



flexxcape™



INSTALLATION GUIDELINES

SPECIFICATIONS



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PREPARATION

The bunker to be lined should have the base and slopes of the surface firm and compact. All drainage should be checked, repaired, or installed prior to Flexscape installation.

PRODUCT HANDLING

Each roll of Flexscape weighs approximately 120 lbs. and can be moved around the facility in a utility vehicle and placed into bunker with two people.

PLACEMENT

Flexscape can be rolled out into strips covering the bottom of the bunker. Each segment can be easily cut from the roll using a standard utility knife. Be careful to closely pre-fit segments prior to cutting from roll to minimize waste.

BONDING SEGMENTS

Segments are closely aligned with edges butted together. A standard staple gun with 3/8 inch staple temporarily locks the edges together prior to chemical bonding.

The Flexscape Bonding Agent is applied using a common squeeze bottle with narrow application tip. The Bonding Agent should be applied directly onto the butted edges. It has a rapid curing process, approximately 10-15 minutes for initial set and 12 hours for final bond.

During the curing process, the cement literally melts the PVC and re-orientes the chemical bonds for a permanent connection. This results in the bond being stronger than the material itself.

TRIMMING EDGES

Once the edges are bonded, the excess material at the bunker edge can be trimmed. Trimming can be performed easily with a standard utility knife. The sharper the blades, the smoother the finished cut will be.

SECURING FLEXXCAPE

The weight of Flexscape will keep it in place. The flexible nature of the product will allow it to conform to any irregularities in the bunker base, including drainage lines/gravel. There is no need to staple the product.

Should one wish to secure Flexscape on the perimeter, this can be done with standard sod staples.

MAINTENANCE

Flexscape requires no maintenance. The PVC formulation is incredibly durable while maintaining conformity even in a frozen state. Flexscape will not crack or break-up under repetitive freeze/thaw cycles.



PREPARATION

The bunker to be lined should have the base and slopes of the surface firm and compact. All drainage should be checked, repaired, or installed prior to Flexscape installation. Flexscape can be installed in all manner of soil types and conditions.

PRODUCT STORAGE & HANDLING

Flexscape can be installed in a wide range of environmental conditions. Should installation occur in cool or cold conditions, it is advisable to store rolls in a warmer location as it will speed installation and help the material quickly conform to the contours of the bunker base. During warmer weather, Flexscape can be stored outside in its delivered, palletized format.

Each roll of Flexscape weighs approximately 120 lbs. and can be easily moved around the facility in a utility vehicle and placed into the bunker and manipulated into place with two people.

PLACEMENT

Flexscape can be rolled out into strips covering the bottom of the bunker. This can be done by simply pushing the roll across the bunker to unroll (two persons). Optionally, one can insert a pipe into the roll core, hold the roll stationary and pull and extend to unroll (three persons).

When initially placing Flexscape, a small amount of material should go beyond the actual edge. This will help when positioning material for final fit prior to bonding.

Each segment can be easily cut from the roll using a standard utility knife with ease. Should blade dull, replace frequently to speed the trimming process. Be careful to closely pre-fit segments prior to cutting from roll to minimize waste.

FLEXSCAPE BONDING AGENT STORAGE & HANDLING

The custom formulated Flexscape Bonding Agent is specially developed to fuse the industrial PVC which the Flexscape material is made. Use of other adhesives will not properly bond the material and will void any warranty. Flexscape can be installed in a wide range of environmental conditions.

When installing in cool or cold weather, the bonding agent will thicken and slow application. It will also slow, slightly, the curing time. In these conditions, it is advisable to store the bonding agent indoors to speed application. In warm or hot weather, the bonding agent will flow smoothly and cure time will be quite rapid (5 minutes).



The initial set time of the Flexscape Bonding Agent take between 5 to 15 minutes, with cooler temperatures slowing the cure. Although we advise a final cure time of 10-12 hours, warm/hot weather installation can substantially decrease final cure time. To determine, it is advisable to test a small segment.

Installation in wet weather will not significantly change the curing/bonding process. If material is wet, additional Bonding Agent may need to be applied for proper coverage.

The Flexscape Bonding Agent, like many industrial adhesives contains harmful solvents and ingredients. It is important to read through the MSDS information prior to use. Since application is outdoors, no special safety equipment is required. Nitrile gloves can be used to avoid getting the bonding agent onto skin. Although skin damage won't occur, gloves helps with clean-up after use.



