

ALCOA



GEO SYSTEMS

GLOBAL LEADER • GLOBAL PARTNER



*creating
sustainable
environments™*

GEOBLOCK® *porous pavement system*

PRODUCT CATALOG

*our commitment:
providing the highest quality
products/solutions*

the natural way to manage storm water



GEOBLOCK®



low-impact way to help manage storm water

Environmental regulations that control and limit storm water runoff, reduce impervious surface, and increase green space have resulted in the growth of permeable pavements for traffic areas. Alcoa's Geoblock® system offers numerous environmental advantages over hard surface pavements that result in cost savings and aesthetic benefits to property owners. Designed to handle the most demanding load

support and turf protection requirements, the system supports a wide variety of loadings while allowing natural groundwater replenishment and reducing the need for detention or retention ponds. From pedestrian trails and walkways to emergency access lanes, to overflow parking, the Geoblock® system provides high environmental benefit with low environmental impact.

environmental and economical benefits

HIGH PERMEABILITY

- Increases groundwater recharge and decreases surface runoff associated with storm water discharge from paved areas.
- Minimizes use of valuable land space and costs associated with requirements for on-site storm water ponds.

IMPROVES STORM WATER QUALITY

- Increases natural water infiltration and reduces non-point source pollution.

RECYCLED CONTENT

- Manufactured from up to 97% recycled polyethylene.

PROVIDES A COOLER SURFACE

- Reduces the heat island effect related to traditional hard pavements.

IMPROVES AESTHETICS

- Protects a sustainable vegetated surface or other attractive infill material.



**EARN U.S.
GREEN
BUILDING
LEED®
CREDITS**

The Geoblock® system offers architects and designers achievable LEED® credits in the following categories:

- Reduced Site Disturbance
- Storm Water Management
- Reduced Heat Island Effect
- Recycled Content

GEOBLOCK® features / advantages

- Quality product manufactured to ISO 9001:2000 standards.
- Available in two types to most economically handle light to heavy load requirements.
- Large rigid surface area and strong interlocking connections maximizes load transfer and distribution of wheel loads to 80,000 lbs. and higher.
- Requires far less depth of base than rolled pavement systems, reducing overall installation costs.
- Effectively handles vehicle turning stresses and torsional loads.
- Deeper cells protect topsoil and vegetative root zone from damage caused by repeated loadings.
- Manufactured from up to 97% recycled plastic; offers credits with USGBC LEED® program.



typical applications

GEOBLOCK®5150 SYSTEM

HEAVY-DUTY

Access Roads: Maintenance, Utility, Fire and Emergency Vehicles

MEDIUM-DUTY

Parking Areas: Parks, Churches, Commercial Buildings, Sports Facilities, Residential

Trails: Pedestrian Greenways, Wheelchair Access, Bicycles, Motorcycles and ATVs

GEOBLOCK®2 SYSTEM

MEDIUM-DUTY

Parking Areas: Parks, Churches, Commercial Buildings, Sports Facilities

Access Lanes: Passenger and Light-weight Utility Vehicles

LIGHT-DUTY

Trails: Pedestrian Greenways, Wheelchair Access, Bicycles, Motorcycles and ATVs

Golf Courses: Edging, Pathways and Tee Areas

Residential: Driveways, Parking Areas, Campers and Boats

General: Event areas, Pedestrian Malls and Educational Campuses



In order to measure performance and evaluate the Geoblock® system's capabilities, fire departments have performed rigorous tests on worst-case scenarios with exceptional results. Typical application areas include apartments, office and sports complexes, commercial/industrial buildings, shopping centers, and educational institutes.



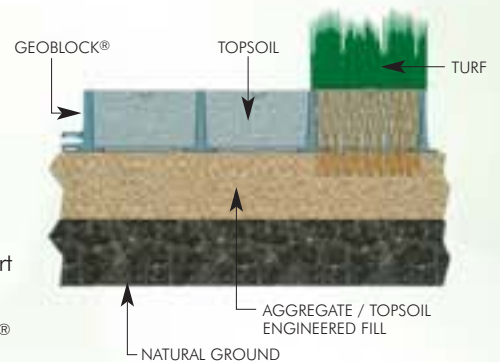
GEOBLOCK® system components

The Geoblock® Porous Pavement System is comprised of the following major components:

- Geoblock® unit
- Engineered base support (if required)
- Selected infill (topsoil/vegetation, aggregate, other appropriate infill)

Depending upon subbase and loading, the Geoblock® unit may be placed directly on the subgrade without additional base materials. For heavier loads or with soft subbase, both the Geoblock® unit and the engineered base work together to support the imposed loading. With vegetated systems, the Geoblock® units protect the topsoil from compaction and the vegetative root zone from damage. The Geoblock® units also offer permeability and stability of infill in non-turf applications.

