



Application Specification:

LWM-120-U
Revised: 05/2020

DIVISION 07 14 16: GACOFLEX™ LM60 POLYURETHANE ELASTOMERIC MEMBRANE BELOW GRADE AND BETWEEN SLAB WATERPROOFING

PART 1 – GENERAL

1.1 SUMMARY

- A. GacoFlex LM60 is a two-component, 100% solids, liquid applied coating that cures by chemical action to form an elastomeric membrane. It is used as a waterproofing membrane over concrete, metal and plywood where it is not exposed to direct sunlight. This application also meets the standard specifications of ANSI A 118.10.

GacoFlex LM60H is used on horizontal surfaces, and in between slab, or below grade applications. Application is by a squeegee in one coat or sprayed, if thinned, in two coats. The membrane is covered with a protection course and a wearing course of concrete, blacktop or pavers.

GacoFlex LM60V is thixotropic in consistency and will adhere to vertical surfaces without run-off at normal application rate appropriate for specified warranty term. It may be applied with a "V-notched" trowel (5/16" x 5/16") in one (1) coat application or sprayed, if thinned, in two (2) coats.

- 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.

1.2 RELATED SECTIONS

A. Drains, Vents, Ducts, Penetrations:	Division: 07 72 00
B. Cast-In-Place Concrete:	Division: 03 30 00

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. **Warranty Specifications:** Warranty must be supplied by product manufacturer.
- D. **Substrate Conditions:**
 1. Applicator to present to owner a completed inspection form verifying substrate condition and any noted defects not specifically addressed regarding 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 a substrate inspection prior to the start of the installation of the coating. The architect/owner and applicator shall accept the substrate. Start of the work constitutes acceptance.

1.4 QUALIFICATIONS

- A. **Material Requirements:** 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 Experience:** Applicators 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. **Non-Specified Material Approval:** 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 alternate 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:** Just prior to the commencement of the installation, meet at the job-site 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 coating materials as recommended by the manufacturer and conforming to applicable safety regulatory agencies: town or city, state, and federal. 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 near of the site application.

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. Warranty must be supplied by product manufacturer.
- C. **Protection of building and occupants:**
No smoking signs to be posted as mandated by local fire officials.

- D. **Substrate:** Proceed with work as specified only after substrate construction, preparation, and detail work has been completed.
- E. **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 Manufacturers:
 Gaco www.gaco.com

2.2 MATERIALS

- A. **Sealer/Primer:** GacoFlex E5691 Three-Component Epoxy Sealer/Primer
- B. **Flashings & Details:** GacoFlex NF621 Neoprene Sheet Flashing, GacoFlex N-1207 Adhesive, polyurethane sealant, and other related materials as required.
NOTE: GacoFlex 66B Texture Tape and 66S Reinforcing Polyester Mesh are approved substitutes for GacoFlex NF621 Neoprene Sheet Flashing as required.
- C. **Misc. Accessories:** All items incorporated into this system, including the protection board shall be compatible with and approved by the coating manufacturer. See Section 3.3 J for recommended protection boards. Figure a 5% material loss during the application.
- D. **Thinner for Coating:** GacoFlex T5112 is the only compatible thinner.
- E. **Polyurethane Coating:** GacoFlex LM60H is for horizontal surfaces and GacoFlex LM60V is for vertical surfaces. Liquid Polyurethane Elastomeric Membrane Materials shall meet the published properties of these products and also must meet applicable Air Pollution Control Regulations.

GacoFlex LM60 has the following physical properties:

PROPERTY	VALUE	TEST METHOD
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
Solids by Volume	100%	Procedure BW, 100% R.H. Difference

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that the substrate is ready to receive the work, surface is clean, dry and free from projections, depressions, loose scale, sand, curing compounds, grease, oil, asphalt, and other foreign deposits.
- B. **Acceptable Plywood Grades:** Verify that the plywood shall conform to U.S. Product Standard PS 1-95 and shall carry the grade trademark of The Engineered Wood Association - APA EXT or APA AC EXT are acceptable. Underlayment grade plywood (APA AC EXT Underlayment) with solid, plugged cross bands under the face veneer are recommended for commercial installations.
- C. **Unacceptable Grades:** APA C-D EXT, APA C-C EXT, Exposure 1 markings, oriented strand board (OSB), wafer board and Lauan or Mahogany plywood are **NOT** suitable substrates for liquid-applied coating systems. This is due to the poor dimensional stability, weak glue lines which allow buckling or lifting of the top ply, and excessive splintered, leafed and raised surface grain.

- D. Refer to Gaco General Instruction “GW-2-3 Plywood Selection and Installation” for complete information on the installation and fastening of plywood.

Do not begin the work until the concrete substrate is sufficiently cured. Contact the project specifier for additional information.

- E. Verify with architect or general contractor that substrate conditions are acceptable to receive waterproofing application.

