

MATERIALS CHECKLIST POLYGUARD[®] DRAINAGE SYSTEMS

DRAINAGE & PROTECTION

The Polyflow[®] Drainage family of products were designed and introduced by Polyguard Architectural Products to provide our customers a variety of solutions to lightweight drainage and at the same time be compatible with our engineered sheet and liquid membrane products. These products are lightweight, have high capacity, can decrease excavation needs and are easy to install. We offer 11,000, 15,000, and 21,000 psf products. Some of our products are to be installed vertically, some horizontally. Some products come with a high strength Polymetric film on one side and some without. Whether it is called "Drainage Board", "Dimple Board", or "Drainage Panel" we have below grade drainage products to compliment your waterproofing system. For high volume applications see our Polyguard Totalflow[™] product and accessories.

<i>Check</i>	<i>Polyflow[®] Products:</i>	<i>Part Number</i>	<i>Unit Size</i>	<i>Units/pallet</i>	<i>Wt/unit</i>
	Lowflow [™]	LOWF	4' x 200' roll	9 rolls/pallet	100#/roll
	Polyflow [®] 10	POLYFLOW10	4' x 50' roll	7 rolls/pallet	38#/roll
	Polyflow [®] 10P	POLYFLOW10P	4' x 50' roll	7 rolls/pallet	38#/roll
	Polyflow [®] 15	POLYFLOW15	4' x 50' roll	7 rolls/pallet	39#/roll
	Polyflow [®] 15P	POLYFLOW15P	4' x 50' roll	7 rolls/pallet	40.5#/roll
	Polyflow [®] 18	POLYFLOW18	4' x 50' roll	7 rolls/pallet	50#/roll
<i>Check</i>	<i>Totalflow[™] Products:</i>	<i>Part Number</i>	<i>Unit Size</i>	<i>Units/pallet</i>	<i>Wt/unit</i>
	Totalflow [™]	TOTAL FLOW	24" x 50' roll	12 rolls/pallet	30#/roll
	Totalflow [™] End Outlet (4")	OUTLET4-UNIV	N/A	N/A	N/A
	Totalflow [™] Tee Outlet (4")	TEE4-UNIV	N/A	N/A	N/A

LOWFLOW™

Sustainable Waterproofing Protection and Drainage System

Product Data Sheet

PRODUCT NAME

Lowflow™

MANUFACTURER

Polyguard Products, Inc.
Ennis, TX 75119
(214) 515-5000
www.polyguard.com

PRODUCT DESCRIPTION

Lowflow™ Protection and Drainage System is a high-strength, multi-layer fabric composite in a 4' x 200' roll. Its purpose is to protect underlying waterproofing membranes and provide a low cost drainage mat which is suitable for most clay soil conditions.

BASIC USES

With its thick, two-component, fabric mat structure, Lowflow can wick away water from foundation walls. With a 100x design safety factor applied to ASTM D4716 flow test results, Lowflow's drainage rate equates to an ability to remove approximately 50 gallons of water per hour from each 100 foot length of foundation.

Lowflow's drainage rate is limited compared to conventional "waffle board" drainage mat, such as Polyflow 15P. The waffle board drainage mat, with a flow rate of 15 gal/min/ft. is theoretically capable of draining over 90,000 gallons of water from a 100 foot length of foundation in an hour.

Since large numbers of construction sites have low transmissivity clay soils, water travel is minimal. Lowflow's modest drainage rate is well in excess of requirements for most clay construction sites even if a design safety factor of 100 is used.

Lowflow™ is preferable on any project to the use of no drainage at all. If project budget constraints force the elimination of higher cost conventional drainage mat from project specifications, use of Lowflow is recommended. Higher grade waterproofing membranes, such as 650 Waterproofing Membrane, are designed to withstand a temporary standing head of groundwater. The membrane can serve the purpose of holding back the groundwater during the period that the Lowflow drainage mat is catching up with the drainage. Additionally, hydrostatic head pressure should be reduced, as well as the period that the foundation is exposed to a head of groundwater.

ADVANTAGES

The lowest cost protection and drainage system available. You can generally count on a 50% (or greater) cost reduction compared to "waffle board" systems.
- The first sustainable protection and drainage system, made from 100% post-industrial recycled synthetic fibers.

INSTALLATION

Mechanical fasteners should not be used if they penetrate the underlying waterproofing membrane. They may be used if applied above the top of the waterproofing membrane.

Adhesive fastening is an alternative for fastening the Lowflow™ system. Using a roller, apply 650 LT Liquid Adhesive to the back of the Polyguard Membrane. Two roller "stripes" along each 4-foot section of membrane should normally be sufficient. The "rough" or "stiff" surface should be on the outside, and the "smooth" or "soft" surface on the inside. After application of Liquid Adhesive, the Lowflow Protection and Drainage System should be rolled over the adhesive. If the material is applied in lifts, the upper lift should be shingled over the lower lift by 2"-3". Backfilling should be done as soon as possible after application.

