SECTION 07 56 00

FLUID APPLIED ROOFING

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\*\* NOTE TO SPECIFIER \*\* GE Performance Coatings; fluid applied roofing.
This section is based on the products branded GE Silicones from Momentive Performance Materials, which is located at:
260 Hudson River Road
Waterford, NY 12188
Toll Free: 800-295-2392
Phone: 704-805-6946
Email: www.GECSTMKT@momentive.com
Web: www.GESilicones.com
[Click Here] for additional information.
Momentive Performance Materials is the provider of GE branded construction sealants.
The construction industry demands high quality products that are highly UV resistant. Cured silicone rubber exhibits excellent long term resistance to natural weathering, including UV radiation, high and low temperatures and rain and snow, with negligible change in elasticity.

1. GENERAL
	1. SECTION INCLUDES

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

* + 1. Silicone roof coatings for the following substrates:
			1. Asphalt based roofing.
			2. Metal roofing.
			3. Single ply membrane roofing.
	1. RELATED SECTIONS

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

* + 1. Section 07 41 13 - Metal Roof Panels.
		2. Section 07 50 00 - Membrane Roofing.
		3. Section 07 62 00 - Sheet Metal Flashing and Trim.
	1. REFERENCES

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

* + 1. ASTM International (ASTM):
			1. ASTM C1371 - Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers.
			2. ASTM C1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
			3. ASTM D522 - Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings.
			4. ASTM D624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
			5. ASTM D1644 - Standard Test Methods for Nonvolatile Content of Varnishes.
			6. ASTM D2240 - Standard Test Method for Rubber PropertyDurometer Hardness.
			7. ASTM D2370 - Standard Test Method for Tensile Properties of Organic Coatings.
			8. ASTM D2697 - Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings.
			9. ASTM D3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.
			10. ASTM D6694 - Standard Specification for Liquid-Applied Silicone Coating Used in Spray Polyurethane Foam Roofing Systems.
			11. ASTM E84- Standard Test Method for Surface Burning Characteristics of Building Materials.
			12. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
			13. ASTM E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.
		2. California Department of Forestry and Fire Protection (CAL Fire).
		3. Cool Roof Rating Council (CRRC).
		4. Environmental Protection Agency (EPA):
			1. EPA Method 24 - Surface Coatings.
			2. EPA Energy Star.
		5. FM Global (FM).
		6. Federal Specifications Standards:
			1. TT-C-555B - Coating, Textured (For Interior and Exterior Masonry Surfaces).
		7. Miami Dade Notice of Acceptance (NOA).
		8. Underwriters Laboratories (UL):
			1. UL 790 - Flammability Characteristics.
		9. Waterford Plant Standard Test Method (WPSTM).
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data:
			1. Manufacturer's data sheets on each product to be used.
			2. Preparation instructions and recommendations.
			3. Storage and handling requirements and recommendations.
			4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern and color.
		2. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
		2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity and approved by Manufacturer.
		3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.
		4. Adhesion Test: Prior to estimating coating restoration project, conduct an adhesion test in accordance with manufacturer's adhesion testing procedures to determine if a primer or other specific surface preparation is required.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. PRE-INSTALLATION CONFERENCE
		1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor, Owner's Representative and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
		2. Protect from damage due to weather, excessive temperature, and construction operations.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
	4. WARRANTY
		1. Manufacturer's Warranty: Provide manufacturer's standard limited warranty.

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

* + - 1. Warranty Period: 10 Years.
			2. Warranty Period: 15 Years.
			3. Warranty Period: 20 Years.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: GE Silicones, which is located at: 9930 Kincey Ave.; Huntersville, NC 28078; Toll Free Tel: 877-943-7325; Tel: 704-996-7164; Email: [request info (GECSTMKTG@momentive.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=GE+Silicones&coid=44515&rep=&fax=&message=RE:%20Spec%20Question%20(07560mom):%20%20&mf=); Web: <http://gesilicones.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.
	1. SILICONE COATING

\*\* NOTE TO SPECIFIER \*\* Delete basis of design options not required. The primary difference between 3500, and 3500SC is tack free time, and skin over time.

