AG 9-4
ArborGard+ tree trunk protector

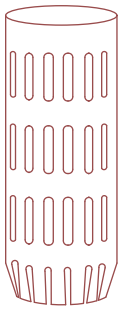
Specified ArborGard is a tree trunk protector to prevent damage by string trimmers, lawn mowers and rodents. Single protector fits trunks up to 4" in diameter, join two together for larger trees.

A. Materials

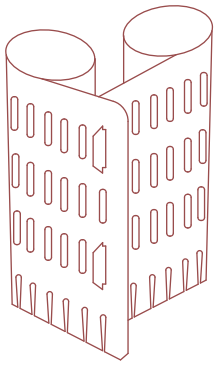
The contractor shall furnish and install trunk protectors as specified. The trunk protector shall be either product # AG 9-4 as manufactured by Deep Root Partners, L.P., 81 Langton Street, Suite 4, San Francisco, CA 94103 (800-458-7668), or approved equal. The protector shall be recyclable polyethylene with a 0.060" (1.52 mm) wall thickness. U.S. Design Patent # 329,296

B. Installation

1. Sapling Trees: Uncoil a single ArborGard+ and place around base of tree. For complete protection be sure flared end is touching the ground.

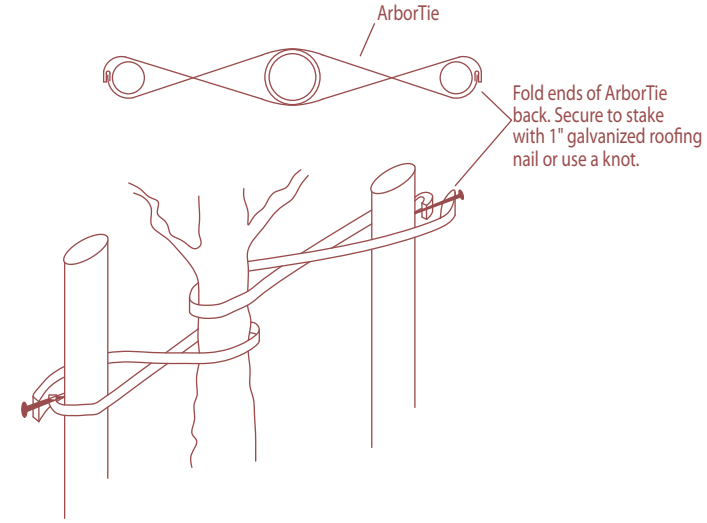


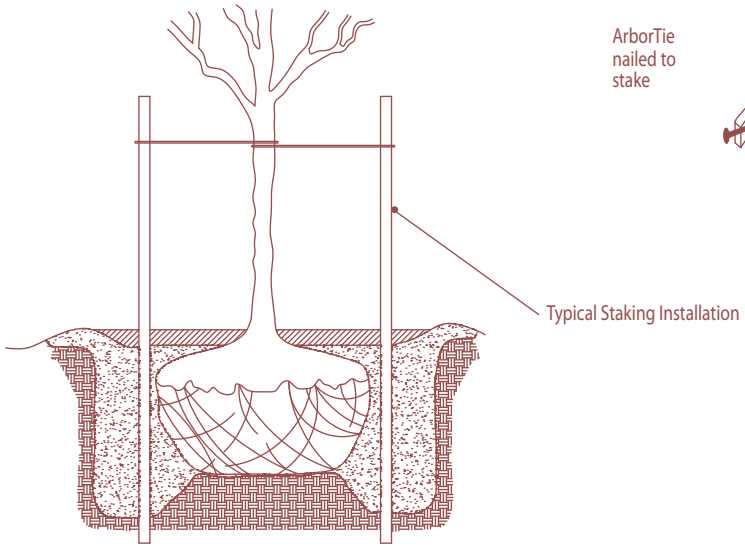
2. Mature trees: To couple two or more ArborGard+ together push the tabs through the second ArborGard+ from the inside so the tabs show on the outside as illustrated.

