



MANUFACTURER'S GUIDE SPECIFICATIONS

SECTION 07 13 26 Mapeproof AL Pro Pre-Applied Sheet Membrane Waterproofing

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. All Contract Documents, including General and Supplementary Conditions, and Division 1 General requirements, apply to this section.

1.2 SUMMARY

- A. Section includes complete waterproofing system, preparation of substrate, and prefabricated drainage composite system to prevent passage of liquid water into building structure. Compatible with construction materials such as concrete, shotcrete, and metal.

1.3 RELATED SECTIONS

- A. Section 01 82 00 – Facility Substructure Performance Requirements
- B. Section 02 30 00 – Subsurface Investigation
- C. Section 02 32 00 – Geotechnical Investigations
- D. Section 03 10 00 – Concrete Forming
- E. Section 03 15 00 – Concrete Accessories
- F. Section 03 30 00 – Cast-In-Place Concrete
- G. Section 07 06 00 – Schedules for Thermal and Moisture Protection
- H. Section 07 13 26 – Pre-Applied Sheet Waterproofing
- I. Section 07 26 16 – Below-Grade Vapor Retarders
- J. Section 22 13 00 – Facility Sanitary Sewerage (Penetrations)
- K. Section 22 14 00 – Facility Storm Drainage (Penetrations)
- L. Section 26 05 33.13 – Conduit for Electrical Systems (Penetrations)

- M. Section 26 05 43 – Underground Ducts and Raceways for Electrical Systems (Penetrations)
- N. Section 31 20 00 – Earth Moving
- O. Section 31 40 00 – Shoring and Underpinning
- P. Section 31 50 00 – Excavation Support and Protection
- Q. Section 31 60 00 – Special foundations and Load-Bearing Elements
- R. Section 31 62 00 – Driven Piles
- S. Section 31 64 00 – Caissons
- T. Section 33 46 00 – Subdrainage
 - 1. Section 33 46 13 - Foundation Drainage
 - 2. Section 33 46 16 - Subdrainage Piping
 - 3. Section 33 46 19 – Under Slab Drainage
 - 4. Section 33 46 23 - Drainage Layers
 - 5. Section 33 46 26 - Geotextile Subsurface Drainage Filtration

1.4 REFERENCE STANDARDS

- A. American Society for Testing and Materials International (ASTM)
- B. ASTM C 836 Standard Specification for High Solids, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course
- C. ASTM D 412 Standard Test Methods for Rubber Properties in Tension
- D. ASTM D 903 Standard Test Method for Peel or Stripping Strength of Adhesive Bonds
- E. ASTM D 1876 Standard Test Method for Peel Release of Adhesives (T-Peel)
- F. ASTM D 1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
- G. ASTM D 3767 Standard Practice for Rubber - Measurements of Dimensions
- H. ASTM D 5385 Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes
- I. ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials
- J. ASTM E 154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover

1.5 ACTION SUBMITTALS

- A. Product Data: Manufacturer's product data, installation instructions and details.
- B. Samples: Representative samples of the following:
 - 1. Membrane: 2" x 3" (5 x 7,6 cm)
 - 2. Drainage Composite Sheet: 4" x 4" (10 x 10 cm)

1.6 INFORMATION SUBMITTALS

- A. Waterproofing Manufacturer's Sample Warranty
- B. Sustainability Submittals:
 - 1. Provide VOC content of all components.
- C. Material Certificates: Certification that waterproofing system and components, drainage and protection materials comply with specified performance characteristics and physical requirements and are supplied by single-source manufacturer.
- D. Contractor Certificate: Approved Applicator status with waterproofing material Manufacturer.
- E. Site Condition Reports: Indicate ambient and substrate surface temperatures, relative humidity and dew point, wind velocity and precipitation during application.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications to:
 - 1. Have minimum three (3) years of experience in type of work required by this section.
 - 2. Comply with manufacturer's warranty requirements.
 - 3. Be approved applicator as determined by waterproofing system manufacturer.
 - 4. Attend necessary job meetings. Provide competent and full-time supervision, experienced mechanics, all materials, tools, and equipment necessary to complete, in acceptable manner, the membrane installation.
- B. Manufacturer Qualifications:
 - 1. Capable to supply all components of complete waterproofing system.
 - 2. Minimum of five (5) years of experience in manufacturing of waterproofing systems.
 - 3. Capable of providing product and technical support representation during construction, approving an acceptable applicator, and suggesting appropriate installation methods.
 - 4. ISO 9001-2000 Certified Organization.
 - 5. ISO 14001-2004 Certified Environmental Management Organization.

