



Application Specification:

WV-LM60-160-20

Revised: 11/2022

**DIVISION 07 01 50.61:
GACOFLEX™ LM60V POLYURETHANE ELASTOMERIC MEMBRANE
FOR WATER STORAGE VAULTS**

PART 1 - GENERAL

1.1 SUMMARY

- A. This specification provides for the application of a GacoFlex LM60V Polyurethane Elastomeric Membrane for the protection of water storage vaults and wastewater storage situations. LM60AR (Acid Resistance) is available for wastewater storage situations with a minimum 500,000 gal (1,892,705 L) 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's General Instructions, which are incorporated by reference, provide specific detailed instructions for the guidance of contractors and inspectors.
- C. This specification is intended only as a guide for the development of a project specification. The suitability of this specification for a particular project must be determined by a qualified representative of the owner.

CONDITIONS TO CHECK AND NECESSARY CORRECTIONS REQUIRED INCLUDE:

- 1. The type of material the existing surface of application consists of must be identified.
- 2. The existing surface of application must be fully secured / adhered and intact.
- 3. Structural and support elements must be sound.

1.2 RELATED SECTIONS

A. Drains, Vents and Penetrations:	Division 22 14 26.13
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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 Letter of Good Standing from the specified waterproofing manufacturer.
- C. **SUBSTRATE CONDITIONS:**
 - 1. Applicator to present to owner a completed inspection report verifying application surface condition and any noted defects not specifically addressed in regard to the installation of the coating.
 - 2. Surface shall be free from loose dirt, stone, debris, moisture, and shall be in stable condition. Any work on the area to receive this application shall be completed prior to the installation of the coating.
 - 3. Applicator shall complete an application surface inspection prior to the start of the installation of the coating. The architect/owner and applicator shall accept the application surface condition as-is, thus determined through the required inspection. Start of the work constitutes acceptance.

1.4 QUALIFICATIONS

- A. Primary waterproofing materials shall be the products of a single manufacturer. Secondary materials shall be recommended by the primary manufacturer. The manufacturer shall have a minimum of ten (10) years' experience in the manufacture of materials of this type
- B. Applicator shall have a minimum of five (5) years' experience in the application of waterproofing materials of the type specified. The Applicator shall possess a current Letter of Good Standing from the specified waterproofing manufacturer.
- C. **PRE-BID CONFERENCE:**
Ten (10) working days prior to the bid opening there is to be a mandatory Pre-Bid Conference. Those 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 addendum issued five (5) working days prior to the bid opening. No other changes to the specification or bid documents will be accepted.
- D. Materials other than those specified shall be submitted to the architect/owner for approval no later than ten (10) days prior to the 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.
- E. **PRE-INSTALLATION CONFERENCE:**
Prior to the commencement of the installation, meet at the jobsite with a representative of the coating manufacturer, Applicator, general contractor, architect, and other parties affected by this section. Review the methods and procedures, substrate conditions, scheduling, and safety.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Owner/owner's representative shall reject damaged or non-conforming materials. Rejected materials must be removed immediately from the job site.
- B. Store the waterproofing materials as recommended by the manufacturer and conforming to applicable safety regulatory agencies: town or city, state, and federal. Follow the special handling or storage requirements of the manufacturer for cold weather, hot weather, etc. Refer to all applicable data including, but not limited to: Safety Data Sheets, Product Data Sheets, product labels, and specific instructions for personal protection.
- C. Provide adequate ventilation, protection from hazardous fumes, and overspray potential to workers and associated trades in close proximity of the site application.

NOTE: 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.

1.6 WARRANTY

- A. Manufacturer warrants that the material supplied will meet or exceed physical properties as published. The Applicator guarantees that workmanship will be free of defects in coating application. Since performance of previously applied coatings is beyond the control of Manufacturer and Applicator, requests for additional warranty coverage shall be subject to prior approval by Manufacturer.
- B. 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 their own expense, make necessary repairs or replacements of the defective work in question.
- C. **A TWENTY (20) YEAR MATERIAL AND LABOR WARRANTY MUST BE OBTAINED THROUGH THE PRODUCT MANUFACTURER.**
- D. **PROTECTION OF BUILDING AND OCCUPANTS:**
 - 1. All surfaces not to receive the coating specified shall be protected from overspray hazard, e.g., windows, doors, exterior surfaces and facades, parking lots, and vehicles. Protective coverings shall be secured against wind and shall be vented if used in conjunction with applications preventing collection and moisture.

2. Applicator to post signs noting potential overspray hazard within 400 ft (122 m) of applications.
3. All air intake ventilation equipment shall be turned off to prevent fumes from entering building.
4. Surfaces damaged during application shall be restored at no expense to the owner.
5. No smoking signs to be posted as mandated by local fire officials.

