (305 mm) O.C. Approximate coverage rate is one (1) gallon per 100 square feet (0.42 l/sm), depending on the substrate. Allow the foam to rise 1/2 inch to 3/4 inch (13 mm to 19 mm). Press each board firmly into place. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 6 inches (152 mm) to eliminate continuous vertical gaps.

\*\* NOTE TO SPECIFIER \*\* Insta-Stik. Delete if not required.

* + 1. The substrate must be free of debris, dust, dirt, oil, grease, and standing water before applying the adhesive.
		2. Install insulation layers applied with 3/4 inch (19 mm) beads of Insta-Stik spaced 12 inches (305 mm) O.C. Press each board firmly into place. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 6 inches (152 mm) to eliminate continuous vertical gaps.

\*\* NOTE TO SPECIFIER \*\* Loose Laid. Delete if not required.

* + 1. Loose lay the base layer of insulation for subsequent layers to be simultaneously attached. Minimal fastening must be performed to avoid movement of the boards.
	1. INSULATION - SUBSEQUENT LAYERS

\*\* NOTE TO SPECIFIER \*\* Simultaneous Attachment. Delete if not required.

* + 1. The insulation must be securely attached to the roof deck. A minimum FMRC 1-60 attachment is recommended. Refer to FMRC Approval Guide for FM fastening patterns. Factory Mutual requires fastener density increased in corner areas for FM 1-60 and perimeter, and corner area fastener density increases for FM 1-90 or greater. Refer to FM Loss Prevention Data Sheets 1-7, 1-28, and 1-49.
		2. Multiple layers of insulation of the same, non-tapered insulation material may be simultaneously mechanically fastened with approved fasteners and plates through the top layer of insulation to the structural deck. Individual layers of insulation must not exceed 3 inches (7.6 mm) in thickness nor total thickness of all layers must not exceed 5 inches (127 mm) without written approval of GAF Technical Services.
		3. Use only fasteners with a minimum 3 inch (76 mm) stress plate when mechanically attaching insulation. Do not attach insulation with nails.

\*\* NOTE TO SPECIFIER \*\* Asphalt Adhered. Delete if not required.

* + 1. Install insulation layers, maximum 4 feet by 4 feet (1.22 m by 1.22 m) board size, in a full and uniform mopping of hot asphalt applied at the rate of 25 lb/square (1.2 kg/sm) 20 percent. Press each board firmly into place. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 6 inches (152 mm) to eliminate continuous vertical gaps.

\*\* NOTE TO SPECIFIER \*\* Monster Grip. Delete if not required.

* + 1. The substrate must be free of debris, dust, dirt, oil, grease, and standing water before applying the adhesive.
		2. Install insulation layers applied with 1/4 inch beads of Matrix 157 spaced 6 inches (152 mm) O.C. Press each board firmly into place. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 6 inches (152 mm) to eliminate continuous vertical gaps.

\*\* NOTE TO SPECIFIER \*\* Oly Bond. Delete if not required.

* + 1. The substrate must be free of debris, dust, dirt, oil, grease, and standing water before applying the adhesive.
		2. Install insulation layers applied with bands of Oly Bond 500 spaced 12" (305 mm) o.c. Approximate coverage rate is 1/2 to 1 gallon per 100 square feet (0.2 - 0.4 L/m^2), depending on the substrate. Allow the foam to rise 3/4" to 1" (19-25 mm). Walk each board firmly into place. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 6" (152 mm) to eliminate continuous vertical gaps.

\*\* NOTE TO SPECIFIER \*\* Insta-Stik. Delete if not required.

* + 1. The substrate must be free of debris, dust, dirt, oil, grease, and standing water before applying the adhesive.
		2. Install insulation layers applied with 3/4 inch (19 mm) beads of Insta-Stik spaced 12 inches (305 mm) O.C. Press each board firmly into place. Stagger the joints of additional layers in relation to the insulation joints in the layer(s) below by a minimum of 6 inches (152 mm) to eliminate continuous vertical gaps.
		3. Do not install any more insulation than will be completely waterproofed each day.
	1. MEMBRANE APPLICATION

\*\* NOTE TO SPECIFIER \*\* Fully Adhered. Delete if not required.