3.2 PREPARATION

- A. Clean the substrate to remove any and all surface contaminants. Refer to Gaco General Instruction “GW-1-1 Surface Preparation” available on Gaco.com for specific requirements.
- 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 Sealer:** Seal the entire deck surface and all vertical or sloping surfaces of curbs, cants, parapets, etc. which are to receive coatings with one coat of GacoFlex E5691 Primer Sealer at a rate of 1 gal / 200 ft² (3.78 L / 18.6 m²). Allow to dry until nearly tack free where water has evaporated leaving a clear film before proceeding to next coat. Recoat window is approximately two (2) hours (depending on temperature and humidity) to twenty-eight (28) days. No additional primer is necessary when sealing with GacoFlex E5691 Sealer/Primer.
- C. **Flashings and Joint Treatment:**
 - 1. **Non-moving Cracks in Concrete:** 3-Course Coat all non-moving cracks. Fill the crack first with GacoFlex LM60V. After filling the cracks, apply GacoFlex LM60V for a distance of 3" (76 mm) on each side of the crack for 60 mils Dry Film Thickness (DFT). When applying the membrane on the main field of the deck, go over the stripe coat to achieve a total thickness of 120 mil DFT.
 - 2. **Control Joints and Moving Cracks:** Remove all dirt and loose chips of concrete from the crack. Fill it with a polyurethane sealant and strike it flush with the deck surface. Center a 2" (51 mm) wide piece of release tape (Blue Painter’s Tape) over the crack and secure it firmly and thoroughly to the deck. Stripe coat GacoFlex LM60H 3" (76 mm) on center of tape for 60 mil DFT. When installing the membrane on the main field of the deck, go over the stripe coat to achieve a total thickness of 120 mil DFT.
- D. **Expansion Joint Covers:**
 - 1. Choose GacoFlex NF621 field curing Neoprene Sheet Flashing in a width that will provide at least 3" (76 mm) of bonding area on each side of the joint plus enough material to loop over the backer rod. Use a chalk mark placed 3" (76 mm) on each side of the joint as a guide for applying the adhesive. Allow the adhesive to dry.
 - 2. Stir GacoFlex N1207 Neoprene Adhesive to obtain a uniform consistency. With roller or brush, apply GacoFlex N1207 Neoprene Adhesive to the deck on either side of the joint to a point just beyond the chalk marks. Allow the GacoFlex N1207 Neoprene Adhesive to dry until it can be touched without sticking, about 1/2 hour. Apply a second coat of N1207 Neoprene Adhesive to the deck and one coat to the GacoFlex NF621 Neoprene Sheet (on the side not covered with the polyethylene liner). Allow the GacoFlex N1207 Neoprene Adhesive to dry as noted previously.

3. Fold the GacoFlex NF621 Neoprene Sheet in half lengthwise so that the polyethylene surface is together. Place one edge of the sheet, adhesive side down, along the chalk line on one side of the joint. Place directly into position as the adhesive surfaces will bond immediately upon contact and the sheet cannot be moved. Stitch along the edge of the sheet to obtain a positive bond. Once the edge is bonded completely, work the stitcher or a flat faced steel roller toward the expansion joint to obtain 100% positive contact. End laps must be joined prior to placement of the flashing since a waterproof lap cannot be formed over a backer rod.
4. Place a backer rod material (solvent resistant expanded plastic such as polyethylene or polypropylene) in the joint. The backer material should be one third larger than the joint width so it can be compressed into the joint and flush to the deck.
5. Install the GacoFlex NF621 Neoprene Sheet over the backer rod material and adhere it to the deck on the opposite side of the joint. Stitch the sheet from the joint outwards to the edge to obtain positive contact. Remove the polyethylene liner.
6. Apply a bead of polyurethane sealant along all edges and lap seams of the sheet.
7. After neoprene sheet has been in place a minimum of 24 hours; solvent wipe prior to the application of the GacoFlex LM60H Membrane. (If in a VOC regulated area the use of GacoFlex T5110 Solvent is required).
8. After placement of the protection board, a sheet metal protective cover must be installed to protect the expansion joint prior to the installation of any wear course.

NOTE: GacoFlex 66B Texture Tape and 66S Reinforcing Polyester Mesh are approved substitutes for GacoFlex NF621 Neoprene Sheet Flashing when required. Contact Technical Services for additional information.

