SECTION 07 10 00

DAMPPROOFING AND WATERPROOFING

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\*\* NOTE TO SPECIFIER \*\* KARNAK; dampproofing and waterproofing products.
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This section is based on the products of KARNAK, which is located at:330 Central Ave.Clark, NJ 07066Toll Free Tel: 800-526-4236Tel: 732-388-0300Fax: 732-388-9422Email: [request info (info@karnakcorp.com)](https://arcat.com/rfi?action=email&company=KARNAK&message=RE%253A%2520Spec%2520Question%2520(07100kar)%253A%2520&coid=33521&spec=07100kar&rep=&fax=732-388-9422)
Web: <https://www.karnakcorp.com>
 [ [Click Here](https://arcat.com/company/karnak-33521) ] for additional information.
Karnak manufactures a complete line of reflective coatings, cements and sealants for roofing and waterproofing. Karnak is the leading manufacturer of Energy Star labeled coatings. Products are tested for fire resistance and wind uplift by UL and FM. Products are certified to comply with ASTM Specifications by UL Laboratories. Karnak Energy Star labeled coatings can help buildings obtain LEED points. Products are CRRC listed.

1. GENERAL
	1. SECTION INCLUDES

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

* + 1. Fluid-applied dampproofing.
		2. Fluid-applied waterproofing.
	1. RELATED SECTIONS

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

* + 1. Section 03 30 00 - Cast-in-Place Concrete
		2. Section 04 20 00 - Unit Masonry.
		3. Section 07 50 00 - Membrane Roofing.
		4. Section 07 90 00 - Joint Protection.
	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 C836 - Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course.
			2. ASTM D412 - Tests for Rubber Properties in Tension
			3. ASTM D1187 - Standard Specification for Asphalt-Base Emulsions for Use as Protective Coatings for Metal.
			4. ASTM D1227 - Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.
			5. ASTM D4479 - Standard Specification for Asphalt Roof Coatings - Asbestos-Free.
			6. ASTM D4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.
			7. ASTM E96 - Water Vapor Transmission of Materials.
		2. Federal Specifications:
			1. MIL-R-3472 Roof Coating, Asphalt Base Emulsion.
			2. SS-A-694 Asphalt Roof Coating (Brushing & Spraying Consist).
			3. SS-C-153 - Cement, Bituminous, Plastic.
			4. SS-R-1781 - Roof-Coating, Asphalt-Base Emulsion.
			5. SS-W-110 - Water-Repellent Colorless, Silicone Resin Base.
		3. National Standard of Canada 37.58 - M86.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Preparation instructions and recommendations.
			2. Storage and handling requirements and recommendations.
			3. Installation methods.
		3. Warranty: Submit a sample warranty identifying the terms and conditions stated in Warranty article.
	2. QUALITY ASSURANCE
		1. Applicator Qualifications: Applicator shall be experienced in applying the same or similar materials.
		2. Regulatory Requirements: Comply with applicable codes, regulations, ordinances, and laws regarding use and application of products that contain volatile organic compounds (VOC).

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project 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: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
			1. Finish areas designated by Architect.
			2. Do not proceed with remaining work until workmanship is approved by Architect.
			3. Rebuild mock-up area as required to produce acceptable work.
	1. PRE-INSTALLATION MEETINGS
		1. Pre-Installation Conference: Prior to beginning work, convene a conference to review conditions, installation procedures, schedules and coordination with other work.
		2. Convene minimum two weeks prior to starting work of this section.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Deliver materials to project site in original, factory-sealed, unopened containers bearing manufacturer's name and label intact and legible with following information.
			1. Name of material.
			2. Manufacturer's stock number and date of manufacture.
		2. Store materials in protected and well ventilated area. Handle materials to avoid damage.
	3. PROJECT CONDITIONS
		1. Do not apply when surface temperature or weather conditions conflict with manufacturer's published requirements.
		2. Coordinate waterproofing work with other trades.
		3. Keep flammable products away from spark or flame. Do not allow the use of spark producing equipment during application and until all vapors have dissipated. Post "NO SMOKING" signs.
		4. Maintain work area in a neat and orderly condition, removing empty containers, rags, and rubbish daily from the site.
	4. SEQUENCING
		1. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
	5. WARRANTY
		1. Warranty: Provide manufacturer's standard limited material warranty.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: KARNAK, which is located at:330 Central Ave.Clark, NJ 07066Toll Free Tel: 800-526-4236Tel: 732-388-0300Fax: 732-388-9422Email: [request info (info@karnakcorp.com)](https://arcat.com/rfi?action=email&company=KARNAK&message=RE%253A%2520Spec%2520Question%2520(07100kar)%253A%2520&coid=33521&spec=07100kar&rep=&fax=732-388-9422);Web: <https://www.karnakcorp.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. DAMPPROOFING

