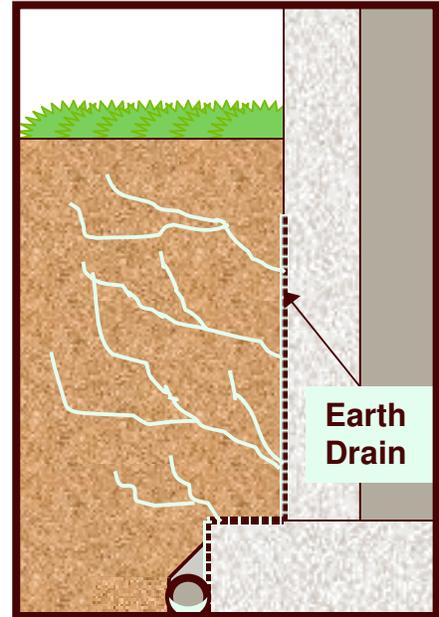


Southern's Earth and Plaza Drains are designed to reduce hydrostatic pressures on below grade and retaining wall structures or to drain plazas and decks.

EARTH DRAIN

EARTH DRAINS are for vertical applications including foundations and retaining walls. Earth Drain consists of a High Impact Polystyrene (HIPS) dimpled core and factory adhered needle-punched Polypropylene geotextile fabric. Earth Drains reduce hydrostatic pressures by relieving water from the soil through the fabric, which is channeled through the core to a sloped drain tile. Lightweight and easy to install, these products eliminate the need for aggregate drainage systems. Earth Drain will protect and enhance the waterproofing membrane and is available in two grades:



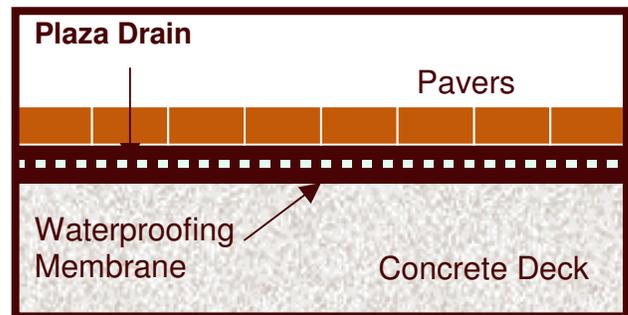
EARTH DRAIN is .42 inch thick with 1 inch center-to-center peg spacing. Ideal for projects requiring high flow rates with moderate compressive strength.



EARTH DRAIN II is .25 inch thick with 1/2 inch center-to-center peg spacing. Ideal for projects requiring lower flow rates and a higher compressive strength.

PLAZA DRAIN

PLAZA DRAIN is for *non-vehicular* horizontal applications where drainage below a paving system is required. Plaza Drain consists of a HIPS dimpled core and a factory adhered Polypropylene woven geotextile fabric for greater durability. Plaza Drain has excellent flow and compressive strength properties.



PLAZA DRAIN is .43 inch thick with 1 inch center-to-center peg spacing.



EARTH DRAIN, EARTH DRAIN II and **PLAZA DRAIN** are manufactured in sheets measuring 4 ft. x 10 ft. and are packaged ten sheets (400 square feet) per bag. Each is available in preassembled rolls measuring 4 ft. x 100 ft.

BASIC INSTALLATION

The fabric side of the sheet should be toward the water source. Sheets should lap a minimum of two rows of dimples on all edges. Interlock cores with a rubber mallet. Both the core and the fabric should be shingled in the direction of the flow. The fabric extends beyond the perimeter of the core and should be tucked behind the core at all termination points.

In vertical applications, place the core behind the drain tile at the footing and wrap the fabric around the drain tile and back behind the core. A sharp utility knife can be used to cut the core when necessary. Use general construction grade adhesives to fasten the sheet to the structure. Verify the adhesive is compatible with both the core and the waterproofing membrane before making a final decision.

In horizontal applications an adhesive may not be necessary, but ballast may be necessary to prevent wind uplift. Do not place concrete or mortar bed directly on the woven filter fabric. A sacrificial layer of 3-4 ounce non-woven filter fabric can be placed over the Plaza Drain to prevent the woven fabric from clogging.

PROPERTY	TEST METHOD	UNITS	EARTH DRAIN	EARTH DRAIN II	PLAZA DRAIN
Drainage Core (minimum values)			HIPS	HIPS	HIPS
Flow Rate (Note at i = 1 Transmissivity = Flow Rate)	ASTM D 4716 3600 PSF at i = 1	gpm/ft. width (liter/sec M width)	15.0 (4.35)	5.7 (1.18)	21.4 (4.43)
Compressive Strength	ASTM D 1621	lb/ft ² . (Kpa)	15,000 (718)	25,000 (1,197)	20,000 (957)
Compressive Creep 10hr-100hr 100hr-1000hr	ASTM D 1621 % Deflection at 50% of compressive strength	%	1.5 1.5	2.0 2.0	2.0 2.0
Open Area (fabric side)	Calculated	%	84	82	84
Bearing Area (reverse side)	Calculated	%	75	75	75
Weight	ASTM D 3776	lb/ft ² . (Pa)	.21 (10.05)	.14 (6.70)	.23 (11.01)
Thickness Core/Sheet		in. (mm)	.38/.040 (9.65/1.02)	.21/.027 (5.33/.069)	.38/.044 (9.65/1.12)
Color			Black	Black	Black
Filter Fabrics (minimum average roll values: MARV)			Needlepunched Polypropylene	Needlepunched Polypropylene	Woven Polypropylene
Weight	ASTM D 3776	oz/yd ² (g/m ²)	4.0 (136)	4.0 (136)	6.5 (221)
Grab Tensile	ASTM D 4632	lb. (KN)	100 (.45)	100 (.45)	Warp 300 (1.34) Fill 200 (.90)
Grab Elongation	ASTM D 4632	%	60	60	Warp 30 Fill 23
Mullen Burst	ASTM D 3786	psi (Kpa)	225 (1550)	225 (1550)	450 (3100)
Puncture Strength	ASTM D 4833	lb (KN)	60 (0.27)	60 (0.27)	120 (.53)
Trapezoidal Tear	ASTM D 4533	lb (KN)	45 (0.20)	45 (0.20)	Warp 75 (.33) Fill 65 (.29)
Apparent Opening Size	ASTM D 4751	US Std. Sieve	70	70	30/50
Permittivity (Note rate highly dependent on head pressure)	ASTM D 4491	gpm/ft ² . (liter/sec m ²)	145 (98)	145 (98)	50 (34)
		sec ⁻¹	1.9	1.9	.5
UV Resistance (strength retained)	ASTM D 4355 500 hr	%	70	70	90
Color			Black	Black	Black