



Mar-flex Waterproofing & Building Products
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This specification specifies **ArmorDrain 110,150/150pf & 400 Drainage Mats and 6"Geo-Drain Tile 6" & 12"**. These products are manufactured by Mar-flex Waterproofing & Building Products. Revise section number and title below to suit project requirements, specification practices and section content. Refer to CSI MasterFormat 2004 for other section numbers and titles.

This specification utilizes the Construction Specifications Institute (CSI) Manual of Practice, including MasterFormat™ 2004, SectionFormat™ and PageFormat™. This is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets []; delete optional text in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Geocomposite Foundation Drainage Installation.

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Division 1 References Section may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section.

- B. Related Sections:
1. Section 033000 – Cast in Place Concrete
 2. Section 071000 – Dampproofing and Waterproofing
 3. Section 072000 – Thermal Protection
 4. Section 312310 – Building Excavation and Fill
 5. Section 334616 – Subdrainage Piping
 6. Section 334619 – Underslab Drainage
 7. Section 042200 – Masonry
 8. Section 076000 – Flashing & Sheet Metal

1.02 REFERENCES

- A. Standards of the following as referenced
1. American Society for Testing and Materials (ASTM):

1.03 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit manufacturer's product data and installation instructions.
- C. Quality Assurance/Control Submittals: Submit the following:
1. Certificates: Submit certificate that applicator complies with requirements of this section.

Specifier Note: Article below should include prerequisites, standards, limitations and criteria that establish an overall level of quality for products and workmanship for this section. Coordinate article below with Division 1 Quality Assurance Section.

1.04 QUALITY ASSURANCE

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Conditions of the Contract and Division 1 Regulatory Requirements Section. Repetitive statements should be avoided.

- A. Preinstallation conference: Coordinate with conference scheduled for waterproofing materials. Follow requirements indicated in waterproofing materials section.

Specifier Note: Article below should include special and unique requirements. Coordinate article below with Division 1 Product Requirements Section.

1.05 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Product Requirement Section.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

1.06 SEQUENCING AND SCHEDULING

- A. Schedule installation after waterproofing installation but prior to backfill.

1.07 WARRANTY

- A. Manufacturer's Material Only Warranty available.

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

Specifier Note: Paragraph below is an addition to CSI SectionFormat. Retain or delete paragraph below per project requirements and specifier's practice.

- A. Manufacturer: Mar-flex Waterproofing & Building Products
 - 1. Contact: 500 Business Pkwy, Carlisle, OH 45005; Fax: (513) 422-7282
 - 2. E-mail: info@mar-flex.com; Website: www.mar-flex.com
- B. Proprietary Products/Systems should be purchased through an Authorized Dealer of Mar-flex Products.

2.01 Geocomposite Foundation Drainage – Section 334613.16

- A. ArmorDrain 110 Drainage Mat Foundation Drainage Roll:
 - 1. Core Material: Black, high impact polypropylene
 - a. Light duty, impermeable polymeric sheet
 - b. Compression – 11,000 psf
 - c. Foundation drainage rate - 9 gal/min/ft²
 - 2. Fabric Material: White, non-woven filter fabric
 - a. Flow – 140 gal/min/ft²
 - b. Puncture – 65 lbs

(Or/and)

- B. ArmorDrain 150-150pf Drainage Mat Foundation Drainage Roll:
 - 1. Core Material: Black, high impact polypropylene
 - a. Moderate duty, impermeable polymeric sheet
 - b. Foundation drainage rate: 21gal/min/ft²
 - 2. Fabric Material: Black, non-woven filter fabric
 - a. Flow – 140 gal/min/ft²
 - b. Puncture – 65 lbs

2.02 Underslab Drainage – Section 334619

- A. ArmorDrain 400 Drainage Mat Decking Drainage:
 - 1. Core Material: Black, high impact polypropylene
 - a. Heavy duty, impermeable polyethylene sheet
 - b. Foundation drainage rate: 8.5 gal/min/ft²
 - 2. Fabric Material: Grey, heavy non-woven filter fabric
 - a. Flow – 140 gal/min/ft²

- b. Puncture – 65 lbs

Specifier Note: For horizontal application, specify drainage material to remove drainage water.