E. Flashing at Deck and Wall Junctures:

1. If the joint at the wall and deck juncture is non-moving, apply GacoFlex LM60V at a rate of 4 gal / 100 ft² (15.4 L / 9.3 m²) to produce 60 mil DFT in a cove prior to the application of the main deck. Apply an additional 90 mil DFT at the juncture when applying the overall membrane for a total thickness of 150 mil DFT.
2. If the joint at the wall and deck juncture is moving, flashing is accomplished by using field curing GacoFlex NF621 Neoprene Sheet Flashing. This is placed prior to the application of the overall membrane.
 - a. Choose a width of GacoFlex NF-621 Neoprene Sheet Flashing sufficient to extend 3" (76 mm) onto the deck and 6" (152 mm) up the vertical wall. Roll out the sheet close to the application area. Use a length as long as possible to reduce the number of lap joints, but only as long as convenient to handle.
 - b. Place masking tape on the wall and a chalk line on the deck as a guide for the adhesive application.
 - c. Mix GacoFlex N-1207 Neoprene Adhesive to obtain a uniform consistency. Apply by brush or roller to the deck .5" (13 mm) beyond the chalk line and to the wall onto the masking tape. Remove the masking tape while the GacoFlex N1207 Neoprene Adhesive is wet.
 - d. When the first coat of GacoFlex N1207 Neoprene Adhesive is dry, apply a second coat of GacoFlex N-1207 Neoprene Adhesive to the deck, wall and to the GacoFlex NF621 Neoprene Sheet Flashing on the side not covered by polyethylene liner.
 - e. Place a 1" (25 mm) plastic backer rod into the wet GacoFlex N1207 Neoprene Adhesive at the juncture of the deck and wall.
 - f. When the GacoFlex N1207 Neoprene Adhesive is dry, fold the GacoFlex NF621 Neoprene Sheet Flashing in half lengthwise so that the polyethylene surface is together. Carefully lift the GacoFlex NF621 Neoprene Sheet Flashing without stretching it and place the edge (adhesive surfaces together) along the chalk line on the deck. Stitch the edge to assure positive contact and continue with roller and

stitcher toward the wall. On the wall, work from the bottom to the top, in the same manner. Remove the polyethylene liner. End laps must be joined prior to the placement of the GacoFlex NF621 Neoprene Sheet Flashing since a waterproof lap cannot be formed over a backer rod.

- g. Apply a bead of polyurethane sealant along the edges and the lap seams of the sheet.
- h. After neoprene sheet has been in place a minimum of twenty-four (24) hours; solvent wipe prior to the application of the GacoFlex LM60H Membrane. (If in a VOC regulated area the use of GacoFlex T5110 Solvent is required).
- i. When the GacoFlex LM60H Membrane comes into contact with a wall waterproofing system, the wall system must be installed prior to the GacoFlex LM60H Membrane. Overlap GacoFlex LM60V Membrane a minimum of 6" (152 mm) onto the wall system. An alternative method is to use GacoFlex NF-621 Neoprene Sheet Flashing as the dividing interface between the two systems.

NOTE: GacoFlex 66B Texture Tape and 66S Reinforcing Polyester Mesh are approved substitutes for GacoFlex NF621 Neoprene Sheet Flashing when required.

- F. **Polyurethane Membrane:** Apply GacoFlex LM60V Membrane to achieve a total minimum coverage of 8 gal / 100 ft² (30.8 L / 9.3 m²) to net 120 mil DFT. A 5/16" x 5/16" a "V-notched" trowel is effective in controlling the thickness. An alternate method is to use a squeegee. Spread the material over the deck at an average thickness of 1/8" (3.2 mm). Where LM60V meets the neoprene sheet, the LM60V must overlap a minimum of 3" (76 mm).
- G. **Water Test:** Allow a minimum of forty-eight (48) hours before running a water test. Plug the drains, flood the waterproofed area and leave the area flooded for forty-eight (48) hours. Electronic Vector Mapping, performed by licensed third party inspectors, is an approved alternative to water testing.
- H. **Protection Board:** GacoFlex LM60 Membranes must be covered to protect it against any physical damage. When placing the protection board, pedestals for pavers etc., care should be taken to avoid physically damaging the installed membrane. A protection board must be used when pedestals are to be employed.

If a water test is not required and protection board is called for, it may be placed over the GacoFlex LM60V/H prior to the complete cure and may be spot bonded with GacoFlex LM60V/H. This placement can be done while the GacoFlex LM60V/H is still tacky, but cured sufficiently so as not to extrude beneath the protection board. The protection board shall be rigid or semi-rigid asphalt composition board, minimum 1/8" (3.2 mm) thick; expanded polystyrene board, minimum .5" (13 mm) thick; 90 lb (40.9 kg) rolled roofing. Aboard is not required if sand backfill to a thickness of 6" (152 mm) is used, or thick mortar bed without wire or steel reinforcing is used.

- I. **Pedestals:** If pedestals or chairs are used for pavers, consideration should be given to use of rigid and thicker protection board such as 0.25" (6.4 mm) composition board.

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. **Dry Film Thickness:** Gaco suggests adding a 10% variance factor to obtain the minimum dry mils required. It is the Applicator's responsibility to calculate the gallons needed to obtain the required minimum dry mils.
- C. 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.