- C. Pre-Installation Conference:
1. Establish procedures to maintain required working conditions.
 2. Coordinate this work with related and adjacent work and trades.
 3. Verify dewatering plan for projects in the water table.
 4. Review special project details.
 5. Verify with Architect and Contractor that waterproofing and waterstop details comply with waterproofing manufacturer's current installation requirements and recommendations.
 6. Attendees should include representatives for Owner, Architect, Quality Assurance, General Contractor, Waterproofing Contractor, Waterproofing Manufacturer, Concrete Contractor, Excavating/backfill Contractor and MEP contractors if MEP work penetrates waterproofing.
 7. Give minimum five (5) day notice to Owner, General Contractor and Manufacturer prior to commencing work. Immediately notify parties of changes in work schedule.
- D. Mock-up:
1. Area designated by Architect will be considered Mock-up.
 2. Prepare and clean a minimum 4' x 4' (1,2 x 1,2 m) area of each substrate material type and project condition.
 3. Demonstrate methods, products, and tools to prepare acceptable substrate meeting membrane manufacturer's installation instructions
 4. Install waterproofing system with drainage composite and accessories.

1.8 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver materials in factory sealed and labeled packaging. Sequence material deliveries to avoid work delays and minimize on-site storage. Follow manufacturer's instructions, recommendations and material safety data sheets for material handling and storage.
- B. Storage: Do not double-stack pallets during shipping or storage. Protect waterproofing materials from moisture, excessive temperatures, and sources of ignition. Cover material top and all sides while stored on-site, allowing for adequate ventilation. Protect material from construction operation, weather, excessive temperatures, and prolonged sunlight.
- C. Store and manage hazardous materials in accordance with Section 01 35 29.06 - Health and Safety Requirements and Section 01 35 43 - Environmental Procedures. Remove damaged material from site and dispose of in accordance with applicable regulations.

1.9 PROJECT CONDITIONS

- A. Substrate Condition: Proceed with work only when substrate construction and preparation work is complete and is acceptable for waterproofing application. All

structural, plumbing, electrical, and mechanical work to be under or penetrating through the waterproofing to be completely secured in proper position prior to waterproofing system installation. Substrate preparation to comply with waterproofing manufacturer's guidelines.

- B. Submit written report to General Contractor of substrate surface defects and work prepared by other Trades which adversely affect quality or dimensions of waterproofing work.
- C. Weather Conditions: Perform work only when existing and forecasted weather conditions are within Manufacturer's guidelines including but not limited to:
 - 1. Do not apply waterproofing materials in areas of standing or active water, or over snow, ice, or frost.
 - 2. In a timely manner, remove standing water caused by precipitation or ground water seepage to maintain acceptable site conditions.
- D. Schedule work so membrane will not be exposed for longer than recommended by Manufacturer.

1.10 WARRANTY

- A. Waterproofing System Warranty: Waterproofing Manufacturer to provide sample of [five (5)], [ten (10)], year warranty, including waterproofing system requirements. Issuance of Manufacturer's Waterproofing Warranty requires the following:
 - 1. Waterproofing System products and drainage composite products provided by single manufacturer.
 - 2. Installation of waterproofing products, prefabricated drainage composite and all appropriate system accessories are installed by a Manufacturer's Approved Applicator in full accordance with manufacturer's recommendations, installation instructions, specifications, and details with prior review and approval by manufacturer's waterproofing technical department and applies only to products manufactured or marketed by Polyglass.
 - 3. Concrete Accessories Waterstop installed in concrete cold construction joints, formed construction joints, isolation joints and penetrations are required by Sheet Membrane Waterstop Warranty