E. SUBSTRATE:

Proceed with work as specified **only** after substrate construction, preparation, and detail work has been completed.

F. EQUIPMENT:

All equipment used during operations shall be located so as not to adversely affect the daily operations or endanger occupants, structure, or materials on-site. All spray equipment must be grounded during operations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

ACCEPTABLE MANUFACTURER:

Gaco: www.gaco.com

2.2 MATERIALS

A. PRIMER/SEALER SYSTEM:

1. CONCRETE:

GacoFlex E5691 2-Part Epoxy Primer/Sealer

OR

2. METAL

GacoFlex E5320 2-Part Epoxy Primer/Sealer

B. CRACK REINFORCEMENT:

GacoFlex 66B Fabric Tape

C. COLD JOINTS AND TRANSITION REINFORCEMENT:

GacoFlex NF621 Neoprene Sheet Flashing and GacoFlex N1207 Single-Component Neoprene-Based Adhesive

D. POLYURETHANE ELASTOMERIC MEMBRANE:

GacoFlex LM60V Polyurethane Elastomeric Membrane having the following physical properties:

GacoFlex LM60V Polyurethane Elastomeric Membrane		
PROPERTY	VALUE	TEST METHOD
TENSILE STRENGTH	240 ± 10 psi (1.65 ± .07 MPa)	ASTM D412
ELONGATION	300 % ± 20	ASTM D412
TEAR RESISTANCE	30 pli (5.4 kg(f) / cm)	ASTM D624
HARDNESS	50 Shore A min @ 70 °F (21 °C)	ASTM D2240
WATER VAPOR PERMEABILITY	0.02 Perm Inches	ASTM E96 Procedure BW 100% R.H. Difference
SOLIDS BY VOLUME	100%	ASTM D2697

E. INTERCOAT PRIMER – FOR POLYURETHANE ELASTOMERIC MEMBRANE: *as required*

GacoFlex U5677 Polyurethane Sealer

F. THINNERS FOR SOLVENT WIPE:

GacoFlex T5111 & GacoFlex T5112

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that the substrate is ready to receive the work; the surface is clean, dry and free of surface contaminants that could affect the bond.
- B. Do not begin the work until the concrete substrate has cured twenty-eight (28) days and/or has achieved a moisture content of no greater than 6.8 %.
- C. Prior to application of waterproofing perform calcium chloride test, to verify a moisture content of 6.8 % or less has been established.
- D. Verify that the concrete meets the requirements of the coating manufacturer. Refer to Gaco's General Instruction GW-2-1 for complete information on the installation and finishing of concrete.
- E. Verify with architect, general contractor and manufacture that substrate conditions are acceptable to receive waterproofing application.

3.2 PREPARATION

NOTE: IT IS EXTREMELY IMPORTANT FOR THE APPLICATION SURFACE TO BE CLEAN AND DRY.

- A. Clean substrate to remove any and all surface contaminants. Refer to Gaco'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. PRIMER/SEALER SYSTEM:

i. FOR CONCRETE:

Apply GacoFlex E5691 2-Part Epoxy Primer/Sealer at a minimum rate of 1 gal / 400 ft² (3.8 L / 37.2 m²). Pour a bead of properly mixed GacoFlex E5691 and spread it over the desired coverage area with a flat squeegee. Apply light downward pressure to work the liquid into the substrate. Do not allow product to puddle. Back roll with a ¼" (6.4 mm) nap roller to ensure uniformity

NOTE: Allow a minimum drying time of 2 – 4 hours at 70 °F (21 °C) and 50% RH before starting the next step of installation.

NOTE: For moisture vapor mitigation applications, the substrate must be shot-blasted or ground to a CSP-2 finish, and product applied at minimum rate of 1 gal / 200 ft² (3.8 L / 18.6 m²) yielding 8 mils WFT / 2.5 mils DFT.

NOTE: Do not apply GacoFlex E5691 if substrate is below 50 °F (10 °C) or above 110 °F (43 °C), greater than 85% RH. Refer to Safety Data Sheet for proper PPE

ii. FOR METAL:

Apply GacoFlex E5320 2-Part Epoxy Primer/Sealer by spray at minimum rate of 1 gal / 300 ft² (3.8 L / 18.5 m²) followed by back rolling with a ¼" (6.4 mm) nap roller to ensure uniformity. Allow a minimum drying time of 4 – 6 hours at 70 °F (21 °C) and 50% RH before starting the next step of installation.

C. CRACK REINFORCEMENT:

To any cracks that are visible after the application of the appropriate Primer/Sealer system, apply GacoFlex LM60V in a stripe coat 6 in (152 mm) wide and 32 mils (.81 mm) thick. Immediately imbed GacoFlex 66B 4 in (101 mm) wide polyester fabric into GacoFlex LM60V while wet. Apply GacoFlex LM60V over all fabric at a thickness of 32 mils (.81 mm) minimum.