* + 1. Basis of Design: Enduris 3500 Series; as manufactured by Momentive Performance Materials Inc.
			1. Description: High solids, solvent-free, alkoxy-based, moisture-cured, silicone roof coating.
			2. Performance Requirements:
				1. Standards Compliance:

Complies with ASTM D6694.

CRRC rated.

UL 790, Class A and Class B.

Miami Dade NOA.

CAL Fire.

FM Global.

Energy Star.

NSF P151

* + - * 1. Tensile Strength per ASTM D2370: 200 psi (1380 kPa).
				2. Elongation at Break per ASTM D2370: 350 percent.
				3. Solids by Volume per ASTM D2697: Minimum 90 percent.
				4. Solids by Weight per ASTM D1644: Minimum 90 percent.
				5. Tack Free Time per ASTM D3960: 20 to 30 minutes.
				6. Skin Over Time per WPSTM C-560: 10 to 15 minutes.
				7. Durometer Hardness, Shore A per ASTM D2240: 36.
				8. Total VOC per EPA Method 24: Less than 3.2 oz per gal (24 g/L).
				9. Permeance per ASTM E96: 9.3 perms.
				10. Tear Resistance per ASTM D624: 32 lbf/in (5.6 kN/m).
				11. Low Temperature Flexibility per ASTM D522: Pass.
				12. Resistance to Wind Driven Rain per TT-C-555B: Pass.
				13. Surface Burning Characteristics per ASTM E84: Class A, Flame Spread Index of 10, Smoke Developed Index of 185.

\*\* NOTE TO SPECIFIER \*\* Delete color options not required. Solar reflectance and emittance values will vary slightly for different colors, however only white is actually tested. Contact manufacturer if more detailed information is required.

* + - 1. Color: White.
				1. Initial Solar Reflectance per ASTM C1549: 88 percent.
				2. Initial Emittance per ASTM C1371: 0.90.
				3. Initial SRI Value per ASTM E1980: 111.
				4. Aged Solar Reflectance per ASTM C1549: 55 percent.
				5. Aged Emittance per ASTM C1371: 89.
				6. Aged SRI Value per ASTM E1980: 65.
			2. Color: Tan.
			3. Color: Protection Yellow.
			4. Color: Light Grey.
			5. Color: Medium Grey.
			6. Color: Black.
			7. Limitations: Not appropriate for:
				1. Pedestrian, deck, or frequent traffic bearing surfaces.
				2. Cold storage roofing without vapor barrier, cryogenic tank application.
				3. Unprepared surfaces.
				4. Surfaces where adhesion has not been verified.
		1. Basis of Design: Enduris 3500SC Series; as manufactured by Momentive Performance Materials Inc.
			1. Description: High solids, solvent-free, alkoxy-based, moisture-cured, silicone roof coating.
			2. Performance Requirements:
				1. Standards Compliance:

Complies with ASTM D6694.

CRRC rated.

UL 790, Class A and Class B.

Miami Dade NOA.

CAL Fire.

FM Global.

* + - * 1. Tensile Strength per ASTM D2370: 200 psi (1380 kPa).
				2. Elongation at Break per ASTM D2370: 350 percent.
				3. Solids by Volume per ASTM D2697: Minimum 90 percent.
				4. Solids by Weight per ASTM D1644: Minimum 90 percent.
				5. Tack Free Time per ASTM D3960: 45 to 60 minutes.
				6. Skin Over Time per WPSTM C-560: 20 to 25 minutes.
				7. Durometer Hardness, Shore A per ASTM D2240: 36.
				8. Total VOC per EPA Method 24: Less than 3.2 oz per gal (24 g/L).
				9. Permeance per ASTM E96: 9.3 perms.
				10. Tear Resistance per ASTM D624: 32 lbf/in (5.6 kN/m).
				11. Low Temperature Flexibility per ASTM D522: Pass.
				12. Resistance to Wind Driven Rain per TT-C-555B: Pass.
				13. Surface Burning Characteristics per ASTM E84: Class A, Flame Spread Index of 10, Smoke Developed Index of 185.

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

* + - 1. Substrate: Asphalt based roofing.
			2. Substrate: Metal roofing.
			3. Substrate: Single ply membrane roofing.