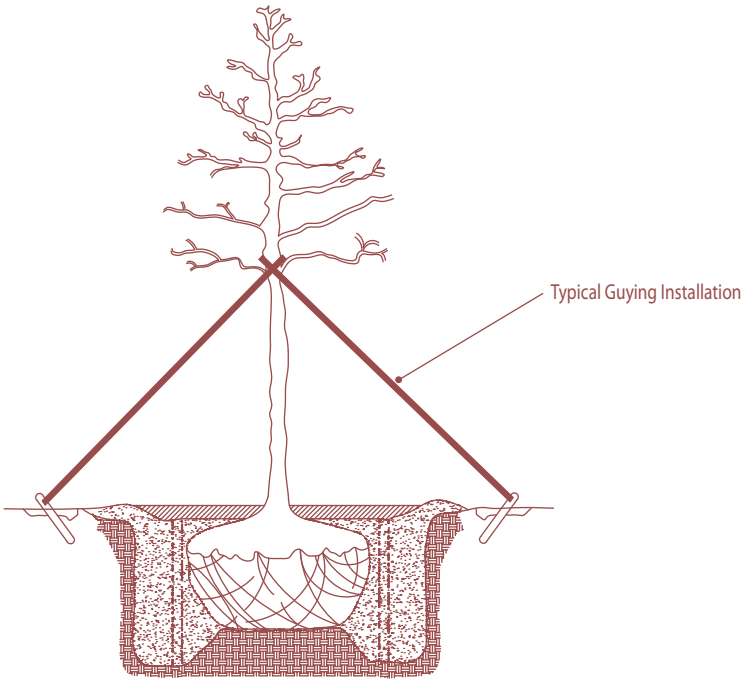


DeepRoot ArborTie - Uses and Specifications

Specified ArborTie green (or white) staking and guying material is to be flat woven polypropylene material. 3/4" (19.05mm) wide 900 lb. break strength.
ArborTie shall be fastened to stakes in a manner which permits tree movement and supports the tree.







BB 24, BB 36
DeepRoot Bamboo Barriers

Specified bamboo barrier is a mechanical barrier to prevent bamboo rhizomes from damaging hardscapes and landscapes. Assembled in varying lengths to surround the planting area or for linear applications directly beside a hardscape adjacent to one side of the bamboo.

A. Materials

1. The contractor shall furnish and install bamboo barrier as specified. The bamboo barrier shall be either product # BB 24 or BB 36 as manufactured by Deep Root Partners, L.P., 81 Langton Street, Suite 4, San Francisco, CA 94103 (800-458-7668), or approved equal. The barrier shall be recyclable black high density polyethylene sheet material, depending on model selected the dimensions shall be as follows:

   BB 24: 0.30" (0.76 mm) wall thickness, 24" (61 cm) deep
   BB 36: 0.30" (0.76 mm) wall thickness, 36" (91 cm) deep

The properties of the material shall be:

Specifications

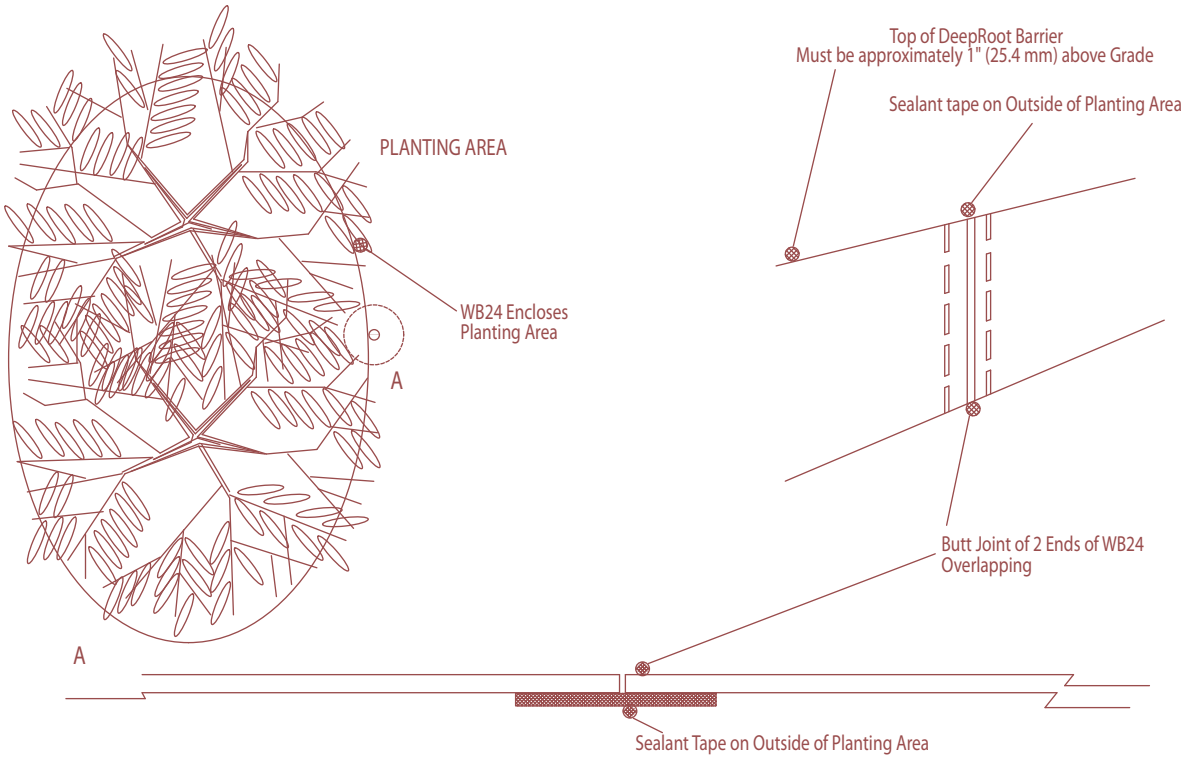
High Density Polyethylene (HDPE) Geomembrane Properties:

Parameter	ASTM Test Method	Mean Value
MD Break Strength (psi)	D 638	2533 psi
TD Break Strength (psi)	D 638	3594 psi
MD Break Elongation (%)	D 638	211 %
TD Break Elongation (%)	D 638	328 %
Puncture Strength (lbs)	D 4833	93 lbs.
MD Tear Strength (lbs)	D 1004	29 lbs
TD Tear Strength (lbs)	D 1004	36 lbs
Hydrostatic Resistance (psi)	D 751, Procedure A	328 psi
Multi-Axial Tensile Properties		
Maximum Stress (psi)	D 5617. Test Method A: Centerpoint Deflection Versus Pressure	2361 psi
% Elongation @ Rupture	D 5617. Test Method A: Centerpoint Deflection Versus Pressure	20.8 %
MD= Machine Direction	TD= Transverse Direction	

B. Construction and Installation

1. The contractor shall install the bamboo barrier with appropriate length and in the manner shown on the drawings. The top edge shall be 1" (25.4 mm) above grade.
2. Excavation and preparation shall conform to the drawings.

A Typical Surround Planting of Bamboo Using DeepRoot Bamboo Barrier



WB 24, WB 36
DeepRoot Water Barriers

Specified water barriers are an impervious barrier to prevent subterranean water movement. Also used as a root block to prevent tree roots and shrubs from damaging hardscapes and other areas. Installed in varying lengths for linear applications directly beside a hardscape.

A. Materials

1. The contractor shall furnish and install water barriers as specified. The water barriers shall be either product # WB 24 or WB 36 as manufactured by Deep Root Partners, L.P., 81 Langton Street, Suite 4, San Francisco, CA 94103 (800-458-7668), or approved equal. The barrier shall be recyclable black high density polyethylene sheet material, depending on model selected the dimensions shall be as follows:

   WB 24: 0.30" (0.76 mm) wall thickness, 24" (61 cm) deep
   WB 36: 0.30" (0.76 mm) wall thickness, 36" (91 cm) deep

The properties of the material shall be:

Specifications

High Density Polyethylene (HDPE) Geomembrane Properties:

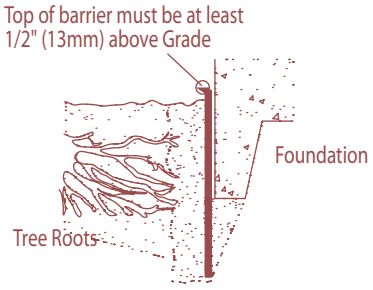
Parameter	ASTM Test Method	Mean Value
MD Break Strength (psi)	D 638	2533 psi
TD Break Strength (psi)	D 638	3594 psi
MD Break Elongation (%)	D 638	211 %
TD Break Elongation (%)	D 638	328 %
Puncture Strength (lbs)	D 4833	93 lbs.
MD Tear Strength (lbs)	D 1004	29 lbs
TD Tear Strength (lbs)	D 1004	36 lbs
Hydrostatic Resistance (psi)	D 751, Procedure A	328 psi
Multi-Axial Tensile Properties		
Maximum Stress (psi)	D 5617. Test Method A: Centerpoint Deflection Versus Pressure	2361 psi
% Elongation @ Rupture	D 5617. Test Method A: Centerpoint Deflection Versus Pressure	20.8 %
MD= Machine Direction	TD= Transverse Direction	

B. Construction and Installation

1. The contractor shall install the water barriers with appropriate length and in the manner shown on the drawings.
2. Excavation and preparation shall conform to the drawings.

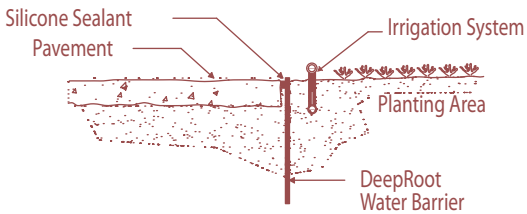
Typical DeepRoot Water Barrier Applications

Foundation Detail

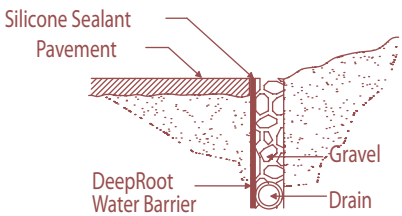


Install DeepRoot Water Barrier next to foundation wall.

Irrigated Median Planting Detail



Drainage Detail



UB 18-2 Specifications

18" DeepRoot Tree Root Barriers

Specified tree root barriers are a mechanical barrier and root deflector to prevent tree roots from damaging hardscapes and landscapes. Assembled in 2' long modules to create varying sizes of cylinders for surrounding root balls (Surround planting style) or for linear applications directly beside a hardscape adjacent to one side of the trees (Linear planting style).