D. COLD JOINTS AND TRANSITION REINFORCEMENT:

After the primer has cured, install GacoFlex NF621 Neoprene Sheet Flashing using GacoFlex N1207 Single-Component Neoprene-Based Adhesive to all cold joints, wall to wall corners, wall to floor corners, bases of all columns and to all pipe penetrations. Using minimal amount of solvent, solvent wipe the GacoFlex NF621 Neoprene Sheet Flashing prior to applying the GacoFlex LM60V.

E. POLYURETHANE ELASTOMERIC MEMBRANE:

NOTE – INTERCOAT PRIMER: If any single coat GacoFlex LM60V has **BEEN EXPOSED FOR THREE (3) DAYS AND/OR IN CONTACT WITH WATER**, GacoFlex U5677 Polyurethane Sealer must be applied at a minimum rate of 1 gal / 400 ft² (3.8 L / 37 m²) and allow to dry for four (4) hours at 70 °F (21 °C) and 50% RH before the next coat of LM60V can be applied.

i. FIRST COAT:

After the taping procedure has cured for at least one (1) hour, apply GacoFlex LM60V (thinned 10 % with GacoFlex T5111, T5112 or T5116) by Towel or Roller at an average rate of no less than 2.2 gal of thinned material / 100 ft² (3.8 L of thinned material / 9.3 m²) to obtain minimum 35 mil Wet Film Thickness (WFT) / 32 mil Dry Film Thickness (DFT).

ii. SECOND COAT:

After the previous coat has cured for twelve (12) to twenty-four (24) hours, apply GacoFlex LM60V (thinned 10 % with GacoFlex T5111, T5112 or T5116) by Towel or Roller at an average rate of no less than 2.2 gal of thinned material / 100 ft² (3.8 L of thinned material / 9.3 m²) to obtain minimum 35 mil Wet Film Thickness (WFT) / 32 mil Dry Film Thickness (DFT).

iii. THIRD COAT:

After the previous coat has cured for twelve (12) to twenty-four (24) hours, apply GacoFlex LM60V (thinned 10 % with GacoFlex T5111, T5112 or T5116) by Towel or Roller at an average rate of no less than 2.2 gal of thinned material / 100 ft² (3.8 L of thinned material / 9.3 m²) to obtain minimum 35 mil Wet Film Thickness (WFT) / 32 mil Dry Film Thickness (DFT).

iv. FOURTH COAT:

After the previous coat has cured for twelve (12) to twenty-four (24) hours, apply GacoFlex LM60V (thinned 10 % with GacoFlex T5111, T5112 or T5116) by Towel or Roller at an average rate of no less than 2.2 gal of thinned material / 100 ft² (3.8 L of thinned material / 9.3 m²) to obtain minimum 35 mil Wet Film Thickness (WFT) / 32 mil Dry Film Thickness (DFT).

v. FIFTH COAT:

After the previous coat has cured for twelve (12) to twenty-four (24) hours, apply GacoFlex LM60V (thinned 10 % with GacoFlex T5111, T5112 or T5116) by Towel or Roll at an average rate of no less than 2.2 gal of thinned material / 100 ft² (3.8 L of thinned material / 9.3 m²) to obtain minimum 35 mil Wet Film Thickness (WFT) / 32 mil Dry Film Thickness (DFT).

F. WATER TEST:

After the final coat of polyurethane elastomeric membrane is applied, allow a minimum of forty-eight (48) hours of drying time before running a water test. Plug all drains and flood the waterproofed area completely for forty-eight (48) hours and ensure the watertightness of the waterproofed area. Electronic Vector Mapping, performed by licensed third party inspectors, is an approved alternative to water testing.

3.4 FIELD QUALITY CONTROL

A. Any variations from the specified limits found by the Applicator or owner's representative shall be corrected by the Applicator.

B. INSPECTIONS:

A minimum of three (3) – Substrate, Application and Final inspections – by an approved manufacturer's representative, will be required on all projects in order for warranty terms to apply.

C. **MINIMUM DRY FILM THICKNESS (DFT) REQUIREMENT:**

Gaco recommends adding a 10 % variance factor to obtain the minimum DFT mil thickness required. Rough concrete surfaces, which increase surface area, will require a proportionate increase in coating to maintain average dry film thickness. It is the Applicator's responsibility to calculate the amount of coating needed to obtain the minimum DFT mil thickness required.

- D. No traffic shall be permitted on the coated surface for a minimum of three (3) days. Damage to the surface by other trades shall not be the responsibility of the Applicator.