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This specification specifies **6" Geo Drain Tile & 12" Geo Drain Tile**. 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.

SECTION 334616.16 VERTICAL DRAINAGE SYSTEM

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Vertical Drainage System

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 334600 – Subdrainage
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; Telephone: (800) 498-1411, (513) 422-7285; 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 Vertical Collection Drainage

- A. 6" Geo Drain Tile 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 362 Mastic:
 - a. Material: Plastic or resin material compatible with the waterproofing membrane.
 - 2. Mar-flex's 6" Geo Drain Tile Connectors
 - 3. Mar-flex's 12" Geo Drain Tile 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

- C. 6" Geo Drain Tile or 12" Geo Drain Tile Vertical Collection System Installation
 - 1. Unroll material with flat side against the wall. Place the roll vertically against the foundation wall on top of footer or at the base of the footer.
 - 2. Determine locations for fittings that may need to be installed. Then add extra length to allow for insertion into fittings. Cut roll to needed length.
 - 3. The fittings and the Geo Drain Tile can be adhered to the side of the footer or wall with 362 Mastic, a panel adhesive or insulation board adhesive. If needed, a mechanical fastener can be used. Note: Place fastener through dimple to prevent disruption of the water flow.
 - 3. Connect fittings to 4" corrugated drainage pipe if present at time of modular system installation; leave ready for connection to 4" corrugated drainage pipe if not present. 4" pipe should then be run to a sump pump or to daylight. Note: Special care should be taken to properly compact soil under the drainpipe to prevent settling of drainpipes.
 - 4. If required by code, install gravel.

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

3.06 CLEAN UP

- A. Dispose of scrap in dumpster.