A. Materials

1. The contractor shall furnish and install tree root barriers as specified. The tree root barriers shall be product # UB 18-2 as manufactured by Deep Root Partners, L.P., 81 Langton St. #4, San Francisco, CA (800-458-7668),or approved equal. The barrier shall be Black, Injection Molded Panels, of .080" (2.03mm) wall thickness in modules 24" (61cm) long by 18" (46cm) deep; manufactured with a minimum 50% post consumer recycled polypropylene plastic with added ultraviolet inhibitors; recyclable. Each panel shall have:

Not less than 4 Molded Integral Vertical Root Deflecting Ribs of at least 0.06"(1.52mm) thickness protruding 1/2"(12.7mm) at 90° from interior of the barrier panel, spaced 6"(15.24mm) apart. (See panel drawing below)

A Double Top Edge consisting of two parallel, integral, horizontal ribs at the top of the panel of a minimum 0.06"(1.52mm) thickness 3/8"(9.53mm) wide and 1/4"(6.35mm) apart with the lower rib attached to the vertical root deflecting ribs. (See Detail "A")

A minimum of 9 Anti-Lift Ground Lock Tabs consisting of integral horizontal ridges of a minimum 0.06"(1.52mm) thickness in the shape of a segment of a circle, the 2 1/4"(57mm) chord of the segment joining the panel wall and the segment, protruding 3/8" (9.53mm) from the panel. The nine ground locks on each panel shall be about equally spaced between each of the vertical root deflecting ribs (3 between each set of ribs, see Detail "B").

An integrated Zipper Joining System providing for instant assembly by sliding one panel ino another. (See Detail "C")

2. The basic properties of the material shall be:

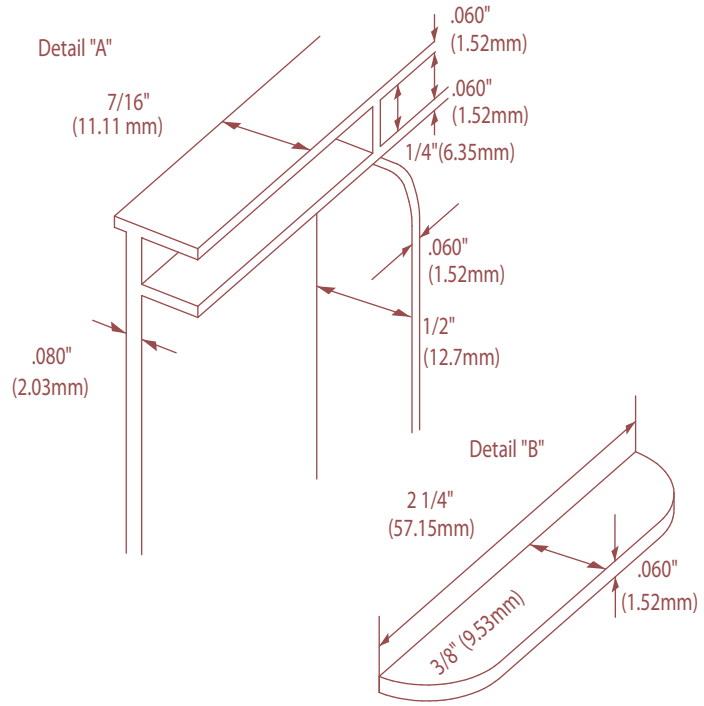
Test	ASTM Test Method	Typical Value Copolymer Polypropylene
Tensile strength @ yield - Wall	D638	2.383 PSI
Tensile strength @ yield - Hinge	D638	2.483 PSI
Yield Elongation - Wall	D638	7.71%
Yield Elongation - Hinge	D638	7.58%
Flexural Modulus	D790B	120.785 PSI
Notched Izod Impact - Wall	D256A	2.54 (ft-lbs)
Rockwell Hardness r. scale - Wall	D785A	84.1

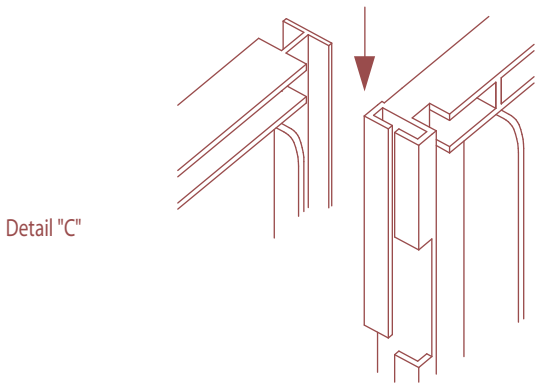
U.S. Patents: 5,070,642 , 5,305,549 and 5,528,857.
Other Patents Pending.