PART 2 – PRODUCTS

2.1 MANUFACTURER

- A. Materials: Obtain waterproofing system including all components and accessories from single manufacturer to assure material compatibility.
- B. Polyglass, 1111 West Newport Center Drive, Deerfield Beach, FL 33442, USA. Phone: Toll Free (888) 410-1375; Website: www.polyglass.us

2.2 PRE-APPLIED SHEET MEMBRANE WATERPROOFING

- A. Polyglass Mapeproof AL Pro horizontal and vertical grade membrane: 4' x 98' (1.2 x 30 m) roll is 46 mils (1.2 mm) thick self-adhering membrane comprised of HDPE with an adhesive multilayer matrix protected by a special coating.

2.3 PRE-APPLIED SHEET MEMBRANE – PERFORMANCE PROPERTIES:

A. Polyglass Mapeproof AL Pro

1. Thickness – ASTM D3767 46 mils (1.2 mm)
2. Resistance to Hydrostatic Head – ASTM D5385 Pass at 231 ft (71 m) of hydrostatic head pressure
3. Lateral Water Migration Resistance – ASTM D5385 Mod. Pass at 231 ft (71 m) of hydrostatic head pressure
4. Low Temperature Flexibility – ASTM D1970 Unaffected @ -29C
5. Crack Cycling – ASTM C836 Unaffected @ -23C
6. Tensile Strength - ASTM D412 3988 psi (27.5 MPa)
7. Elongation - ASTM D412 400%
8. Adhesion to Concrete – ASTM D903 8.00 lbf/in (1401 N/m)
9. Lap Peel Adhesion – ASTM D1876 8.00 lbf/in (1401 N/m)
10. Puncture Resistance - ASTM E154 200 lbf (890 N)
11. Permeance to Water Vapor Transmission - ASTM E96 Method B <0.1 perms

2.4 WATERPROOFING ACCESSORIES:

- A. Detailing Tape: Mapeproof AL Detail Tape; 4” and 8” widths. Pressure sensitive, multi-layered synthetic detail tape.
- B. Liquid Detailing Membrane: Mapeproof Liquid Membrane. 2-part, vertical grade, 100% polyurethane liquid membrane.
- C. Termination Bar: Min. 1/8” (3 mm) thick by 1” (2.5 cm) wide stainless steel or aluminum termination bar with pre-punched holes punched 6” (15.24 cm) on center for fastening.
- D. Fasteners: Provide fasteners and 1” washers for membrane and termination bar which is compatible with the substrate
- E. Waterstop: Mapestrip 25 hydrophilic expandable, pre-formed, flexible rubber strip for watertight construction.
- F. Tie-Back Covers: Fabricated metal tie-back cover in accordance with manufacturer’s detail for specific project condition(s).

2.5 PROTECTION AND DRAINAGE COMPOSITE SHEET- PREFABRICATED

- A. General: Polyglass Mapedrain prefabricated drainage composite sheet to promote positive drainage. High-Strength, High-Flow, Prefabricated Drainage Composite with Filter Fabric. Three-dimensional polypropylene drainage core with geotextile adhered to one side to allow water passage while restricting soil particles.
- B. Polyglass Mapedrain HS for vertical applications with high compressive strength and flow

rates. Has backer film to prevent potential "die cutting" of a waterproofing membrane installed behind drainage composite.

