

Application Specification:

WV-64-U
February 2007
Supersedes 12/00

Section 07120: GACOFLEX LM-60V POLYURETHANE ELASTOMERIC MEMBRANE SYSTEM FOR WATER STORAGE VAULTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This specification provides for 64 dry mills (1.6 mm) of 100% solids elastomeric polyurethane membrane for the protection of concrete water storage vaults. It is suitable for potable water storage (meets NSF 61 standards) and wastewater storage situations. LM-60AR (Acid Resistance) is available for wastewater storage situations with a minimum 500,000 gallon tank size.
- B. This specification is prepared in brief form so it can be used verbatim in the waterproofing section. It is necessary only to make the selections indicated to complete it. Gaco Western's General Instructions, which are incorporated by reference, provide specific detailed instructions for the guidance of contractors and inspectors.

1.2 RELATED SECTIONS

- A. Drains, Vents, and Penetrations: Section 07700

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's standard submittal package including specification, installation instructions, and general information for each waterproofing material.
- B. Applicator Qualifications: Submit current "Qualified Applicator" certificate from the specified waterproofing manufacturer.

1.4 QUALIFICATIONS

- A. Primary polyurethane foam insulation and the designated elastomeric coating system shall be of:
 - 1. Single manufacturer. Manufacturer shall have a minimum of 10 years experience in the manufacture of materials of this type.
 - 2. Applicators shall have a minimum of 5 years experience in the application of waterproofing materials of the type specified. Applicator shall possess a current "Qualified Applicator" certificate from the specified waterproofing manufacturer.
- B. Pre-Bid Conference: 10 working days prior to bid opening there is to be a mandatory Pre-Bid Conference. Anyone not attending the Pre-Bid Conference will not be allowed to bid the project. All products considered an equal to the specified product or any changes in the scope of work installation or specifications must be presented at the Pre-Bid Conference. If a change in the specifications is accepted, it will be considered as an alternate and will be presented as a bid amendment issued 5 working days prior to the bid opening. No other changes to specification or bid documents will be accepted.

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- C. Materials other than specified shall be submitted to the architect/owner for approval no later than ten days prior to bid date. In requesting prior approval, it shall be necessary to submit:
 - 1. A letter of certification, signed by an officer of the manufacturer, stating that the alternative material is equal to or better than the specified product.
 - 2. Independent laboratory test data giving physical property values in comparison to the specified material.
- D. Pre-Installation Conference: Just prior to commencement of the fluid application waterproofing system, meet at the site with a representative of the coating manufacturer, the waterproofing contractor, the general contractor, the architect and other parties affected by this section. Review methods and procedures, substrate conditions, scheduling and safety.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Store all coating materials in the original unopened containers at 50° to 80°F (10° to 27°C) until ready for use.
- B. Follow the special handling or storage requirements of the manufacturer for cold weather, hot weather, etc.
- C. Safety: Refer to all applicable data, including, but not limited to MSDS sheets, PDS sheets, Product labels, specific instructions for specific personal protection requirements.

When working with Part B, avoid contact with skin and eyes. If contact occurs, wash skin with water or alcohol; flush eyes immediately with large quantities of water and get medical attention. Do not smoke during mixing, application, or in the immediate area if thinners are used until all vapors have disappeared.

- D. Ventilation: Provide adequate ventilation to prevent the accumulation of hazardous fumes during application.
- E. Environmental requirements: Proceed with work of this section only when existing and forecasted weather conditions will permit the application to be performed in accordance with the manufacturer's recommendations.

1.6 WARRANTY

- A. The contractor shall guarantee that all work performed will be free from defects in materials and workmanship. Upon notice of defect in writing to the contractor within one year after completion of work, the contractor shall, at his own expense, make necessary repairs or replacements of the defective work in question.
- B. A warranty is available with this system provided it has been installed by a Gaco Western Qualified Applicator and is installed according to this specification. Application for warranty must be made prior to start of job.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Acceptable Manufacturers:
Gaco Western

2.2 MATERIALS

- A. Concrete and Metal Primer/Sealer: GacoFlex E-5320 two component water based epoxy primer.
- B. Intercoat Primer: GacoFlex U-5677 is used if LM-60V has been uncoated for more than 3 days or if water has been allowed to contact the LM-60V surface.

NOTE: GacoFlex U-5677 does not meet the NSF 61 standards for potable water applications. Contact Gaco Western for recommendations.