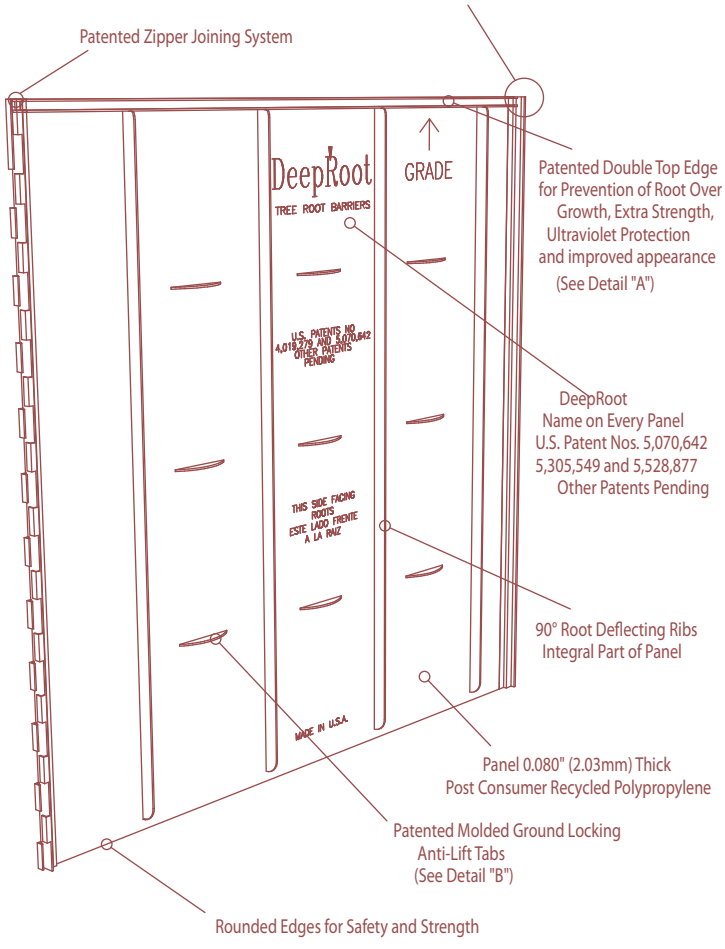
B. Construction and Installation

1. The contractor shall install the tree root barriers with the number of panels and in the manner shown on the Drawings. The vertical root deflecting ribs shall be facing inwards to the root ball and the top of the double edge shall be 1/2" (12.7mm) above grade. Each of the required number of panels shall be connected to form a circle around the root ball or joined in a linear fashion and placed along the adjacent hardscape.

2. Excavation and soil preparation shall conform to the Drawings







UB 24-2 Specifications
24" DeepRoot Tree Root Barriers

Specified tree root barriers are a mechanical barrier and root deflector to prevent tree roots from damaging hard-scapes and landscapes. Assembled in 2' long modules to create varying sizes of cylinders for surrounding root balls (Surround planting style) or for linear applications directly beside a hardscape adjacent to one side of the trees (Linear planting style).

A. Materials

1. The contractor shall furnish and install tree root barriers as specified. The tree root barriers shall be product # UB 24-2 as manufactured by Deep Root Partners, L.P. 81 Langton St. #4 San Francisco, LA (800-458-7668), or approved equal. The barrier shall be Black, Injection Molded Panels, of 0.085" (2.16mm) wall thickness in modules 24" (61cm) long by 24" (61 cm) deep; manufactured with a minimum 50% post consumer recycled polypropylene plastic with added ultraviolet inhibitors; recyclable. Each panel shall have:

Not less than 4 Molded Integral Vertical Root Deflecting Ribs of at least 0.085" (2.16mm) thickness protruding 1/2" (12.7mm) at 90° from interior of the barrier panel, spaced 6" (15.24cm) apart. (See panel drawing below)

A Double Top Edge consisting of two parallel, integral, horizontal ribs at the top of the panel of a minimum 0.085" (2.16mm) thickness, 3/8" (9.53mm) wide and 1/4" (6.35mm) apart with the lower rib attached to the vertical root deflecting ribs.(See detail "A")

A minimum of 9 Anti-Lift Ground Lock Tabs consisting of integral horizontal ridges of a minimum 0.085" (2.16mm) thickness in the shape of a segment of a circle, the 2" (50.8mm) chord of the segment joining the panel wall and the segment, protruding 3/8" (9.53mm) from the panel. The nine ground locks on each panel shall be about equally spaced between each of the vertical root deflecting ribs (3 between each set of ribs, see Detail "B").