* + 1. Adhered:
			1. Place membrane so that wrinkles and buckles are not formed. Any wrinkles or buckles must be removed from the sheet prior to permanent attachment. Roof membrane must be fully adhered immediately after it is rolled out, followed by welding to adjacent sheets.
			2. Overlap roof membrane a minimum of 3" (76 mm) for side laps and 3" (76 mm) for end laps.
			3. Install membrane so that the side laps run across the roof slope lapped towards drainage points.
			4. All exposed sheet corners must be rounded a minimum of 1" (25 mm).
			5. Use full width rolls in the field and perimeter region of roof.
			6. Use appropriate bonding adhesive for substrate surface, applied with a solvent-resistant roller, brush or squeegee.
			7. Apply bonding adhesive per list rates on product. A greater quantity of bonding adhesive may be required based upon the substrate surface condition.

\*\* NOTE TO SPECIFIER \*\* Mechanically Attached. Delete if not required.

* + 1. Mechanically Attached:
			1. Place membrane so that wrinkles and buckles are not formed. Any wrinkles or buckles must be removed from the sheet prior to permanent attachment. Roof membrane must be mechanically fastened immediately after it is rolled out, followed by welding to adjacent sheets.
			2. Overlap roof membrane a minimum of 5 inches (127 mm) for side laps and 3 inches (76 mm) for end laps.
			3. Install membrane so that the side laps run across the roof slope lapped towards drainage points.
			4. All exposed sheet corners must be rounded a minimum of 1 inch (25 mm).
			5. Use full width rolls in the field of roof and half width rolls in the perimeter and corner region of the roof and mechanically fastened in the side lap area to the roof deck.
			6. Membrane laps must be heat-welded together. All welds must be continuous, without voids or partial welds. Welds must be free of burns and scorch marks.
			7. Weld must be a minimum of 1-1/2 inches (38 mm) in width for automatic machine welding and a minimum 2 inches (51 mm) in width for hand welding.
			8. The membrane must be mechanically fastened in the side lap area to the roof deck with appropriate Drill-Tec fasteners and plates as required by roof system specification and/or Factory Mutual classification requirements.
			9. The metal plates must be placed within 1/4 inch (6 mm) to 1/2 inch (13 mm) of the membrane edge. Plates must not be placed less than 1/4 inch (6 mm) from the membrane edge.
			10. In the corner regions, additional fasteners must be installed through the perimeter membrane to form a grid pattern, with a 8 inches (405 mm) wide EverGuard PVC reinforced membrane flashing-strip welded over the additional fasteners. Corners include both outside and inside corners that measure 75 - 105 angle degrees.
			11. Membrane attachment to the roof deck is required at locations of deck angle changes in excess of five (5) angle degrees (1 inch (25 mm) in 12 inches (305 mm)).
			12. Supplemental membrane attachment is required at the base of all walls and curbs, and where the angle of the substrate changes by more than five (5) degrees (1 inch (25 mm) in 12 inches (305 mm)). Roofing membrane must be secured to the structural deck with screws and plates of the same type and spacing used for in-lap attachment. The screws and plates must be installed no less than 1/2 inch (13 mm)from the membrane edge. Alternatively, the roofing membrane may be turned up the vertical plane a minimum of 3 inches (76 mm) and secured with screws and termination bar fastener spacing is the same as is used for in-lap attachment. The termination bar must be installed within 1-1/2 inches (38 mm) to 2 inches (51 mm) of the plane of the roof membrane, with a minimum of 1 inch (25 mm) of membrane extending above the termination bar.
			13. Supplemental membrane attachment to the structural deck is required at all penetrations. Roofing membrane must be secured to the deck with appropriate Drill-Tec screws and plates.
			14. Fasteners must be installed to achieve the proper embedment depth. Install fasteners without lean or tilt.
			15. Install fasteners so that the plate or termination bar is drawn down tightly to the membrane surface. Properly installed fasteners will not allow the plate or termination bar to move (underdriving), but will not cause wrinkling of the membrane (overdriving).