1. Geotextile fabric non-woven
 2. Compressive strength 11,000 psf (526 kN/m²)
 3. Flow Rate per ASTM D4491: 140 gal/min/ft² (5 704 L/min/m²)
 4. Flow (hydraulic gradient = 1) per ASTM D4716: 18 g/min/ft (223 L/min/m)
 5. Core Thickness 0.40" (10,16 mm)
- C. Polyglass Mappedrain HS PLUS for vertical or horizontal applications, with high compressive strength and flow rates. Has backer film to prevent potential "die cutting" of a waterproofing membrane installed behind drainage composite.
1. Geotextile fabric: 4 oz. non-woven
 2. Compressive strength: 15,000 psf (718 kN/m²)
 3. Flow rate per ASTM D4491: 140 gal/min/ft² (5 704 L/min/m²)
 4. Flow (hydraulic gradient = 1) per ASTM D4716: 21 g/min/ft (260 L/min/m)
 5. Core thickness: 0.40" (10.16 mm)

PART 3 – EXECUTION

3.1 SUBSTRATE INSPECTION AND CONDITIONS

- A. Examine conditions of substrates and other conditions affecting work of this section with waterproofing Installer, General Contractor and Owner's Independent Inspector present. Notify General Contractor, in writing, of defects in substrate preventing installation of waterproofing. Do not proceed with work until defects in substrate are corrected and acceptable for waterproofing installation and comply with manufacturer's recommendations.
- B. Substrates to receive waterproofing must be clean, and free of voids, protrusions, and surface irregularities.
- C. Substrates must be smooth with no gaps or voids greater than 0.5 in. (12 mm).
- D. Grout around all penetrations such as utility conduits, etc. for stability.
- E. Prepare substrate surfaces to accept waterproofing system per requirements of membrane Manufacturer and as directed by Architect.
- F. Apply waterproof membrane only in dry weather.

3.2 PREPARATION

- A. Horizontal Surfaces
 1. The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates.
 2. When installing over earth or crushed stone, ensure substrate is well compacted to avoid displacement of substrate due to traffic or concrete pour.
 3. Surfaces do not need to be dry but standing water must be removed.

4. Working/mud concrete slabs should have a float finish providing a flat surface; without sharp angular depressions, voids, fins or raised features.
5. Mapedrain drainage composite should be installed under membrane to provide uniform surface for the Mapeproof AL PRO Membrane.

B. Vertical Surfaces

1. Use concrete, plywood, insulation or other approved facing to steel sheet or concrete piling to provide support to the membrane.
2. Board systems such as timber or wood lagging must be close butted to provide support and not more than 1 in. (2.5 cm) out of alignment
3. Wood lagging shoring should extend to the lowest level of the waterproofing installation. Lagging boards should be flat, smooth and tight together with gaps less than 1" (2,5 cm). Gaps more than 1" (2,5 cm) should be filled with cementitious grout, wood, extruded polystyrene (20 psi min.) or polyurethane spray foam. Do not use plywood or other surface treatment over large lagging gaps that leave the cavity void. In areas where lagging gaps are 2-1/2" (6,35 cm) or less, Mapedrain drainage composite should be installed to provide uniform surface to mount the waterproofing without the requirement of filling gaps.

3.3 INSTALLATION GUIDELINES:

A. General Installation Guidelines:

1. Comply with installation instructions in manufacturer's published literature, specifications, and details.
2. Place the white HDPE film side of the Mapeproof AL PRO Membrane to the substrate with adhesive side facing towards the concrete pour. End laps should be staggered to avoid a build-up of layers.
3. Ensure the Mapeproof AL PRO Membrane lays flat, and surfaces are clean and dry with no debris and overlap sheets a minimum of 3" (7.5 cm) and roll firmly with a steel roller.
4. Unroll and cut the Mapeproof AL Detail Tape to the length required and place it over the area to be sealed of the adhesive side of the Mapeproof AL PRO.
5. Roll Mapeproof AL Detail Tape with a steel rubber roller using firm hand pressure and then remove release liner from tape.
6. Leave the protective film over the adhesive during membrane installation and remove before the reinforcing steel or concrete is placed.
7. Ensure all debris is removed from membrane before concrete is placed.