\*\* NOTE TO SPECIFIER \*\* Karnak #220 Fibered Emulsion Dampproofing is a vapor retarder used as a protective coating against dampness on the exterior face of interior walls in cavity wall construction and exterior surfaces of concrete, metal and wood above or below grade. It may also be applied to interior surfaces in the absence of hydrostatic pressure. The emulsion may be utilized as an adhesive for polystyrene insulation prior to backfilling. Delete if not required.

* + 1. 220AF Fibered Emulsion Dampproofing: Brush or spray applied, general purpose coating. Manufactured with refined asphalt, clay emulsifiers, and selected non-asbestos fibers.
			1. Cures to a tough, flexible, durable finish and will resist variations in temperature and weather.
			2. Low odor coating.
			3. May be applied to slightly damp surfaces.
			4. ASTM D1227, Type II, Class I.
			5. ASTM D1187, Type I and II.
			6. SS-R-1781 (except non-Asbestos).
			7. MIL-R-1781 (except non-Asbestos).
			8. Coverage Rate: 4 to 6 gallons per 100 square feet.
			9. Solids by Weight: 52 percent, nominal.
			10. Solids by Volume: 49 percent, nominal.
			11. Color: Black.
			12. Permeance: 0.5 perms.
			13. Cure Time: 24 to 48 hours at 77 degrees F and 50 percent Relative Humidity.
			14. Service Temperature (Cured Film): -5 to 180 degrees F.

\*\* NOTE TO SPECIFIER \*\* Fabric reinforcing is optional. Select one of the two paragraphs below if desired. Delete reinforcing not required.

* + - 1. Fabric Reinforcing: Karnak #31 Fiber Glass Membrane.
			2. Fabric Reinforcing: Karnak #34 Asphalt Saturated Cotton Fabric.

\*\* NOTE TO SPECIFIER \*\* Karnak #920 Fibered Emulsion Mastic is a vapor retarder used as a protective coating, against dampness on the exterior face of interior above grade and exterior surfaces of concrete, metal and wood above or below grade. It may also be used to dampproof interior surfaces below grade in the absence of hydrostatic pressure. The emulsion may be utilized as an adhesive for styrofoam insulation prior to backfilling. Delete if not required.

* + 1. 920AF Fibered Emulsion Mastic: Trowel grade, general purpose coating. Manufactured with refined asphalt, clay emulsifiers, and selected non-asbestos fibers.
			1. Cures to a tough, flexible, durable finish and will resist variations in temperature and weather.
			2. Low odor coating.
			3. May be applied to slightly damp surfaces.
			4. ASTM D1227, Type II, Class I.
			5. ASTM D1187, Type I.
			6. SS-R-1781.
			7. MIL-R-3472A.
			8. Coverage Rate: 4 to 6 gallons per 100 square feet.
			9. Solids by Weight: 52 percent, nominal.
			10. Solids by Volume: 49 percent, nominal.
			11. Color: Black.
			12. Permeance: 0.5 perms.
			13. Cure Time: 24 to 48 hours at 77 degrees F and 50 percent Relative Humidity.
			14. Service Temperature (Cured Film): -5 to 180 degrees F.

\*\* NOTE TO SPECIFIER \*\* Fabric reinforcing is optional. Select one of the two paragraphs below if desired. Delete reinforcing not required.

* + - 1. Fabric Reinforcing: Karnak #31 Fiber Glass Membrane.
			2. Fabric Reinforcing: Karnak #34 Asphalt Saturated Cotton Fabric.

\*\* NOTE TO SPECIFIER \*\* Karnak #83 Fibered Dampproofing is designed to dampproof masonry and concrete exterior surfaces below grade and interior surfaces above grade. This product is also suitable as a general protective coating for wood, steel and for all backup materials for masonry such as stone, brick and concrete. Delete if not required.