2.03 Vertical Collection Drainage – Section 334616.16

- A. 6" Geo-Drain and 12" Geo-Drain Tile:
 - 1. Core Material: Black, high impact polystyrene
 - a. Formed dimpled core
 - b. Flow- 170 gpm/ft width
 - 2. Fabric Material: Black, non-woven filter fabric
 - a. Flow – 140 gal/min/ft²
 - b. Puncture – 65 lbs

Specifier Note: Edit Article below to suit project requirements.

2.04 PRODUCT SUBSTITUTIONS

- A. Substitutions: Substitutions not permitted.

2.05 ACCESSORY MATERIALS

- A. Provide proprietary accessory materials or comparable, including the following:
 - 1. Mar-flex's ArmorMastic:
 - a. Material: Plastic or resin material compatible with the waterproofing membrane.
 - 2. Mar-flex's 6" Connectors
 - 3. Mar-flex's 12" Connectors

PART 3 EXECUTION

Specifier Note: Article below is an addition to the CSI SectionFormat. Revise article below to suit project requirements and specifier's practice.

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Comply with the most current written installation instructions and recommendations of the manufacturer.

3.02 EXAMINATION

- A. Site Verification of Condition:
 - 1. Verify that waterproofing is in place.
 - 2. Verify that site conditions are acceptable for application of the roll.
 - 3. Do not proceed with application until unacceptable conditions are corrected.

3.03 PREPARATION

- A. Surface Preparation:
 - 1. Application of waterproofing membrane

Specifier Note: Coordinate article below with manufacturer's recommended application requirements.

3.04 APPLICATION/INSTALLATION

- A. Install ArmorDrain 110 or 150/150pf Drainage Mats after membrane has been applied. Place and secure to substrate according to manufacturer's current written instructions.
 - 1. While the membrane is still tacky, begin installation at a corner. Install horizontally against the waterproofing membrane with the polypropylene geotextile mat side facing out-ward.
 - 2. Install panels from top of footing extending to finish grade level. If there is overlapping off the membrane once you have reached the grade line, a utility knife or similar tool can be used to cut the rolls to the correct height.
 - 3. For good adherence, apply uniform pressure throughout the surface area, not just the edges and corners.
 - 4. When two edges come together from two separate pieces, overlap the dimples to create a continuous coverage of the wall.
 - 5. Secure the board to the wall with concrete fasteners.

6. If the board overlaps the membrane once you have reached the grade line, a utility knife or similar tool can be used to cut the boards to the correct height.
- B. Backfill and Drainage
1. #57 Gravel or equivalent must go no less than 2' high at the base of the foundation and 1' in depth away from the foundation walls.
 2. Adequate interior and exterior foundation drainage at the base of the foundation walls, across any floors or adjacent flower beds must be properly installed and functioning properly.
 3. Backfilling should begin no sooner than 24 hours after the installation of the board, but must be backfilled within 15 days.
- C. 6" Geo-Drain or 12" Geo-Drain DrainTile Vertical Collection System Installation
1. Unroll material along foundation base; adhere to partially cured waterproofing material; use adhesive acceptable to waterproofing material manufacturer for cured waterproofing or other sheet waterproofing not requiring curing.
 2. Install preformed corner fittings at foundation interior and exterior corners.
 3. Install outlet fittings where indicated; connect to corrugated drainage pipe if present at time of modular system installation; leave ready for connection to corrugated drainage pipe if not present.
- D. ArmorDrain 400 Drainage Mat Decking Drainage
1. Clean horizontal surface of loose debris and/or dust.
 2. Apply waterproofing membrane to surface. Apply a minimum of 100 mil dry thickness. Allow membrane to cure out approximately 3-4 hours. Note: The membrane may not be totally set up, but will allow for adherence of the 400.
 3. Unroll the 400, placing gray side down against the membrane. To keep the 400 in place, use double-sided tape, adhesive or nails.
 4. For overlaps, place adjacent panels so that the cores abut. Secure the fabric overlap at five foot intervals with glue, tape or nails.
 5. Join roll ends by peeling back the fabric and removing 4" of core. Note: All core joints must be covered by fabric overlay.
 6. Place end panels so that cores abut, then glue, tape or nail fabric overlap.
 7. Make cuts for any drains to allow for water to be drained.
 8. After completing installation, allow for a minimum of 24 hours set time and then pour desired thickness of concrete over the 400.
 9. It is then recommended to use the 12" Geo-Drain Tile to remove the water that is drained through the 400.

Specifier Note: Coordinate article below with Division 1 Execution Requirements (Cleaning) Section.

3.06 CLEAN UP

- A. Dispose of scrap in dumpster.