B. Horizontal/Under Slab Installation

1. Install under slab Mapeproof AL PRO Membrane extending to base of shoring wall or slab forms (adhesive side facing side up) tying into the corner transition sheet.
2. Place Mapeproof AL PRO directly on properly prepared substrate or Mapedrain (white HDPE facing down and adhesive side up facing concrete pour/installer) with adjoining edges overlapped a minimum of 3" (7.5 cm). Remove the release liner between sheets and roll laps firmly with a steel roller. Stagger sheet end laps a minimum of 8" (20 cm). When the slab is poured in sections, extend Mapeproof AL PRO a minimum 12" (30 cm) beyond the slab edge and rebar to

enable proper overlapping.

3. Install Mapeproof AL PRO waterproofing system under all grade beams, pile caps and other detail areas in accordance with manufacturer's details for specific project conditions.
4. Slab Penetrations: For all pipe, rebar, structural or other penetrations install waterproofing system in accordance with manufacturer's standard details for specific project conditions.
5. Inspect finished Mapeproof AL PRO installation and repair any damaged material prior to concrete slab placement.
6. Reinforced structural foundation slabs placed on waterproofing shall be a minimum of 4" (10 cm) thick. For Hydrostatic conditions, slab thickness must be designed by project engineer. Install Mapeproof AL PRO under all footings, grade beams and elevator pits when hydrostatic conditions exist or are anticipated per the historical high ground water elevation reported in the project's geotechnical documents.

NOTE: Mapestrip 25 shall be installed in all slab joints, around applicable slab penetrations and structural members. Refer to manufacturer's details and Mapestrip 25 Technical Data Sheet for further installation procedures and guidelines.

C. Blindsight Under Slab to Shoring Wall Transition

1. At base of shoring wall, install full sheet of Mapeproof AL PRO oriented horizontally centered on corner with adhesive side up facing installer/concrete pour, white HDPE side against shoring wall substrate and horizontal substrate. Temporarily secure Mapeproof AL PRO sheet to shoring wall through the Mapedrain with fasteners compatible with the substrate as required to secure the sheet. Overlap edges of Mapeproof sheets a minimum of 3" (7.5 cm).
2. Install Mapeproof AL under slab membrane tying into transition corner sheet.
3. Install Mapeproof AL wall membrane tying into transition corner sheet.

D. Vertical Wall/Soil Retention System Installation

1. Cover vertical surface with Mapedrain. Secure Mapedrain (geotextile side against the lagging wall) to the soil retention system/wall with fasteners compatible with the substrate and 1" (2,5 cm) washers approximately every 2' (0,6 m).
2. Install Mapeproof AL PRO starting at the base corner, install base course of Mapeproof (horizontally oriented) to lagging wall over the previously installed drainage composite and tie into corner transition Mapeproof AL PRO course.
3. After installing the horizontal base course, Mapeproof AL sheets can be installed vertically. Secure sheet edges within side laps no more than 0.5" (13 mm) from the edge of the sheet before overlapping adjacent sheets with low profile fasteners compatible with the substrate. Continue Mapeproof AL PRO installation up the wall to finished grade elevation detail, staggering all sheet roll ends of adjacent courses a minimum of 8" (20 cm).
4. Do not allow horizontal Mapeproof AL PRO overlap joints to run at the same elevation as the concrete pour lift joints; extend membrane past pour joint or

rebar a minimum of 12" (30 cm).

5. Tie-Back Heads: For all tie-back heads and soil nails, install waterproofing system with field-fabricated or prefabricated tie-back cover in accordance with manufacturer's detail.
6. Penetrations: For all pipe, rebar, structural and other penetrations install waterproofing system in accordance with manufacturer's detail for specific project conditions.

3.4 CLEAN UP:

- A. In areas where adjacent finished surfaces or work are contaminated by waterproofing material, immediately notify General Contractor and trade responsible for area. Consult manufacturer of surfaces for cleaning advice and conform to their recommendations and instructions. Remove all tools, equipment, and remaining product on-site. Dispose of debris and damaged product in accordance with applicable regulations.
- B. Maintain work area in a neat and workmanlike condition. Remove empty cartons and rubbish from site daily.
- C. Repair or replace defaced or disfigured finishes caused by the work of this section.

END OF SECTION 07 13 26