FINAL FIT PRIOR TO BONDING

Preferred Method — Segments are closely aligned with edges butted together. The edge of Flexscape is a cut edge, so segments should butt easily together. Should edge voids arise when fitting, they can be pulled together and held temporarily with staples. A standard staple gun with a 3/8 inch staple temporarily locks the edges together prior to chemical bonding.

Alternate Method — Segments can also be overlapped about 1/4 to 1/2 inch prior to bonding. This can help avoid using staples to temporarily hold but will increase the amount of Bonding Agent used.



APPLYING THE BONDING AGENT

The Flexscape Bonding Agent is supplied in 1 Gallon containers. For best application, transfer to a common plastic squeeze bottle with narrow application tip.

In warm/hot weather installations, a narrow spout opening is preferred to control the bead of Bonding Agent being applied. In cool/cold installations, cutting a wider spout opening is recommended.

Optionally, in cool/cold installations, the Bonding Agent can be transferred to a common quart-sized steel paint can, with plastic pour lip attached, to speed Bonding Agent application.



BONDING SEGMENTS

The Bonding Agent should be applied directly onto the butted (or overlapped) edges. The objective is to get the Bonding Agent to completely cover and seep into the Flexscape profile. This will insure that a greater surface area of bonding will occur. If applying to overlapped edges, more Bonding Agent will be consumed.

The Flexscape Bonding Agent has a rapid curing process, approximately 10-15 minutes for initial set and 12 hours for final bond. During the curing process, the Bonding Agent literally melts the PVC and re-orientes the chemical bonds for a permanent connection. This results in the bond being stronger than the material itself.



NOTE: In warm/hot installation conditions, the Bonding Agent will have a much faster initial set, 2-3 minutes. During initial set, the segments will stick together but can be pulled apart with aggressive force. Should the material be disrupted, additional Bonding Agent should be applied.

TRIMMING EDGES

Once the edges are bonded, the excess material at the bunker edge can be trimmed. Trimming can be performed easily with a standard utility knife. The sharper the blades, the smoother the finished cut will be.

SECURING FLEXXCAPE

The weight of Flexscape will keep it in place. The flexible nature of the product will allow it to conform to any irregularities in the bunker base, including drainage lines/gravel. There is no need to staple the product. Should one wish to secure Flexscape on the perimeter, this can be done with standard sod staples.

MAINTENANCE

Flexscape requires no maintenance. The PVC formulation is incredibly durable while maintaining conformity even in a frozen state. Flexscape will not crack or break-up under repetitive freeze/thaw cycles.



PRODUCT DEVELOPMENT

As the manufacturer and marketer of the popular Sandtrapper product line, we took our expertise in geophysical controls and applied them to the seamless bunker liner concept. We focused on maintaining simple handling and installation requirements. We focused on washout control and consistent playability. We focused on maintenance durability.

Flexscape is a non-degradable, synthetic material manufactured with precision specifications and capable of standing up to the most rigorous environmental conditions. It withstands freeze/thaw cycles, mechanical raking, and ultraviolet exposure.

PERMANENT & FLEXIBLE MATERIAL

Flexscape is manufactured from an industrial PVC in a patented extrusion process that chemically bonds strands together. During the process, small loops are created which increase surface area and adhesion. The proprietary PVC formulation is incredibly durable while maintaining conformity even in a frozen state. Flexscape will not crack or break-up under repetitive freeze/thaw cycles.

Flexscape is manufactured with precision specifications and packaged for convenience. The patented manufacturing process results in a material that can be counted on day in and day out.

PHYSICAL PROPERTIES

Material	Flexible PVC
Color	Natural
Thickness	3/8 inch
Roll Width	42 inches
Roll Length	45 feet
Roll Area	157.5 ft ²
Weight	.768 lbs ft ²
Roll Weight	121 lbs
Rolls per Pallet	15
Area per Pallet	2,362.5 ft ²
Pallet Weight	1,832.5 lbs
Pallets per Truckload	24
Area per Truckload	56,700 sq. ft.

MECHANICAL PROPERTIES

Grab Tensile Strength (ASTM D-4632)	120.5 x 90.6 lbs
Grab Elongation (ASTM D-4632)	99.7 x 89.3 %
Trapezoidal Tear (ASTM D-4533)	64.6 x 53.5 lbs
CBR Puncture (ASTM D-6241)	165.3 lbs
Flow Rate (ASTM D-4491)	549.8 gpm/ft ²
Permittivity (ASTM D-4491)	7.35 sec-1
Permeability (ASTM D-4491)	6.059 cm/sec
Transmissivity (ASTM D-4716)	1.92E-03 m ² /sec