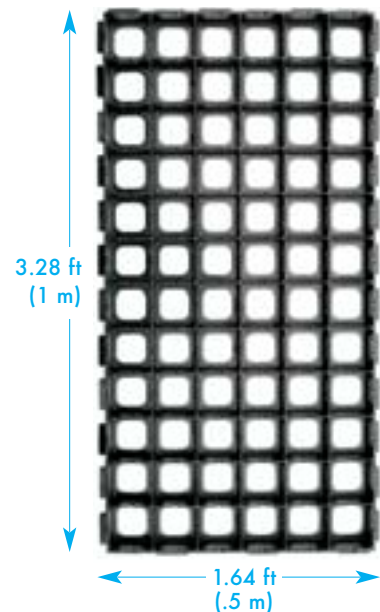
GEOBLOCK® SYSTEM CROSS SECTION:



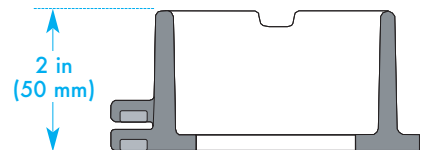
material specification

ITEM	GEOBLOCK® 5150	GEOBLOCK® 2
Material	Up to 97% Recycled Polyethylene	
Color	Dark shades of gray to black	
Chemical Resistance	Superior	
Carbon Black for Ultraviolet Light Stabilization	1.5% - 2.0%	
Dimensions (width x length)	0.50 m x 1.00 m (20 in x 40 in)	
Nominal Unit Depth	50 mm (2 in)	30 mm (1.2 in)
Coverage Area	.50 m ² (5.38 ft ²)	
Cells per Unit	72	128
Cell Size	79 mm x 81 mm (3.1 in x 3.2 in)	57 mm x 57 mm (2.25 in x 2.25 in)
Top Open Area per Unit	87%	88%
Bottom Open Area per Unit	41%	56%
Interlocking Offset Shear Transfer Tabs	12 tabs per meter (40 in)	
Nominal Weight per Unit	4 kg (9 lb)	2.1 kg (4.7 lb)
Runoff Coefficient at 63.5 mm/hr (2.5 in) Rainfall	.15	
Units per Pallet	50	92

FULL SIZE GEOBLOCK® UNIT:



GEOBLOCK® CELL AND INTERLOCKING OFFSET TAB:



GEOBLOCK® 5150



GEOBLOCK® 2



usage guideline

LOAD DESCRIPTION					DEPTH OF ENGINEERED BASE			
Description	Maximum Tire Pressure	Single Axle Loading	Tandem Axle Loading	Gross Vehicle Loading	GEOBLOCK®5150 (2 in depth)		GEOBLOCK®2 (1.2 in depth)	
					CBR 2-4	CBR >4	CBR 2-4	CBR >4
Heavy Fire Truck Access & H-20 Loading (infrequent passes)	Typical 110 psi (758 kPa)	32 kip (145 kN)	48 kip (220 kN)	80,000 lb (36.3 tonne)	6 in (150 mm)	4 in (100 mm)	Consult Manufacturer	Consult Manufacturer
Light Fire Truck Access & H-15 loading (infrequent passes)	Typical 85 psi (586 kPa)	24 kip (110 kN)		60,000 lb (27.2 tonne)	4 in (100 mm)	2 in (50 mm)	Consult Manufacturer	Consult Manufacturer
Utility & Delivery Truck Access & H-10 loading (occasional passes)	Typical 60 psi (414 kPa)	16 kip (75 kN)		40,000 lb (18.1 tonne)	2 in (50 mm)	2 in (50 mm)	Consult Manufacturer	Consult Manufacturer
Car & Pick-up Truck Access (occasional passes)	Typical 45 psi (310 kPa)	4 kip (18 kN)		8,000 lb (3.6 tonne)	None	None	2-4 in (50-100 mm)	4-8 in (100-200 mm)
Trail Use⁽¹⁾ (loading for pedestrian, wheelchair, bicycle, motorcycle and ATV traffic)	Low	Low		Low	None	None	0-2 in (0-50 mm)	None

(1) If trail is non-vegetated, refer to the Geoblock® design and construction document for more details.

NOTE: CBR refers to California Bearing Ratio. As the CBR increases, the depth of the engineered base recommendation decreases.

RECOMMENDED TOPSOIL:

Suitable topsoil should be a good quality, drainable soil and not be compacted within the Geoblock® unit. The topsoil should be pulverized prior to filling the Geoblock® cells and contain sufficient organic content

to support vegetative growth. Topsoil such as sandy loam is recommended. Clay and clay loam material are not recommended.

RECOMMENDED ENGINEERED BASE:

A recommended 'engineered base' is a homogenous mixture consisting of 1) a clear-stone/crushed rock having an AASHTO # 5 or similar designation blended with 2) pulverized topsoil and 3) a void component generally containing air and/or water. This homogenous mixture will promote vegetative growth and provide required structural support.

The aggregate portion shall have a particle range from 9.5 to 25 mm (0.375 to 1.0 in) with a D₅₀ of 13 mm (0.5 in). The percentage void-space of the aggregate portion when compacted shall be at least 30%. The pulverized topsoil portion shall equal 25% +/- of the total volume and be added and blended to produce a homogenous mixture prior to placement. Once placed, the mixture shall be compacted to 95% Standard Proctor Density.



easy installation

The Geoblock® system is designed for easy installation, requiring less site preparation, less subgrade improvement, less excavation and less structural base than other porous pavement systems.

The Geoblock® units are easily installed around obstructions and contours, and can be cut with ordinary hand or power tools. Irrigation systems can be easily integrated in the system. The units' large, easy-to-handle size minimizes the

quantity of blocks required on a given job, reducing labor and installation costs.

The Geoblock® system is an ideal paving solution in traffic areas where sustainable vegetation or permeable infill is desired.

To find out which Geoblock® system is most suitable for your application, contact Alcoa Geosystems or their authorized distributor or representative.

ALCOA GEOSYSTEMS' COMMITMENT — *To provide the highest quality products and solutions.*

Alcoa Geosystems is committed to helping you apply the best solution to your porous pavement requirements. Rely on the leaders in the industry when you need a solution that is

right for your application. Contact Alcoa Geosystems or their network of knowledgeable representatives for assistance with your permeable pavement needs.



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