An integrated Zipper Joining System providing for instant assembly by sliding one panel into another. (See Detail "C")

2.The basic properties of the material shall be:

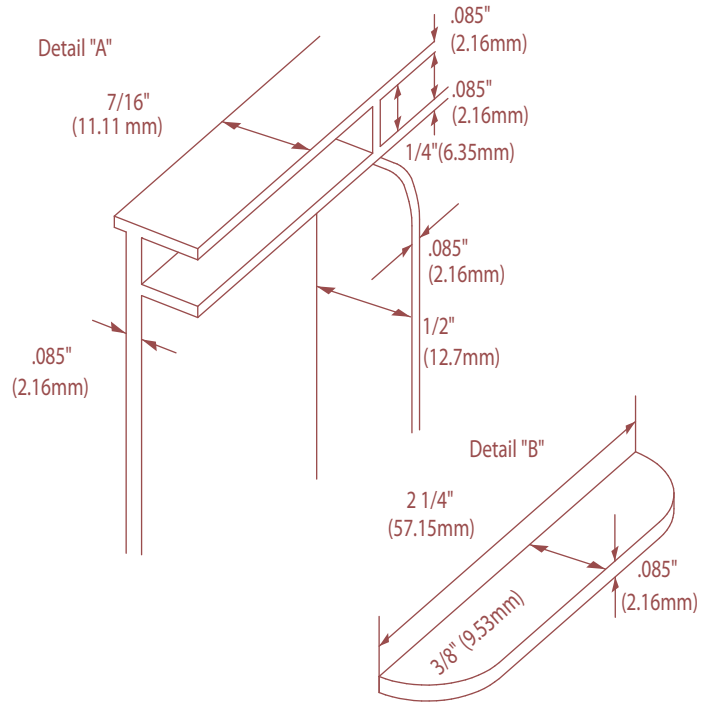
Test	ASTM Test Method	Typical Value Copolymer Polypropylene
Tensile strength @ yield - Wall	D638	2.354 PSI
Tensile strength @ yield - Hinge	D638	2.846 PSI
Yield Elongation - Wall	D638	7.44%
Yield Elongation - Hinge	D638	7.01%
Flexural Modulus	D790B	119.625 PSI
Notched Izod Impact - Wall	D256A	3.84 (ft-lbs)
Rockwell Hardness r. scale - Wall	D785A	84.4

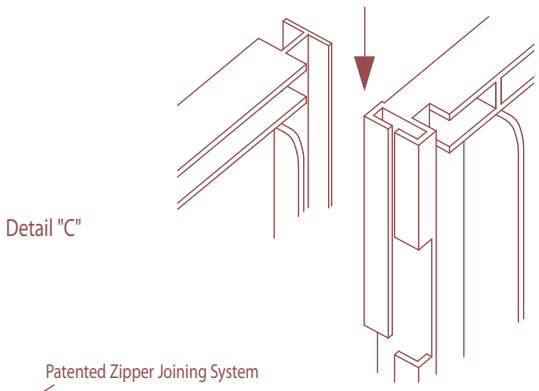
U.S. Patents: 5,070,642 , 5,305,549 and 5,528,857.
Other Patents Pending.

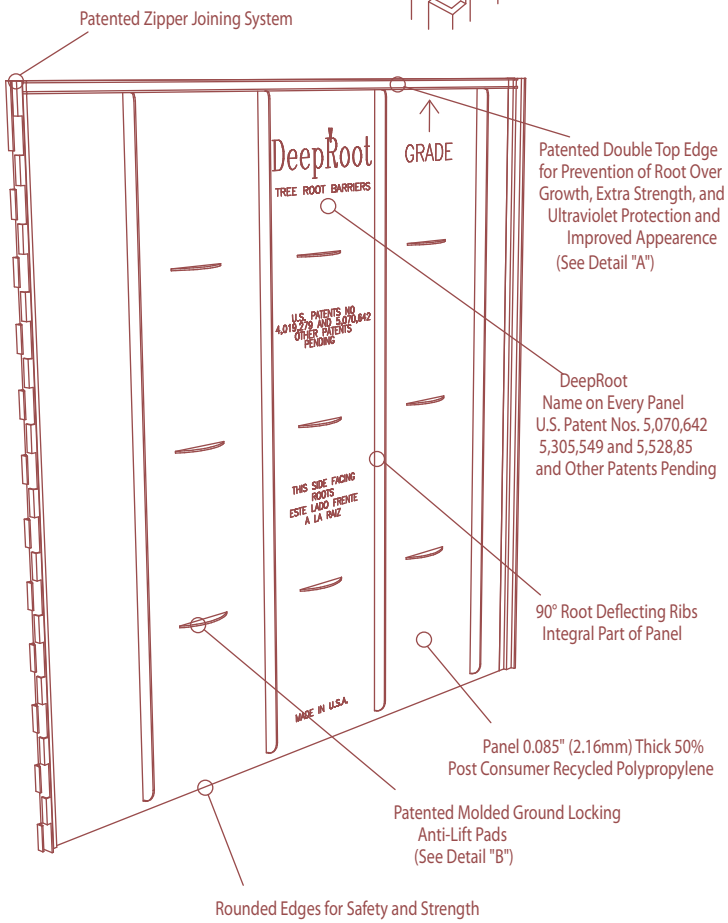
B. Construction and Installation

1. The contractor shall install the tree root barriers with the number of panels and in the manner shown on the Drawings. The vertical root deflecting ribs shall be facing inwards to the root ball and the double top edge shall be 1/2" (12.7mm) above grade. Each of the required number of panels shall be connected to form a circle around the root ball or joined in a linear fashion and placed along the adjacent hardscape.