\*\* NOTE TO SPECIFIER \*\* Delete color options not required. Solar reflectance and emittance values will vary slightly for different colors, however only white is actually tested. Contact manufacturer if more detailed information is required.

* + - 1. Color: White.
				1. Initial Solar Reflectance per ASTM C1549: 85 percent.
				2. Initial Emittance per ASTM C1371: 0.89.
				3. Initial SRI Value per ASTM E1980: 107.
				4. Aged Solar Reflectance per ASTM C1549: 80 percent.
				5. Aged Emittance per ASTM C1371: 90.
				6. Aged SRI Value per ASTM E1980: 100.
			2. Color: Tan.
			3. Color: Protection Yellow.
			4. Color: Light Grey.
			5. Color: Medium Grey.
			6. Color: Black.
			7. Limitations: Not appropriate for:
				1. Pedestrian, deck, or frequent traffic bearing surfaces.
				2. Cold storage roofing without vapor barrier, cryogenic tank application, or continuous water immersion.
				3. Unprepared surfaces.
				4. Building materials that might bleed oil or solvents.
				5. Surfaces where adhesion has not been verified.
	1. ACCESSORlES

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

* + 1. Asphalt Bleed Blocker: Asphalt Bleed Blocker; as manufactured by Momentive Performance Materials Inc.
		2. Seam Treatment Materials:
			1. GE Enduris Silicone Liquid Flashing; as manufactured by Momentive Performance Materials Inc.
			2. GE UltraSpan UST or GE UltraSpan USM pre-cured silicone transition sheets and molded corners; as manufactured by Momentive Performance Materials Inc.
			3. Reinforcement Fabric: GE RF100 series, 100 percent polyester spun-laced textile reinforcing fabric.

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

* + - * 1. Width: 4 inches (102 mm).
				2. Width: 6 inches (152 mm).
				3. Width: 12 inches (305 mm).
		1. Traffic Mats: Western Plastics, Inc.; Yellow Spaghetti. Nominal Thickness: 5/16 inch (8 mm).
		2. Walkway Coating: GE Enduris 3500 Protection Yellow silicone coating.
1. EXECUTION
	1. EXAMINATION
		1. Perform core tests in accordance with Manufacturer's recommendations.
		2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Remove any saturated insulation and replace with like-kind and thickness.
		2. Repair any damaged areas with like materials.
		3. Refer to the appropriate surface preparation guide for the substrate to be coated.
		4. Seal laps and seams as recommended by manufacturer.
		5. Surface shall be clean, sound, dry and free of any materials, laitance, membrane chalk, and loose coating that may inhibit the proper adhesion of the coating or sealant.
		6. Protect surrounding construction in accordance with manufacturer's recommendations.
	3. INSTALLATION
		1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
		2. Use application equipment meeting coating manufacturer's requirements.
		3. Install in monolithic and seamless layer encapsulating entire roof surface.
		4. Roof Coating: Apply by brush, roller, or airless sprayer.
		5. Liquid Flashing: Apply by brush, trowel, or gloved hand.
		6. Application Rate:
			1. For 10 year warranty: 1.5 gallons (5.7 liters) per 100 square feet (9.3 square meters) increased as needed to compensate for surface texture, porosity and waste.
			2. For 15 year warranty: 2 gallons (7.6 liters) per 100 square feet (9.3 square meters) increased as needed to compensate for surface texture, porosity and waste.
			3. For 20 year warranty: 2.5 gallons (9.5 liters) per 100 square feet (9.3 square meters) increased as needed to compensate for surface texture, porosity and waste.

\*\* NOTE TO SPECIFIER \*\* Use 0.021 inches (0.53 mm) thickness for 10 year warranty, 0.028 inches (0.71 mm) for 15 year warranty, and 0.036 inches (0.91 mm) for 20 year warranty. Delete cured coating thickness options not required.

* + - 1. Cured Coating Thickness: 21 mils (0.021 inches or0.53 mm).
			2. Cured Coating Thickness: 28 mils (0.028 inches or0.71 mm).
			3. Cured Coating Thickness: 36 mils (0.036 inches or0.91 mm).
	1. FIELD QUALITY CONTROL
		1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
	1. CLEANING AND PROTECTION
		1. Clean products in accordance with the manufacturer's recommendations.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION