

Exclusively Manufactured by BITEC, INC.

Mineral Design™

Pattern-Design
Modified Bitumen
Cap Sheets



BITEC
BITUMEN TECHNOLOGY

Mineral Design and the various design patterns are produced under an exclusive manufacturing system covered by registered patents.

ROOF DESIGNS BY BITEC

MINERAL DESIGN represents a premium product with unique mineral color patterns. Now designers, specifiers and property owners have a new instrument at their disposal for decorating roofs. The special membrane designs allow new and, until now, unforeseen possibilities. With MINERAL DESIGN, low slope and pitched roofs may be enhanced by designs of various contrasting colors, while providing excellent waterproofing qualities.

MINERAL DESIGN is a new generation of BITEC modified bitumen membrane, that is self-protected with ceramic coated roofing granules. Using colored roofing granules in conjunction with a registered patent for the design application, numerous designs and color combinations are available for aesthetically pleasing roof applications.

BITEC produces the MINERAL DESIGN products in both APP (atactic polypropylene) and SBS (styrene butadiene styrene) cap sheets to meet all application method requirements.

MINERAL DESIGN is a waterproofing membrane manufactured to the highest quality standards imparted of BITEC, and will serve as a long-lasting waterproofing product, offering design and color to the finished roof.

The advanced technical design, with a new composite reinforcement used in the manufacture of MINERAL DESIGN, offers protection from harmful

ADVANTAGES

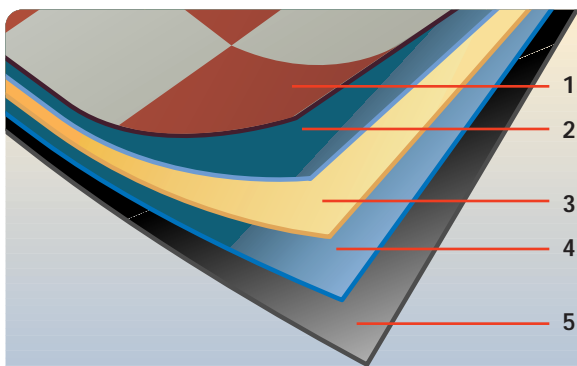
- New possibilities in roof decoration
- Excellent dimensional stability
- Improved elasticity
- Easy and fast to apply

dimensional stability problems. MINERAL DESIGN's triple reinforcement spunbond polyester membrane will not warp or buckle, shrink or wrinkle.

For MINERAL DESIGN applications, absolute dimensional stability before and after application is extremely important. For this reason, the membrane has a composite three-layer reinforcement, where the glass fiber is contained between two layers of continuous strand non-woven polyester fabric. Stability is provided by the glass fiber, and the bituminous mass is protected and reinforced by the non-woven polyester fabric.

The dimensional stability of MINERAL DESIGN is very similar to that of glass fiber reinforced membranes, while maintaining good elasticity as in non-woven polyester fabrics.

MINERAL DESIGN resists problems associated with incorrect storage and handling of rolls, (i.e., where left exposed to sun, or uneven torch-application of membrane, and application onto thermally resistant insulation) causing shrinkage and deformation of



1. **Upper surface:** Mineral-coated polymer bitumen compound
2. **First reinforcement layer:** Continuous strand spunbond non-woven polyester fabric
3. **Second reinforcement layer:** Glass fiber
4. **Third reinforcement layer:** Continuous strand spunbond non-woven polyester fabric
5. **Lower surface:** Polymer bitumen compound



membranes. MINERAL DESIGN also possesses excellent tear resistance making it suitable for mechanical attachment.

MINERAL DESIGN is a special waterproofing product and must be treated as such. It differs greatly from traditional granule-surfaced membranes in that the granule surface provides a distinctive pattern, derived from granule placement on the membrane. As with any material having a pattern repeat, one must take care in applying, storing and handling this product.

The exclusive MINERAL DESIGN patterns are manufactured to provide a constant, reliable design after application. MINERAL DESIGN membranes give the finished application a uniform appearance, provided that certain minimal application, storage, and handling techniques are followed.

The installer must be aware that there will be a certain amount of waste generated by the pattern repeat, depending on the pattern selected for the project. The installer is solely responsible for determining the amount of material needed to successfully complete the project.

APPROVAL:



Membrane for Roofing Systems
Classified By
Underwriters Laboratories, Inc.
As to an external fire exposure only
49S8

MEMBER:



HANDLING AND STORAGE

Successful application and a good finished appearance depend on careful handling and storage of the MINERAL DESIGN rolls. This is extremely important.

- All rolls must be stored on original factory pallets having a corrugated pad as a barrier to prevent marking of roll ends and possible distortion of the factory pattern. This corrugated pallet pad comes as a part of our standard factory packaging.
- Rolls must be stored on end with selvedge edge up, and never be left leaning or laying flat.
- All product must be stored away from direct sunlight and weather until shortly before use.

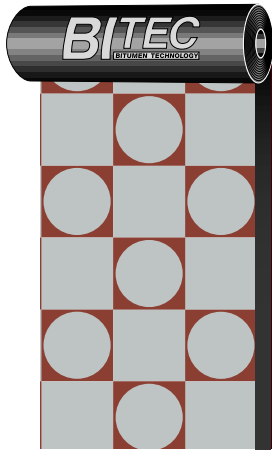
- Never double-stack pallets of Mineral Design.

Should pallets of Mineral Design be stored outside, at the job site, the polyethylene shrinkwrap bag should be slit vertically, on all sides, to improve circulation and reduce product stress during warm weather.

(Please refer to the BITEC Roofing Material Specifications and Details, Section 1.00 for more information, and the MINERAL DESIGN Technical Bulletin relative to product application and technical information.)



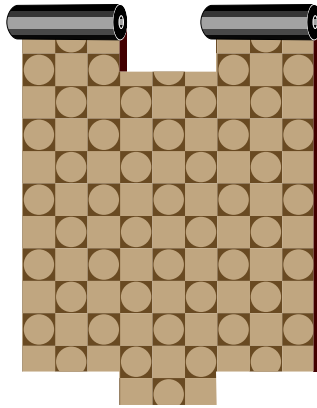
Property located in Colorado



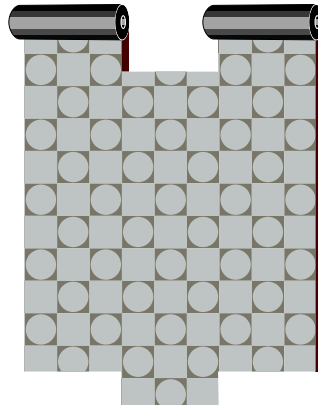
Circles and Squares

Also available in CS 22-41

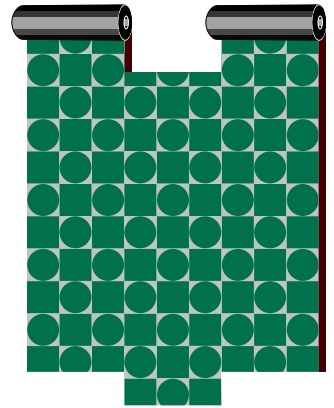
#CS 77-22



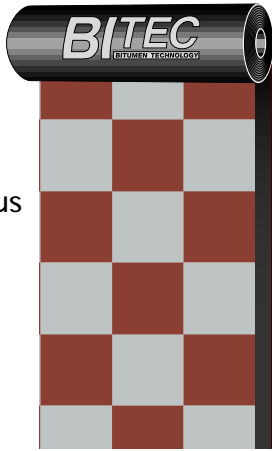
#CS 68-41



#CS 77-53



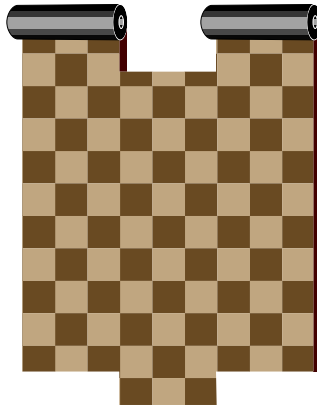
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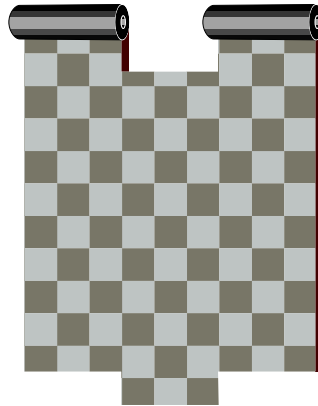
Rhombus

Also available in R 22-41

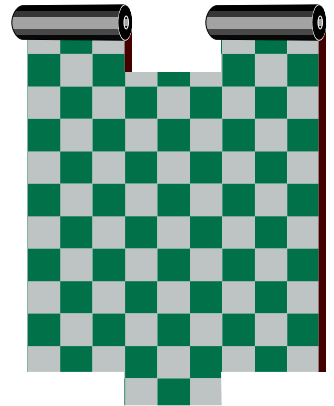
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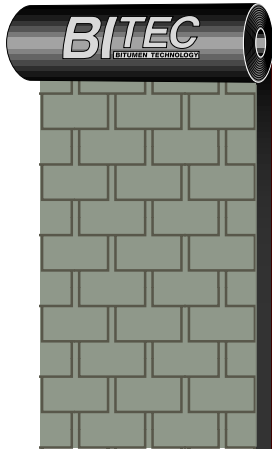
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#R 77-53

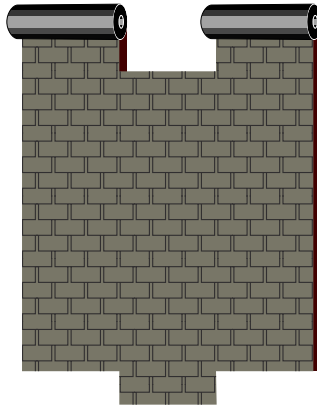


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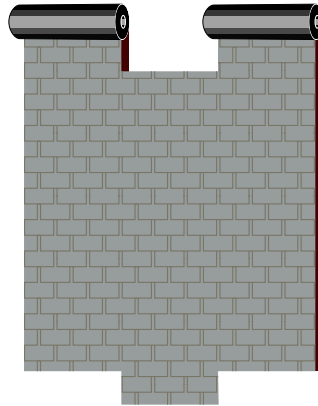


Strip Slates

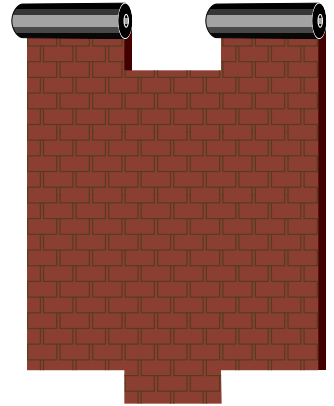
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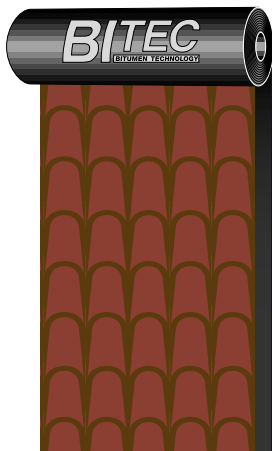
#SS 53-51



#SS 75-53



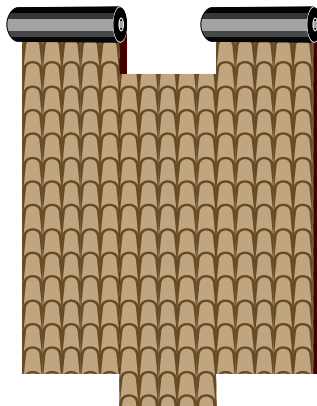
#SS 22-41



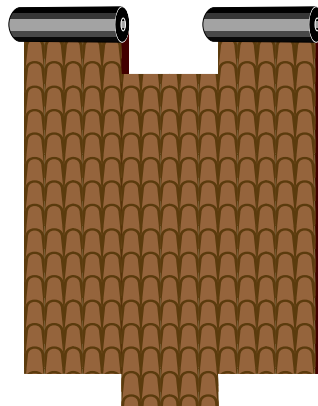
Tiles

Also available in T 76-71

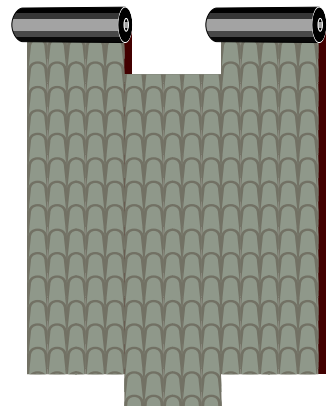
#T 22-41



#T 68-41



#T 46-41

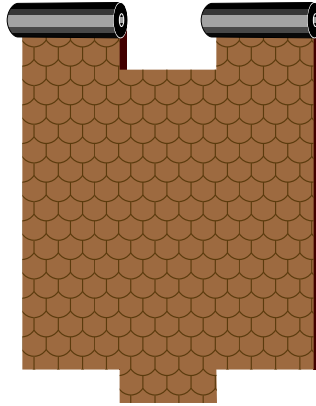


#T 76-71

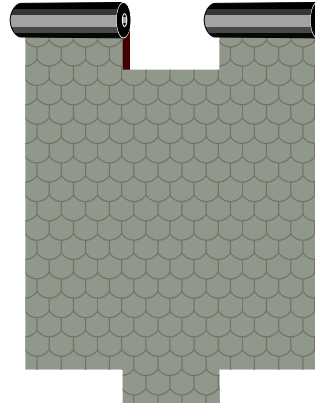
Oval
Slates



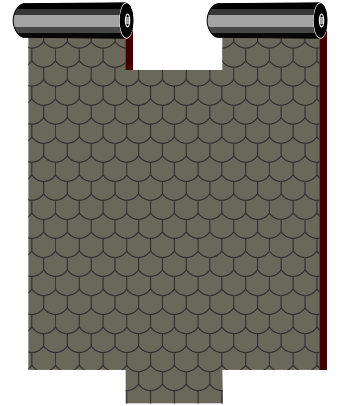
#OS 22-41



#OS 46-41

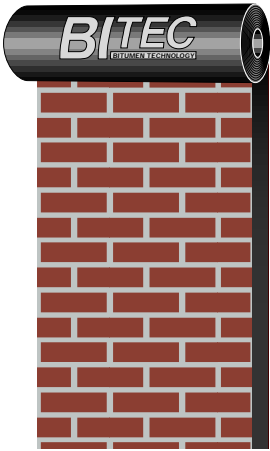


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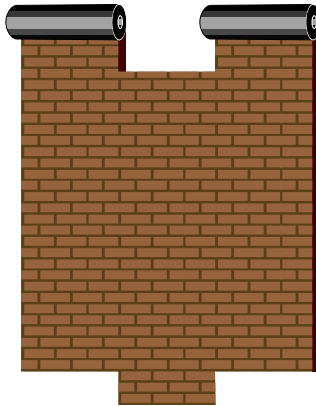


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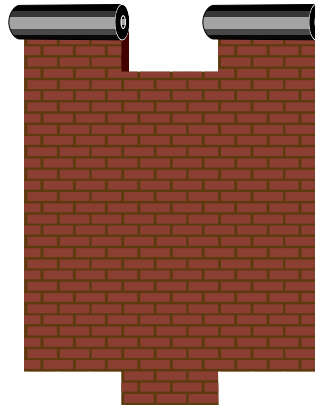
Bricks



#B 22-77



#B 46-41

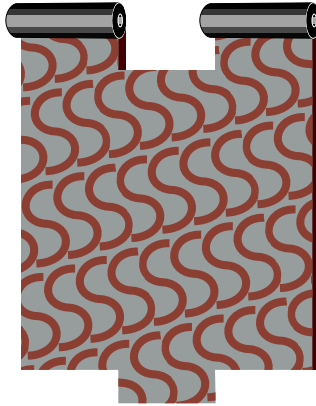


#B 22-41

Winding
Fantasy



#WF 22-41



#WF 75-22



#WF 76-71

Camou-
flage



#C 49-65



#C 76-71

APPLICATION

It is essential that the installer be well-trained and fully understand the methods of application for the specific type of MINERAL DESIGN product being installed. **Installation of this membrane should be performed only by a professional roofing contractor, well-trained in the methods described herein.**

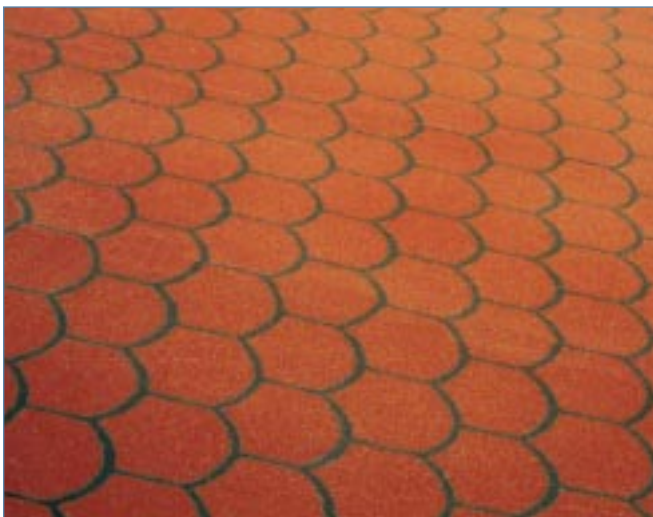
BITEC, INC. produces this product within design tolerances, and is not responsible for improper or unsuccessful installation of this product.

Each design has a specific pattern repeat, so in order to align the pattern and achieve maximum utilization of the roll, a certain portion of the repeat must be removed.

The installer should expect to have a certain percentage of waste on each project. To help approximate the material needed, refer to the table on the right, showing each pattern's repeat length.

You may have to remove up to 50% of this figure for alignment, depending upon the project requirement. Also, remember that you must provide a 6" minimum endlap.

When cutting the membrane, it is recommended that the applicator use a straight-edge. Side lap alignment is essential to successfully complete the pattern. A 4.0" side lap is provided.



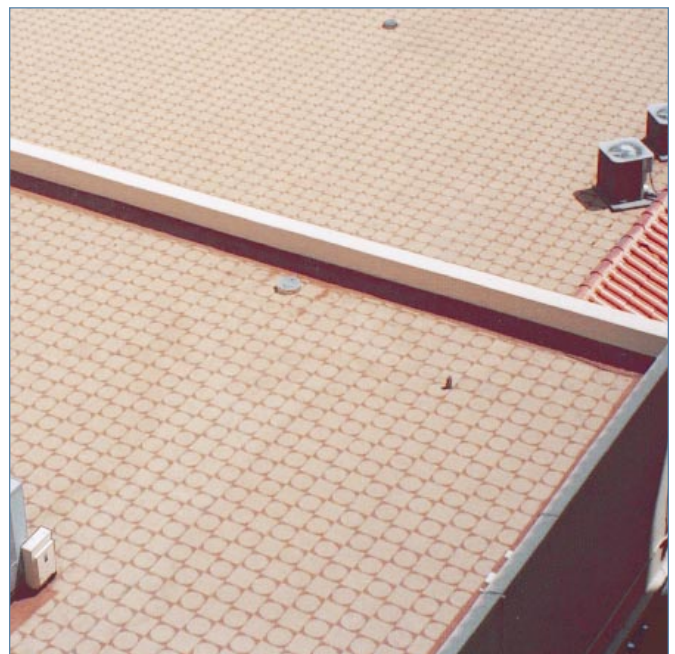
Property located in Texas

PATTERN REPEAT

Circles & Squares	12.0"
Tiles.....	13.6"
Strip Slates.....	8.1"
Winding Fantasy	30.3"
Oval Slates.....	7.9"
Rhombus.....	12.0"
Bricks.....	3.5"
Camouflage	0.0"

Proper Application temperature is essential. Regardless of the application method being used, the installer should produce a continuous, uninterrupted flow of bitumen or adhesive from all laps, not to exceed 1/8 to 1/4 inch. Flow beyond this range will give unsightly results distorting the continuity of the pattern. Do not trowel the seams.

For slopes greater than 3/4" in 12", blind-nailing the end laps is required to reduce the potential of membrane misalignment. The fastener used will depend on the substrate. Typically, blind nailing 6" to 9" o.c. is acceptable.



Property located in Florida

It is the installer's responsibility to adhere to all safety precautions associated with application of polymer modified bitumen membranes, implementing and maintaining fall protection requirements and safety regulations. This applies to all low and steep slope applications.