* + 1. 83AF Fibered Dampproofing: Brush or spray applied, solvent based asphalt compound. Manufactured with selected asphalts, mineral fibers, stabilizers and mineral spirits.
			1. Dries to a tough, flexible, durable finish and will resist variations in temperature and conditions.
			2. Excellent resistance to acids and alkalies in the soil and the environment.
			3. ASTM D4479, Type I.
			4. SS-A-694d.
			5. Coverage Rate: 4 gallons per 100 square feet.
			6. Solids by Weight: 72 percent.
			7. Solids by Volume: 65 percent.
			8. Color: Black.
			9. Permeance: 0.25 perms.
			10. Cure Time: 24 to 48 hours at 77 degrees F and 50 percent Relative Humidity.
			11. Service Temperature (Cured Film): 15 to 150 degrees F.

\*\* NOTE TO SPECIFIER \*\* Karnak #86 Fibered Trowel Mastic is especially recommended for application as a protective coating for exterior masonry walls below grade and exterior face of interior walls (cavity wall construction), and as a dampproofing product for retaining walls, bridge abutments and steel panels. It is also used for the coating of interior faces of exterior masonry walls above grade, and for all back-up material for masonry, such as stone, brick or concrete. Karnak #86 Fibered Trowel Mastic can be used for waterproofing when used in conjunction with a multi-membrane application. Delete if not required.

* + 1. 86AF Fibered Trowel Mastic: Trowel grade, manufactured from a blend of selected asphalts, fibers, stabilizers, fillers and solvents.
			1. Dries to a tough, flexible, durable finish and will resist variations in temperature and conditions.
			2. Excellent resistance to most acids, alkalies, and salts.
			3. ASTM D4586, Type I (Non-Asbestos).
			4. Federal Specification SS-C-153, Type I (except Asbestos-Free).
			5. Coverage Rate: 5 to 6 gallons per 100 square feet.
			6. Solids by Weight: 74 percent.
			7. Solids by Volume: 67 percent.
			8. Color: Black.
			9. Permeance: 0.25 perms.
			10. Cure Time: 24 to 48 hours at 77 degrees F and 50 percent Relative Humidity.
			11. Service Temperature (Cured Film): 15 to 160 degrees F.

\*\* NOTE TO SPECIFIER \*\* Karnak #100AF Non-Fibered Emulsion Dampproofing is a vapor retarder used as a protective coating against dampness on the exterior face of interior walls in cavity wall construction and exterior surfaces of concrete, metal and wood above or below grade. It may also be applied to interior surfaces in the absence of hydrostatic pressure. The emulsion may be utilized as an adhesive for polystyrene insulation prior to backfilling. Delete if not required.

* + 1. 100AF Non-Fibered Emulsion Dampproofing: Brush or spray applied, general purpose coating. Manufactured with refined asphalt, emulsifiers and selected clay fillers.
			1. Dries to a tough, flexible, durable finish and will resist extreme variations in temperature and weather.
			2. Low odor coating.
			3. May be applied to damp surfaces.
			4. ASTM D1227, Type III.
			5. ASTM D1187, Type II.
			6. SS-R-1781.
			7. MIL-R-3472A.
			8. Coverage Rate: 2 to 3 gallons per 100 square feet.
			9. Solids by Weight: 54 to 58 percent, nominal.
			10. Solids by Volume: 56 to 60 percent, nominal.
			11. Color: Black.
			12. Permeance: 0.5 perms.
			13. Cure Time: 24 to 48 hours at 77 degrees F and 50 percent Relative Humidity.
			14. Service Temperature (Cured Film): -40 to 180 degrees F.

\*\* NOTE TO SPECIFIER \*\* Fabric reinforcing is optional. Select one of the two paragraphs below if desired. Delete reinforcing not required.

* + - 1. Fabric Reinforcing: Karnak #31 Fiber Glass Membrane.
			2. Fabric Reinforcing: Karnak #34 Asphalt Saturated Cotton Fabric.

\*\* NOTE TO SPECIFIER \*\* Karnak #112AF Foundation & Roof Coating can be applied on exterior below grade and interior above grade block and masonry walls where no hydrostatic pressure is present. Use to coat all types of smooth surface asphalt roofs. Can also be used to protect wood and metal above or below grade. Delete if not required.