\*\* NOTE TO SPECIFIER \*\* Ballast application. Delete if not required.

* + 1. Ballast Applied:
			1. Place membrane so that wrinkles and buckles are not formed. Any wrinkles or buckles must be removed from the sheet prior to permanent attachment. Roof membrane must be mechanically fastened immediately after it is rolled out, followed by welding to adjacent sheets.
			2. Overlap roof membrane a minimum of 3 inches (76 mm) for side laps and 3 inches (76 mm) for end laps.
			3. Install membrane so that the side laps run across the roof slope lapped towards drainage points.
			4. All exposed sheet corners must be rounded a minimum of 1 inch (25 mm).
			5. Use full width rolls in the field of roof and perimeter of the roof.
			6. Membrane laps must be heat-welded together. All welds must be continuous, without voids or partial welds. Welds must be free of burns and scorch marks.
			7. Weld width must be a minimum of 1-1/2 inches (38 mm) in width for automatic machine welding. Weld width must be a minimum 2 inches (51 mm) in width for hand welding.
			8. Supplemental membrane attachment is required at the base of all walls and curbs, and where the angle of the substrate changes by more than ten (10) degrees (2 inches (51 mm) in 12 inches (305 mm)). Roofing membrane must be secured to the structural deck with appropriate Drill-Tec screws and plates spaced every 12 inches (305 mm) o.c. The screws and plates must be installed no less than 1/2 inch (13 mm) from the membrane edge. Alternatively, the roofing membrane may be turned up the vertical plane a minimum of 3 inches (76 mm) and secured with screws and termination bar fastener spacing is the same as is used for in-lap attachment. The termination bar must be installed within 1-1/2 inches (38 mm) to 2 inches (51 mm) of the plane of the roof membrane, with a minimum of 1 inch (25 mm) of membrane extending above the termination bar.
			9. Supplemental membrane attachment to the structural deck is required at all penetrations. Roofing membrane must be secured to the deck with appropriate Drill-Tec screws and membrane plates.
			10. Fasteners must be installed to achieve the proper embedment depth. Install fasteners without lean or tilt.
			11. Install fasteners so that the plate or termination bar is drawn down tightly to the membrane surface. Properly installed fasteners will not allow the plate or termination bar to move (underdriving), but will not cause wrinkling of the membrane (overdriving).

\*\* NOTE TO SPECIFIER \*\* OPTION 1 ~ GENERAL - ARCHITECT. Delete if not required.

* 1. FLASHINGS
		1. All penetrations must be at least 2 feet (610 mm) from the curbs, walls, and edges to provide adequate space for proper flashing.
		2. Flash all perimeter, curb, and penetration conditions with coated metal, membrane flashing, and flashing accessories as appropriate to the site condition.
		3. All coated metal and membrane flashing corners must be reinforced with preformed corners or non-reinforced membrane.
		4. Hot-air weld all flashing membranes, accessories, and coated metal. A minimum 2 inches (51 mm) wide (hand welder) weld is required.

\*\* NOTE TO SPECIFIER \*\* OPTION 2 ~ DETAILED - CONTRACTOR. Delete if not required.