2. Excavation and soil preparation shall conform to the Drawings







UB 36-2/UB 48-2 Specifications
36" / 48" DeepRoot Tree Root Barrier

Specified tree root barriers are a mechanical barrier and root deflector to prevent tree roots from damaging hardscapes. and landscapes. Assembled in 2' (61 cm) long modules to create varying lengths for linear applications directly beside a hardscape adjacent to one side of the trees or for large perimeter surround applications with a minimum 8' (2.43 m) diameter using 12 panels.

A. Materials

1. The contractor shall furnish and install tree root barriers as specified. The tree root barriers shall be either product # UB 36-2 or UB 48-2 as manufactured by DeepRoot Partners, L.P., 81 Langton Street, Suite 4, San Francisco, CA 94103 (800.458.7668), or approved equal. The barrier shall be black, Extruded Panels, of 0.80" (2.03mm) wall thickness in modules 24" (61cm) long either 36" (91 cm) or 48" (122 cm) deep; manufactured with homopolymer polyethylene with added ultraviolet inhibitors; recyclable. Each 2' (61 cm) section shall have:

Not less than 4 Molded Integral Vertical Root Directing Ribs of a minimum 0.080" (2.03mm) thickness protruding 1/2" (12.7 mm) at 90° from interior of the barrier panel, spaced 6" (152.4 mm) apart. See panel drawing.

An integrated Joining System providing for instant assembly by sliding one panel into another.

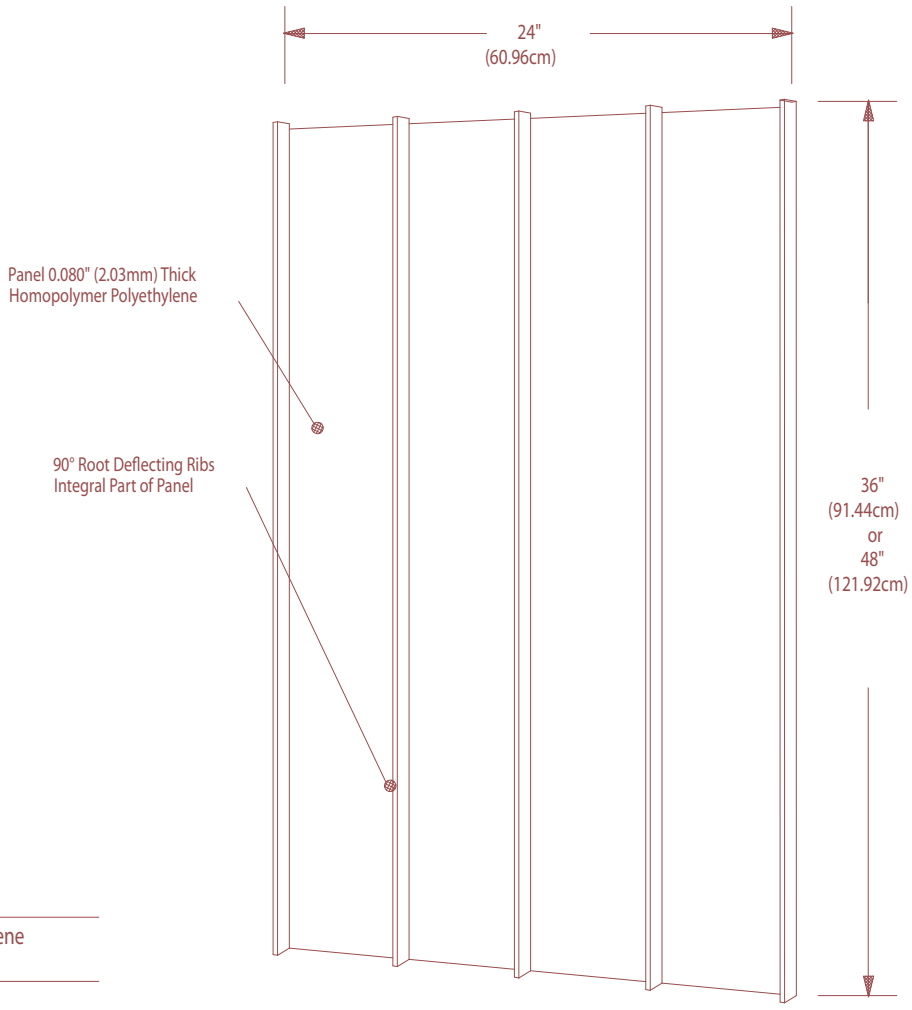
The basic properties of the material shall be:

Material and Thickness		Homopolymer Polyethylene 0.080 inch Extruded
Properties	ASTM Test Method	Typical Value
Tensile stress @ yield	D638	3800 PSI
Elongation @ break %	D638	10%
Tensile Modulus	D638	155,000 PSI
Notched Izod Impact	D256A	0.4 - 4.0
Flexual Modulus 73 ‡ PSI	D790	145,000
Hardness Shore	D2240	P66