* + 1. 112AF Foundation and Roof Coating: Brush or spray applied, non-fibered asphalt coating.
			1. Dries to a tough, flexible, durable finish.
			2. Coverage Rate for Foundation Walls: 1 to 1-1/2 gallons per 100 square feet.
			3. Coverage Rate for Roofs: 1 to 2 gallons per 100 square feet.
			4. Solids by Weight: 70 percent.
			5. Solids by Volume: 64 percent.
			6. Color: Black.
			7. Cure Time: 8 to 24 hours at 77 degrees F and 50 percent Relative Humidity.
			8. Service Temperature (Cured Film): -40 to 180 degrees F.

\*\* NOTE TO SPECIFIER \*\* Karnak #LL10 & LL20 are water repellents designed specifically for use on above-grade concrete and similar alkaline substrates. Neutral substrates will require longer curing times to develop similar water repellent characteristics. Delete if not required.

* + 1. LL10 and LL20 Aqua-Repel Dampproofing: Brush or spray applied, environmentally friendly colorless silane modified siloxane emulsions manufactured for use as masonry water repellents.
			1. Formulated for deep penetration.
			2. Federal Specification SS-W-110C.
			3. NCHRP 244 Series II.
			4. Coverage Rate: 125-175 square feet per gallon.
			5. Prevents concrete corrosion by blocking salt penetration.
	1. WATERPROOFING

\*\* NOTE TO SPECIFIER \*\* Karnak One-Kote is an ideal waterproofing membrane for concrete below-grade foundation walls, tunnels, earth sheltered structures, and decks for split-slab or paver overburdens, CMU foundation walls, and CMU or frame and sheathing exterior insulated walls (where wall temperature does not exceed 130 degrees F), and plywood terrace or balcony deck installations with High-Build application. Delete if not required.

* + 1. 192 One-Kote: Single component, elastomeric waterproofing membrane, polyurethane with bitumen modifiers.

\*\* NOTE TO SPECIFIER \*\* Choose one of the application types and thicknesses below. Delete thicknesses not required.

* + - 1. Single Layer Dry Film Thickness: 60 mils.
			2. High-Build Multi-Layer Dry Film Thickness: 90 mils.
			3. High-Build Multi-Layer Dry Film Thickness: 120 mils.
			4. ASTM C836.
			5. Complies with National Standard of Canada 37.58 - M86.
			6. Coverage Rate: 4 gallons per 100 square feet.
			7. Shore Hardness, ASTM C836: 85.
			8. Elongation, ASTM D412: 600 percent.
			9. Tensile Strength, ASTM D412: 50 PSI.
			10. Water Vapor Permeance, ASTM E96: 0.1 perm.
			11. Heat Aging, ASTM C836: No Cracking.
			12. Crack Bridging, ASTM C836: Pass (10 cycles).
			13. Adhesion, ASTM C836: 5 lbs/in.
			14. Solids: Minimum 90 percent.
			15. Color: Black.

\*\* NOTE TO SPECIFIER \*\* Karnak 229AR Elastomeric is available in brush and trowel grades. Karnak 229AR-Elastomeric is used as a waterproof coating on exterior above or below grade surfaces such as masonry, metal, spray polyurethane foam, wood, stone, brick and concrete. Karnak 229AR Elastomeric can also be used as an air barrier/vapor barrier when applied in exterior/interior above grade assemblies. Delete if not required.

* + 1. 229AR Elastomeric Waterproofing: Single component, rubber reinforced asphalt that forms a highly elastomeric waterproof coating as well as an air barrier.
			1. Dry film thickness: 40 mils.
			2. Excellent resistance to acids, alkalies, and salts.
			3. ASTM D4586, Type I.
			4. ASTM D4479, Type I.
			5. Complies with Chapter 13 of Massachusetts Energy Code.
			6. Coverage Rate: 4 to 5 gallons per 100 square feet.
			7. Hardness, ASTM D2240: 55.
			8. Elongation, ASTM D412: 700 percent.
			9. Tensile Strength, ASTM D412: 400 PSI.
			10. Water Vapor Permeance, ASTM E96: 0.017 perm.
			11. Air Permeability: 0.000 L/s.m2 at 75pa pressure difference.
			12. Solids, Trowel, ASTM D2967: 70 percent.
			13. Solids, Brush, ASTM D2967: 63 percent.
			14. Solids, Spray, ASTM D2967: 60 percent.
			15. Color: Black.
			16. VOC Content: 300 g/L.
			17. Chemical Resistance:
				1. Salt Fog Resistance, 1/16 cured film: 500 hours - excellent.
				2. Abrasion Resistance: Excellent.
				3. Resistance to Acid: 60 days - excellent.
				4. 10 percent HCL: Excellent.
				5. 10 percent H2SO4: Excellent.
				6. 10 to 85 percent Phosphoric: Good.
				7. Nitric Acid: Not Recommended.
				8. Resistance to Alkalies: 60 days - excellent.
				9. 10 percent NA OH: Excellent.
				10. 45 percent Ammonium Nitrate: Excellent.
				11. 10 percent Ammonium Sulfate: Excellent.