* 1. FLASHINGS
		1. General:
			1. All penetrations must be at least 24 inches (610 mm) from curbs, walls, and edges to provide adequate space for proper flashing.
			2. Flash all perimeter, curb, and penetration conditions with coated metal, membrane flashing, and flashing accessories as appropriate to the site condition.
			3. All coated metal and membrane flashing corners must be reinforced with preformed corners or non-reinforced membrane.
			4. Hot-air weld all flashing membranes, accessories, and coated metal. A minimum 2 inches (51 mm) wide (hand welder) weld is required.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Coated Metal Flashings:
			1. Coated metal flashings must be formed in accordance with current EverGuard construction details and SMACNA guidelines.
			2. Coated metal sections used for roof edging, base flashing and coping must be butted together with a 1/4 inch (6 mm) gap to allow for expansion and contraction. Hot-air weld a 6 inches (152 mm) wide reinforced membrane flashing strip to both sides of the joint, with approximately 1 inch (25 mm) on either side of the joint left un-welded to allow for expansion and contraction. 2 inches (51 mm) wide aluminum tape can be installed over the joint as a bond-breaker, to prevent welding in this area.
			3. Coated metal used for sealant pans, scupper inserts, corners of roof edging, base flashing and coping must be overlapped or provided with separate metal pieces to create a continuous flange condition, and pop-riveted securely. Hot-air weld a 6 inch (152 mm) wide reinforced membrane flashing strip over all seams that will not be sealed during subsequent flashing installation.
			4. Provide a 1/2 inch (13 mm) hem for all exposed metal edges to provide corrosion protection and edge reinforcement for improved durability.
			5. Provide a 1/2 inch (13 mm) hem for all metal flange edges whenever possible to prevent wearing of the roofing and flashing membranes at the flange edge.
			6. Coated metal flashings must be nailed to treated wood nailers or otherwise mechanically attached to the roof deck, wall or curb substrates, in accordance with construction detail requirements.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Reinforced Membrane Flashings:
			1. The thickness of the flashing membrane must be the same as the thickness of the roofing membrane.
			2. Membrane flashing may either be installed loose or fully adhered to the substrate surface in accordance with "Construction Detail Requirements".
			3. Apply bonding adhesive at a rate resulting in 60 square feet/gallon (1.4 sqm/l) of finished roofing material for solvent-based bonding adhesives, and at a rate of 125 square feet/gallon (3 sqm/l) of finished roofing material for water-borne bonding adhesive. Apply bonding adhesive to both the underside of the membrane and the substrate surface at 120 square feet per gallon (2.8 sqm/l) (Solvent Based) and 250 square feet per gallon (6 sqm/l) (Water Based). A greater quantity of bonding adhesive may be required based upon the substrate surface condition. The bonding adhesive must be allowed to dry until tacky to the touch before flashing membrane application.
			4. Apply the adhesive only when outside temperature is above 40 degree F (4.4 degree C). Recommended minimum application temperature is 50 degree F (10 degree C) to allow for easier adhesive application.
			5. The membrane flashing must be carefully positioned prior to application to avoid wrinkles and buckles.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Un-reinforced Membrane Flashings:
			1. Un-reinforced membrane is used to field-fabricate penetration or reinforcement flashings in locations where preformed corners and pipe boots cannot be properly installed.
			2. Penetration flashings constructed of un-reinforced membrane are typically installed in two sections, a horizontal piece that extends onto the roofing membrane and a vertical piece that extends up the penetration. The two pieces are overlapped and hot-air welded together.
			3. The un-reinforced membrane flashing must be adhered to the penetration surface. Apply bonding adhesive at a rate resulting in 60 square feet/gallon (1.4 sqm/l) of finished roofing material for solvent-based bonding adhesives, and at a rate of 125 square feet/gallon (3 sqm/l) of finished roofing material for water-borne bonding adhesive. Apply bonding adhesive to both the underside of the membrane and the substrate surface at 120 square feet per gallon (2.8 sqm/l) (Solvent Based) and 250 square feet per gallon (6 sqm/l) (Water Based). The bonding adhesive must be allowed to dry until tacky to the touch before flashing membrane application.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Roof Edges:
			1. Roof edge flashings are applicable for gravel stop and drip edge conditions as well as for exterior edges of parapet walls.
			2. Flash roof edges with coated metal flanges nailed 4 inches (101 mm) o.c. to pressure-treated wood nailers. Hot-air weld roof membrane to metal flanges.