- C. Crack Reinforcement: GacoFlex 66B spun bonded polyester fabric tape.
- D. Cold Joints and Transition Reinforcement: GacoFlex NF-621 sheet neoprene and GacoFlex N-1207 neoprene adhesive.
- E. Polyurethane Elastomeric Membrane: GacoFlex LM-60V 100% solids, two component, non-asphaltic polyurethane elastomer coating having the following physical properties:

<u>Property</u>	<u>Value</u>	<u>Test Method</u>
Tensile Strength	240 ± 10 psi (1.65 ± .07 MPa)	ASTM D-412
Elongation	300% ± 20	ASTM D-412
Tear Resistance	30 pli (5.4 kg(f) / cm)	ASTM D-624
Hardness	50 Shore A min @70°F (21°C)	ASTM D-2240
Water Vapor Permeability	0.02 Perm Inches	ASTM E-96 Procedure BW 100% R.H. Difference
Solids by Volume	100%	

- F. Thinners for solvent wipe: GacoFlex T-5111 & GacoFlex T-5112

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that substrate is ready to receive work, surface is clean, dry and free from projections, depression, loose scale, sand, curing compounds, grease, oil, asphalt, and other foreign deposits. Construction work on the vault should be completed and all penetrations installed.
- B. The surface shall be accepted by the architect or the owner's representative and the waterproofing contractor. Start of work constitutes acceptance.
- C. Do not begin work until concrete substrate has cured 28 days, minimum.
- D. Verify that the concrete meets the requirements of the coating manufacturer. Refer to Gaco Western's General Instruction GW-2-1 for complete information on the installation and finishing of concrete.

3.2 PREPARATION

- A. Clean substrate to remove any and all surface contaminants. Refer to Gaco Western's General Instructions GW-1-1, Surface Preparation.
- B. Mask off all adjoining areas that are not to receive the fluid applied waterproofing.
- C. Provide a suitable workstation to mix the coating materials.

3.3 INSTALLATION

- A. Technical Advice: The installation of this waterproofing membrane shall be accomplished in the presence of, or with the advice of the manufacturer's technical representative. Contact the nearest regional office for assistance.
- B. Concrete Primer/Sealer: Apply GacoFlex E-5320 by spray at a rate of no less than one gallon per 250 square feet (3.78 L / 23.2 m²) followed by back rolling to insure a sealed substrate. Allow drying a minimum of 24 hours at 70°F (21°C) before starting the next step of installation.
- C. Metal Primer: Apply GacoFlex E-5320 to any exposed metal surfaces at a rate of one gallon per 250 square feet (3.78 L / 23.2 m²).

- D. Apply GacoFlex U-5677 to existing LM-60V that has been exposed for more than 3 days or that has been in contact with water at a rate of one gallon per 300 square feet (3.78 L / 27.9 m²).

NOTE: GacoFlex U-5677 does not meet the NSF 61 standards for potable water applications. Contact Gaco Western for recommendations.

- E. Crack Reinforcement: To any cracks that are visible after the application of GacoFlex E-5320 apply GacoFlex LM-60V in a stripe coat 6" (15.24 cm) wide and 32 mils (.81 mm) thick. Immediately imbed GacoFlex 66B 4" (10.16 cm) wide polyester fabric into wet LM-60V. Apply GacoFlex LM-60V over all fabric at a thickness of 32 mils (.81 mm) minimum.
- F. Cold Joints and Transition Reinforcement: After the primer has cured, install GacoFlex NF-621 neoprene sheet flashing using GacoFlex N-1207 neoprene adhesive to all cold joints, wall to wall corners, wall to floor corners, bases of all columns and to all pipe penetrations. Solvent wipe the NF-621 prior to applying the GacoFlex LM-60V.

NOTE: GacoFlex N-1207 and NF-621 Neoprene Sheet do not meet the NSF 61 standards for potable water applications. Contact Gaco Western for recommendations.

- G. First Polyurethane Elastomeric Membrane Coat: After the taping procedure has cured for at least 1 hour, apply GacoFlex LM-60V thinned 10% with GacoFlex thinner T-5111, T-5112 or T-5116 by airless spray followed by back rolling at a rate of no less than 2.2 gallons of thinned material per 100 square feet ((8.33 L / 9.3 m²), (32 wet mils (.81 mm))).
- H. Second Polyurethane Elastomeric Membrane Coat: After the first coat has cured for 12 to 24 hours, apply GacoFlex LM-60V thinned 10% with GacoFlex thinner T-5111, T-5112 or T-5116 by airless spray at a rate of no less than 2.2 gallons of thinned material per 100 square feet ((8.33 L / 9.3 m²), (32 wet mils (.81 mm))).

3.4 FIELD QUALITY CONTROL

- A. The contractor for work under this section shall maintain a quality control program specifically to verify compliance with this specification. A daily log shall be kept to record actions in the field.
- B. Inspections: A minimum of three (Substrate, Application and Final) inspections, by an approved manufacturer's representative, will be required on all projects requiring a warranty.
- C. Thickness: Minimum over all dry film thickness of the completed fluid applied waterproofing will average 60 mils (1.52 mm). Rough concrete surfaces, which increase surface area, will require proportionate increase in coating to maintain average dry film thickness.