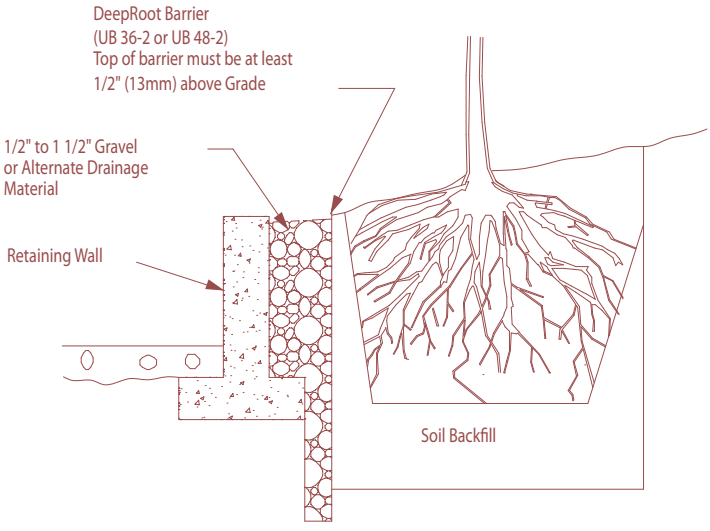
B. Construction and Installation

1. The contractor shall install the tree root barriers with the number of panels and in the manner shown on the drawings. The vertical root directing ribd shall be facing inwards to the root ball and the top edge shall be 1/2" (12.7 mm) above grade. Each of the required number of panels shall be joined in a linear fashion and placed along the adjacent hardscape or where specified connected to form a circle around the root ball.

2. Excavation and preparation shall conform to the drawings.



A Typical Linear Planting Installation Using DeepRoot UB 36-2 or UB 48-2



Install DeepRoot UB 36-2 or UB 48-2
6"-12" behind planter or retaining wall.

LB 12-2 Specifications
12" DeepRoot Tree Root Barriers

Specified tree root barriers are a mechanical barrier and root deflector to prevent tree roots from damaging hardscapes and landscapes. Preassembled with flexible joiner strips in 80' lengths for linear applications directly beside a hardscape adjacent to the trees. Each preassembled section can be separated or reconfigured in any 2' module.

A. Materials

1. The contractor shall furnish and install tree root barriers as specified. The tree root barriers shall be product # LB 12-2 as specified on the Drawings as manufactured by Deep Root Partners, L.P., 81 Langton St. #4, San Francisco, CA (800-458-7668), or approved equal. The barrier shall be Black, Injection Molded Panels, of 0.080" (2.03mm) wall thickness in modules 24" (61cm) long by 12" (30.48cm) deep; manufactured with a minimum 50% post consumer recycled polypropylene plastic with added ultraviolet inhibitors; recyclable. Each panel shall have:

Not less than 4 Molded Integral Vertical Root Deflecting Ribs of a minimum 0.06" (1.52mm) thickness protruding 1/2" (12.7mm) at 90° from the interior of the panel, spaced 6" (15cm) apart. (See panel drawing below)

A Double Top Edge consisting of two parallel, integral, horizontal ribs at the top of the panel of a minimum 0.06" (1.52mm) thickness, 3/8"(9.53mm) wide and 1/4"(6.35mm) apart with the lower rib attached to the vertical root deflecting ribs. (See Detail "A")

Not less than 3 Anti-Lift Ground Lock Tabs consisting of integral horizontal ridges of a minimum 0.06"(1.52mm) thickness in the shape of a segment of a circle, the 2 1/4" (57mm) chord of the segment joining the panel wall and the segment, protruding 3/8" (9.53mm) from the panel. The minimum of 3 ground locks on each panel shall be about equally spaced between each of the vertical root deflecting ribs (1 between each set of ribs, see Detail "B").

A Preassembled Self Locking Flexible (0°-180°) Joiner Strip to connect one panel to the next. (See Detail "C")

2. The basic properties of the material shall be:

Test	ASTM Test Method	Value Copolymer Polypropylene
Tensile stress @ yield	D638	3800 PSI
Elongation @ yield	D638	6.3%
Flexural Modulus	D790B	155,000 PSI
Notched Izod Impact	D256A	7.1
Rockwell Hardness r. scale	D785A	68

U.S. Patents: 5,070,642 and 5,305,549.

B. Construction and Installation

1. The contractor shall install the tree root barriers in the length and in the manner shown on the Drawings. The vertical root deflecting ribs shall be facing inwards to the root ball and the top of the double top edge shall be 1/2" (13mm) above grade. Each of the required number of panels shall be connected with the flexible joiner strips to the required length for the linear application.

2. Excavation and soil preparation shall conform to the Drawings

Caution: LB 12-2 should never be used in a Surround Style planting application.