			3. When the fascia width exceeds 4 inches (101 mm), coated metal roof edging must be attached with a continuous cleat to secure the lower fascia edge. The cleat must be secured to the building no less than 12 inches (305 mm) o.c.
			4. Alternatively, roof edges may be flashed with a 2-piece snap on fascia system, adhering the roof membrane to a metal cant with bonding adhesive and face nailing the membrane 8 inches (203 mm) on center prior to installing a snap-on fascia (MA-206, 207).
			5. Flash roof edge scuppers with a coated metal insert that is mechanically attached to the roof edge and integrated as a part of the metal edging.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Parapet and Building Walls:
			1. Flash walls with EverGuard PVC membrane adhered to the substrate with bonding adhesive, loose applied (Less than 18 inches (457 mm) in height) or with coated metal flashing nailed 4 inches (101 mm) on center to pressure-treated wood nailers.
			2. Secure membrane flashing at the top edge with a termination bar. Water Block must be applied between the wall surface and membrane flashing underneath all exposed termination bars. Exposed termination bars must be mechanically fastened 8 inches (203 mm) on center; termination bars that are counter flashed must be fastened 12 inches (305 mm) on center.
			3. Roof membrane must be mechanically attached along the base of walls with screws and plates (deck securement) or screws and inverted termination bar (wall securement) at the following rate:
				1. Mechanically Attached Systems: Per in-lap on center spacing, with a 12 inches (305 mm) maximum.
				2. Fully Adhered Systems:12 inches (305 mm) on center.
				3. Ballast Applied Systems:8 inches (203 mm) on center.
			4. All coated metal wall flashings and loose applied membrane flashings must be provided with separate metal counterflashings, or metal copings.
			5. Metal counterflashings may be optional with fully adhered flashings depending on guarantee requirements. Exposed termination bars must be sealed with EverGuard caulking.
			6. Flash wall scuppers with a coated metal insert that is mechanically attached to the wall and integrated as part of the wall flashing.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Curbs and Ducts:
			1. Flash curbs and ducts with EverGuard PVC membrane adhered to the curb substrate with bonding adhesive, loose applied (Less than 18 inches (457 mm) in height) or with coated metal flashing nailed 4 inches (101 mm) on center to pressure-treated wood nailers.
			2. Secure membrane flashing at the top edge with a termination bar. Water Block must be applied between the curb/duct surface and membrane flashing underneath all termination bars. Exposed termination bars must be mechanically fastened every 8 inches (203 mm) o.c.; termination bars that are counter flashed must be fastened 12 inches (305 mm) on center.
			3. Roof membrane must be mechanically attached along the base of walls with screws and plates (deck securement) or screws and inverted termination bar (wall securement) at the following rate:
				1. Mechanically Attached Systems: Per in-lap on center spacing, with a 12 inches (305 mm) maximum.
				2. Fully Adhered Systems: 12 inches (305 mm) on center.
				3. Ballast Applied Systems: 8 inches (203 mm) on center.
			4. All coated metal curb flashings and loose applied membrane flashings must be provided with separate metal counterflashings, or metal copings.
			5. Metal counterflashings may be optional with fully adhered flashings depending on guarantee requirements. Exposed termination bars must be sealed with EverGuard caulking.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Roof Drains:
			1. Roof drains must be fitted with compression type clamping rings and strainer baskets. Original-type cast iron and aluminum drains, as well as retrofit-type cast iron, aluminum or molded plastic drains are acceptable.
			2. Roof drains must be provided with a minimum 36 inches (914 mm) by 36 inches (914 mm) sump. Slope of tapered insulation within the sump must not exceed 4 inches (102 mm) in 12 inches (305 mm).
			3. Extend the roofing membrane over the drain opening. Locate the drain and cut a hole in the roofing membrane directly over the drain opening. Provide a 1/2 inch (13 mm) of membrane flap extending past the drain flange into the drain opening. Punch holes through the roofing membrane at drain bolt locations.
			4. For cast iron and aluminum drains, the roofing membrane must be set in a full bed of water block on the drain flange prior to securement with the compression clamping ring. Typical water block application is one 10.5 ounce (315 g) cartridge per drain.
			5. Lap seams must not be located within the sump area. Where lap seams will be located within the sump area, a separate roof membrane drain flashing a minimum of 12 inches (305 mm) larger than the sump area must be installed. The roof membrane must be mechanically attached 12 inches (305 mm) on center around the drain with screws and plates. The separate roof drain flashing must be heat welded to the roof membrane beyond the screws and plates, extended over the drain flange, and secured as above.
			6. Tighten the drain compression ring in place.

