

SECTION 33 46 00

SUBDRAINAGE

(PROTECTION AND DRAINAGE SYSTEM)

This guide specification has been prepared by Polyguard Products Inc., in printed and electronic media, as an aid to specifiers in preparing written construction documents for drainage systems. Polyguard® Totalflow™ high-capacity Protection and Drainage System is a conventional "dimple board" drainage system with a built-in protection layer for vertical applications.

Edit entire master to suit project requirements. Modify or add items as necessary. Delete items which are not applicable. Words and sentences may include a choice to be made regarding inclusion or exclusion of a particular item or statement. This section may include performance-, proprietary-, and/or descriptive-type specifications. Edit to avoid conflicting requirements. Editor notes to guide the specifier are included between lines of asterisks to assist in choices. Remove these notes before final printing of specification.

This guide specification is written around the Construction Specifications Institute (CSI) Section Format standards.

For specification assistance on specific product applications, please contact our offices above or any of our local product representatives throughout the country.

Polyguard Products Inc. reserves the right to modify these guide specifications at any time. Updates for this guide specification will be posted on the manufacturer's web site and/or in printed media as they occur. Manufacturer makes no expressed or implied warranties regarding content, errors, or omissions in the information presented.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Installation of drainage systems.
- C. Accessory Products

1.02 RELATED SECTIONS

Specifier Notes: Edit the list of related sections as required for the project. List other sections dealing with work directly related to this section.

- A. Section 04 05 23 - Masonry Accessories
- B. Section 07 05 00 - Common Work Results for Thermal and Moisture Protection
- C. Section 07 10 00 - Dampproofing and Waterproofing

1.03 REFERENCES

- A. ASTM D 4355-07 - Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus.
- B. ASTM D 4491-99a(2009) - Standard Test Methods for Water Permeability of Geotextiles by Permittivity
- C. ASTM D 4632-08 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
- D. ASTM D 4716 - 08 Standard Test Method for Determining the (In plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
- E. ASTM D 4751-04 - Standard Test Method for Determining Apparent Opening Size of a Geotextile.
- F. ASTM D 4833-07 - Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, installation instructions, use limitations and recommendations. If necessary, include certification of data indicating VOC (Volatile Organic Compound) content of all components of waterproofing system.
- B. Sustainable Design Submittals:
 - 1. Submit invoices and documentation from manufacturer of the amounts of materials and content for products specified.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Protection and Drainage System must be manufactured by a company with a minimum of ten (10) years of experience in the production and sales of Drainage system membrane.
- B. Applicator Qualifications: A firm having at least three (3) years of experience in applying these types of specified materials.
- C. Materials: For each type of material required to complete the work of this section, provide primary materials which are the products of a single manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Store materials in a clean, dry area in accordance with manufacturer's instructions.
- C. Store drainage board rolls on pallets.
- D. Do not store at temperatures above 90°F (32°C) for extended periods.
- E. Completely cover when stored outside.
- F. Protect materials during handling and application to prevent damage or contamination.

1.07 PROJECT CONDITIONS

- A. Work should be performed only when existing and forecasted weather conditions are within the limits established.
- B. Proceed with installation only when substrate construction and preparation work is complete. Ensure that subsoil is approved by architect or geotechnical firm.
- C. Maintain work area in a neat and workmanlike condition.

1.08 WARRANTY

- A. Product will be replaced, at no charge, if proved to be defective within twelve (12) months of purchase, provided it has been applied in accordance with manufacturer written directions for uses recommended as suitable for this product. Proof of purchase must be provided. A five (5) year material or system warranty may be available upon request. Contact Polyguard Products, Inc. for further details.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Polyguard Products Inc. P.O. Box 755 Ennis, TX 75120-0755; Phone: 214-515-5000
Fax: 972-875-9425 Email: info@polyguard.com

2.02 SYSTEM MATERIALS

Specifier Notes: Drainage mat various types are available based on type of application, soil pressures and flow specifications. Select performance requirements from the chart below. Consult with manufacturer for assistance.

- A. Polyguard® Totalflow™ is a two-part, pre-fabricated, geo-composite drain, consisting of a formed polystyrene core covered on one side with polypropylene filter fabric. The system provides both water collection and a high-profile section allowing for high-capacity water flow to designated drainage exits.

PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	TYPICAL VALUE
FABRIC		
MATERIAL		PP
WATER FLOW RATE	ASTM D 4491	150 gpm/ft ²
GRAB TENSILE STRENGTH	ASTM D 4632	115 lbs
PUNCTURE RESISTANCE	ASTM D 4833	70 lbs
APPARENT OPENING SIZE	ASTM D 4751	70 sieve
PERMITTVITY	ASTM D 4491	2.2 sec ⁻¹
GRAB ELONGATION	ASTM D 4632	70%
UV RESISTANCE	ASTM D 4355	70 % / 500 hrs.
SHEET SECTION	ASTM D 4716	21 gal/min/ft ²
HIGH PROFILE SECTION	ASTM D 4716	150 gal/min/ft ²
CORE THICKNESS		
SHEET SECTION		.44 inch
HIGH PROFILE SECTION	ASTM D 1777	1.0 inch
COMPRESSIVE STRENGTH	ASTM D 1621	9,000 psf
FLOW RATE ²	ASTM D 4716	21 gpm/ft
RECYCLED CONTENT		78%

1 - PP - Polypropylene: HIPS = High Impact Polystyrene

2 - In plane flow rate measured at 3,600 psf (172 kPa) compressive load and hydraulic gradient of 0.1

2.03 SYSTEM ACCESSORIES

- A. Surface Primer Roller Grade Adhesive:

1. Polyguard® 650 LT Liquid Adhesive: A rubber-based, tacky adhesive which is specifically formulated to provide excellent adhesion.
2. Polyguard® California Sealant: A rubber-based sealant which is specifically formulated to provide excellent adhesion. The VOC (Volatile Organic Compound) content meets the South Coast Air Quality Management District regulations established under the February 1, 1991 version of Rule 1168 ©) (2) Adhesion and Sealant Applications. California Sealant is classified as an Architectural Sealant Primer Porous, with VOC of 527 g/L. Current SCAQMD regulations for this type sealant primer are 775 g/L.
3. Quick Grip Adhesive: A low-rise spray foam adhesive.

- B. Universal Fittings:

1. Totalflow™ Tee Outlet: A formed polystyrene connection fitting to aid the collected water into a pipe drainage system.
2. Totalflow™ End Outlet: A formed polystyrene connection fitting to aid the collected water into a pipe drainage system.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to receive drainage board. Notify General Contractor if surfaces are not acceptable. Do not begin surface preparation or installation until unacceptable conditions have been corrected.

3.02 SURFACE PREPARATION

- A. Protect adjacent surfaces not designated to receive drainage system.
- B. Clean and prepare surfaces to receive drainage board in accordance with manufacturer's instructions.
- C. Do not apply drainage board to surfaces unacceptable to manufacturer.

3.03 APPLICATION

- A. Installation on Vertical Surfaces:
 - 1. Measure the perimeter of the wall and place a two foot high section of Totalflow™.
 - a. Over earth retention system or natural rock, place the fabric side toward the earth side of the application. Fasten Totalflow with minimum 1" diameter capped fasteners, suited to the substrate.
 - b. Over post-applied sheet or fluid-applied waterproofing, place the fabric side to the interface with the backfill material. The drain should sit on top of the footing with the high-profile part of the drain at the bottom to provide high lateral water flow. Glue Totalflow to the face of post-applied sheet or fluid-applied waterproofing membrane using either 650 LT Liquid Adhesive, California Sealant, Quick Grip Adhesive, or another low-rise spray adhesive compatible with the sheet or fluid membrane substrate.
 - 2. If not using Polyflow® 10, 10P, 15, or 15P Sheet Molded Drainage Mat for full wall coverage, close the top end of the Totalflow™ drain to prevent soil intrusion by folding the fabric behind the drain.
 - 3. To attach the next roll of Totalflow™, abut adjacent panels together and then tape the joint with duct tape, recommended adhesive, or by peeling back fabric and interlocking at least two rows of dimples; and then overlap fabric and tape or secure with glue to prevent soil or concrete intrusion.
 - 4. Totalflow™ tie-in to the Polyflow® Drainage Mat can be done with a simple fabric overlap. Butt adjacent panels together with tape, recommended adhesive, or by peeling back fabric and interlocking at least two rows of dimples; and then overlap fabric and tape or secure with glue to prevent soil or concrete intrusion.
 - 5. Totalflow Tee and End Outlet Fittings are available for transitioning to a hard pipe system.
 - 6. Backfill as soon as possible after drain installation.

END OF SECTION