ISO 9000

The Lowflow system is not covered by Polyguard's ISO 9001 Quality System.

SAFETY

SDS documents for all Polyguard products can be obtained at our website www.polyguard.com. Call Polyguard Products, Inc. at (214) 515-5000 with questions.

WARRANTY

We, the manufacturer, warrant only that this product is free of defects, since many factors which affect the results obtained from this product are beyond our control; such as weather, workmanship, equipment utilized and prior condition of the substrate. We will replace at no charge product proved to be defective within twelve (12) months of purchase, provided it has been applied in accordance with our written directions for uses we 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.

TECHNICAL SERVICES

Technical assistance, information and Polyguard's products are available through a nationwide network of distributors and architectural representatives, or contact Polyguard Products, Inc.
P.O. Box 755, Ennis, TX 75120-0755
Sales: (615) 217-6061 • TechSupport (214) 515-5000 • Fax: (615) 691-5500
Email: archtech@polyguard.com
Website: www.polyguard.com

PROPERTY	TEST METHOD	TYPICAL VALUE
COLOR		Color of the two materials in this composite will vary due to its recycled nature. Color will generally be grey, white, or black.
GRAB STRENGTH	ASTM D 4632	200 lbs.
TEAR STRENGTH	ASTM D 4533	70 lbs.
PUNCTURE RESISTANCE	ASTM D 4833	80 lbs.
FABRIC WEIGHT	ASTM D 3776	> 9.5 oz/yd ²
TRANSMISSIVITY - FLOW AT 3600 PSF PRESSURE, HYDRAULIC GRADIENT OF 1.0	ASTM D 4716	0.84 gal/min/ft Note on testing: Due to wide fluctuations (up to 10x) in ASTM D4716 test results for this type of product, Polyguard recommends against using ASTM D4716 transmissivity as a basis for design. The recommendations shown in the DRAINAGE MAT SPECIFICATION - BY SOIL TYPE matrix are based on a safety factor of 100x.

PACKAGING	PART NUMBER	UNIT SIZE
LOWFLOW™	LOWF	4' x 200' roll

SECTION 33 46 00

SUBDRAINAGE

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® Lowflow™ Protection and Drainage System is a high-strength, multi-layer fabric composite, in a 4' x 200' roll. The system provides a low cost drainage mat which is suitable for most clay soil conditions.

Edit entire master document 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 to be made. Remove these editor 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 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 3776 (96) - Standard Test Methods for Mass Per Unit Area (Weight) of Fabric
- B. ASTM D 4533 (11) - Standard Test Method for Trapezoid Tearing Strength of Geotextiles
- 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 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.

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.
- 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® Lowflow™ Protection and Drainage System is a high-strength, multi-layer fabric composite in a 4' x 200' roll. It is a low cost drainage mat which is suitable for most clay soil conditions.

PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	TYPICAL VALUE
COLOR	N/A	Color of the two materials in this composite will vary due to its recycled nature. Color will generally be grey, white, or black.
GRAB STRENGTH	D 4632	200 lbs.
TEAR STRENGTH	D 4533	70 lbs.
PUNCTURE RESISTANCE	D 4833	80 lbs.
FABRIC WEIGHT	D 3776	> 9.5 oz./yd ²
TRANSMISSIVITY - FLOW AT 3600 PSF. PRESSURE, HYDRAULIC GRADIENT OF 1.0	D 4716	0.84 gal/min/ft Note on testing: Due to wide fluctuations (up to 10x) in ASTM D4716 test results for this type of product, Polyguard recommends against using ASTM D 4716 transmissivity as a basis for design. The recommendations shown in the DRAINAGE MAT SPECIFICATION - BY SOIL TYPE matrix are based on a safety factor of 100x.

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.

PART 3 EXECUTION

3.01 SURFACE PREPARATION

- A. Protect adjacent surfaces not designated to receive drainage system.
- B. Clean surfaces to receive waterproofing in accordance with manufacturer's instructions.

3.03 APPLICATION

- A. Installing:
 - 1. Do not use Mechanical fasteners if they penetrate the underlying waterproofing membrane. They may be used if applied above the top of the waterproofing membrane.
 - 2. Adhesive fastening is an alternative for fastening the Polyguard® Lowflow™ system. Using a roller, apply Polyguard® 650 LT Liquid Adhesive to the back of the Polyguard® Membrane. Two roller "stripes" along each 4' section of membrane should normally be sufficient. The "rough" or "stiff" surface should be on the outside, and the "smooth" or "soft" surface on the inside.
 - 3. After application of Liquid Adhesive, Polyguard® Lowflow™ Protection and Drainage System should be rolled over the adhesive. If the material is applied in lifts, the upper lift should be shingled over the lower lift by 2"-3".
 - 4. Backfilling should be done as soon as possible after application.

END OF SECTION