\*\* NOTE TO SPECIFIER \*\* SEPARATION MAT. Delete if ballast application not required.

* 1. SEPARATION MAT
		1. Apply a 3 oz poly separation slip-sheet above the roofing membrane under all ballasted installations where existing stone ballast is reused or where the underside of the paver is smooth and regular, and has integral drainage channels.
		2. Apply a 6 oz poly cushioning slip-sheet above the roofing membrane under all paver applications where pavers are used as walkways, work surfaces, or as heavyweight perimeter ballast.
		3. Loose-lay separation mat over the membrane so that wrinkles and buckles are not formed. Overlap separation mat a minimum of 6 inches (153 mm) for side and end laps, and immediately install ballast or pavers over the loose laid separation mat.

\*\* NOTE TO SPECIFIER \*\* INTERLOCKING PAVERS. Delete if not required.

* 1. INTERLOCKING PAVERS
		1. Install interlocking concrete pavers in accordance with requirements determined by the most current revision of ASCE 7, and the paver manufacturer's recommendations for stagger and interlock.
		2. Utilize perimeter securement of interlocking pavers and/or paver clips in accordance with the paver manufacturer's requirements.

\*\* NOTE TO SPECIFIER \*\* NON-INTERLOCKING PAVERS. Delete if not required.

* 1. NON-INTERLOCKING PAVERS
		1. Install non-interlocking concrete pavers in accordance with requirements determined by the most current revision of ASCE 7 and the paver manufacturer's requirements.
		2. Utilize perimeter securement of non-interlocking pavers in accordance with the paver manufacturer's requirements.

\*\* NOTE TO SPECIFIER \*\* STONE BALLAST. Delete if not required.

* 1. STONE BALLAST
		1. Install stone ballast in accordance with requirements determined by the most current revision of ANSI RP-4.
			1. Minimum ballast application rate for #4 nominal 1-1/2 inches (38 mm) ballast is 10 lb per sf (50 kg/sm).
			2. Minimum ballast application rate for #2 nominal 2-1/2 inches (63 mm) ballast is 13 lb per sf (65 kg/sm).

\*\* NOTE TO SPECIFIER \*\* TRAFFIC PROTECTION. Delete if not required.

* 1. TRAFFIC PROTECTION
		1. Install walkway pads/rolls at all roof access locations and other designated locations including roof-mounted equipment work locations and areas of repeated rooftop traffic.
		2. Walkway pads must be spaced 2 inches (51 mm) apart to allow for drainage between the pads.

\*\* NOTE TO SPECIFIER \*\* Delete application method not required.

* + 1. Fully adhere walkway pads/rolls to the roof membrane with solvent-based bonding adhesive, applied at the rate of 1 gal per 100 sf (0.42 l/sm) to both the walkway and roof membrane surfaces. Press walkway in position once adhesive is tacky to the touch.
		2. Hot-air-weld walkway pads/rolls to the roof membrane surface continuously around the perimeter of the pad/roll.
	1. ROOF PROTECTION
		1. Protect all partially and fully completed roofing work from other trades until completion.
		2. Whenever possible, stage materials in such a manner that foot traffic is minimized over completed roof areas.
		3. When it is not possible to stage materials away from locations where partial or complete installation has taken place, temporary walkways and platforms must be installed in order to protect all completed roof areas from traffic and point loading during the application process.
		4. Temporary tie-ins must be installed at the end of each workday and removed prior to commencement of work the following day.
	2. CLEAN-UP
		1. All work areas are to be kept clean, clear and free of debris at all times.
		2. Do not allow trash, waste, or debris to collect on the roof. These items must be removed from the roof on a daily basis.
		3. All tools and unused materials must be collected at the end of each workday and stored properly off of the finished roof surface and protected from exposure to the elements.
		4. Dispose of or recycle all trash and excess material in a manner conforming to current EPA regulations and local laws.
		5. Properly clean the finished roof surface after completion, and make sure the drains and gutters are not clogged.
		6. Clean and restore all damaged surfaces to their original condition.

END OF SECTION