\*\* NOTE TO SPECIFIER \*\* Karnak #88R Rubberized Waterproofing is designed to waterproof masonry and concrete exterior surfaces below grade and interior cavity wall surfaces above grade. Karnak #88R also functions as a vapor barrier and air barrier. This product is also suitable as a general protective coating for wood, spray polyurethane foam, steel and for all backup materials for masonry such as stone, brick and concrete. Delete if not required.

* + 1. 88R Rubberized Waterproofing: Spray applied, solvent based elastomeric asphalt compound, manufactured with selected asphalts, stabilizers and mineral spirits.
			1. Dry film thickness: 33 mils.
			2. Excellent resistance to acids, alkalies, and salts.
			3. ASTM D4479, Type I.
			4. Federal Specification SS-A-694d.
			5. Complies with Chapter 13 of Massachusetts Energy Code.
			6. Coverage Rate: 4 gallons per 100 square feet.
			7. Elongation, ASTM D412: 550 to 600 percent.
			8. Tensile Strength, ASTM D412: 150 PSI.
			9. Water Vapor Permeance, ASTM E96: 0.026 perm.
			10. Air Permeability: 0.001 L/s.m2 at 75pa pressure difference.
			11. Solids by Weight: 57.3 percent.
			12. Solids by Volume: 51.3 percent.
			13. Color: Black.
			14. Cure Time: 24 to 48 hours at 77 degrees F and 50 percent Relative Humidity.
			15. Chemical Resistance:
				1. Acids: Excellent.
				2. Alkaline: Excellent.
				3. Salts: Excellent.

\*\* NOTE TO SPECIFIER \*\* Karnak #502 RC-W Elasto-Kote is intended for use on concrete block, brick, cinder block, concrete, stucco, steel, wood, galvanized metal and previously coated surfaces. Do not apply over asphaltic surfaces. Delete if not required.

* + 1. 502 RC-W Elasto-Kote Waterproofing: Highly elastic solvent based single component exterior waterproof coating.
			1. Excellent color stability, weatherability, and flexibility.
			2. Excellent resistance to salt spray, acid rain, and ultra-violet sunlight.
			3. Dry film thickness: 20-24 mils.
			4. Coverage Rate, Base: 1 to 1-1/2 gallons per 100 square feet.
			5. Coverage Rate, Finish: 1 to 1-1/2 gallons per 100 square feet.
			6. Elongation, ASTM D412: 650 percent.
			7. Tensile Strength, ASTM D412: 1650 PSI.
			8. Permeability: 0.01 perm.
			9. Vapor Transmission: 0.25.
			10. Water Absorption (7 days): 0.4 percent.
			11. Solids by Weight: 50 percent.
			12. Solids by Volume: 40 percent.

\*\* NOTE TO SPECIFIER \*\* Select one of the color options below. Delete colors not required.

* + - 1. Color: To be selected by Architect.
			2. Color: White.
			3. Color: Gray.
			4. Color: Tan.
			5. Color: Terra Cotta Red.
			6. Color: Patina Green.
			7. Cure Time: Approximately 24 hours.
			8. Dry Time: 4 to 6 hours at 77 degrees F and 50 percent Relative Humidity
1. EXECUTION
	1. EXAMINATION
		1. Before work is started, applicator shall thoroughly examine all surfaces for any deficiencies.
		2. Notify Architect in writing of any defects.
	2. SURFACE PREPARATION
		1. Surface should be free of oil, grease, dirt, laitance and loose material.
		2. Repair all cracks and holes as recommended by Manufacturer, before applying surface coating.
	3. APPLICATION
		1. Comply with manufacturer recommendations and approved submittals. Mix as recommended by manufacturer.
		2. For fabric reinforced applications, apply first coat. Apply reinforcing fabric over the wet coating, overlapping all edges. Smooth out all wrinkles, to ensure there is no trapped air beneath fabric. Apply second coat.

END OF SECTION