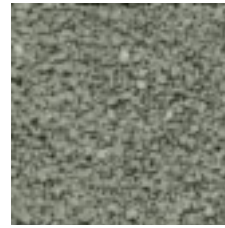
Property located in Colorado

SPECIFICATIONS:	MDA (APP Modified)	MDS (SBS Modified)
ROLL SIZE	10 M ²	10 M ²
APPROVALS	UL (R13231)	UL (R13231)
SOFTENING POINT (ASTM D-36)	302°F (150°C)	250°F (120°C)
REINFORCEMENT	spunbond polyester composite	spunbond polyester composite
PENETRATION (ASTM D5)	40 dmm @ 25°C	40 dmm @ 25°C
SLIDE (UNI-8202)	<1 mm	<1 mm
COLD FLEXIBILITY (UNI-8202)	passed +5°F (-15°C)	passed -23°F (-30.1°C)
WATER TIGHTNESS (CGSB 37-GP-56M)	passed	passed
DYNAMIC PUNCTURE (CGSB 37-GP-56M)	passed	passed
STATIC PUNCTURE (CGSB 37-GP-56M)	passed	passed
TENSILE STRENGTH (ASTM D-412)	MD = 100 lbf/in XMD = 100 lbf/in	MD = 105 lbf/in XMD = 105 lbf/in
ELONGATION (ASTM D412)	MD = 45% XMD = 45%	MD = 60% XMD = 60%
LOAD STRAIN PRODUCT (CGSB 37-GP-56M)	MD = 40,012 n XMD = 40,012 n	MD = 56,048 n XMD = 56,048 n
THICKNESS	4 mm	4 mm
ROLL WEIGHT, APPROX.	107 lbs	107 lbs
COVERAGE, INSTALLED APPROX.	97 ft ²	97 ft ²
TOTAL SURFACE AREA, APPROX.	107.6 ft ²	107.6 ft ²

MINERAL DESIGN COLORS



37 Green



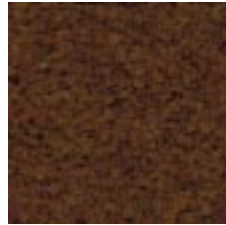
76 Gray



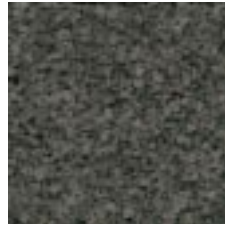
22 Red



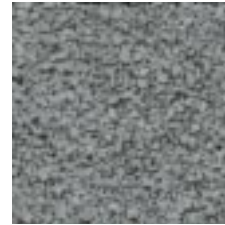
68 Buff



41 Brown



53 Black



75 Gray



46 Brown



71 Gray



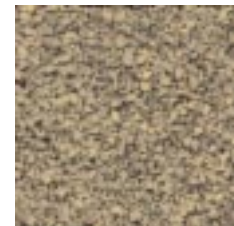
77 Gray



65 Buff



51 Black



49 Buff

The mineral granule colors shown throughout this brochure are reproduced as a reference only, and as an aid in the selection of contrasting color schemes. Actual product color may vary slightly from those shown.

BITEC, INC. assumes no responsibility for any such color variance as shown versus the actual color. The purchaser should view the actual available colors at their local BITEC distributor, or contact their local BITEC representative.

WARRANTY INFORMATION

Mineral Design can be installed on all typical roof slopes, both commercial and residential:

For commercial applications our standard warranties apply:	Ten Year Limited Material Warranty Twelve Year Limited Material Warranty
10 and 12 Yr. Limited Material Warranties are available for commercial applications:	Limited "Insured" Roofing Warranty

Our Limited "Insured" Roofing Warranty is available in coverage periods of 10, 12, 15, and 20 years. This warranty is only available through our network of Authorized Applicators.

For residential applications, (i.e., single and multiple family dwellings) our **Mineral Design Twenty-five Year Limited Residential Roofing Membrane Warranty** is available. This warranty can be obtained by anyone purchasing Mineral Design membranes. However, roof slope must be 3" in 12" to qualify for this warranty. For slopes of less than 3" in 12", our Limited Material Warranty applies.

Revision #2, Oct. 2000



Visit our web site at www.bi-tec.com

MANUFACTURERS OF ADVANCED TECHNOLOGY WATERPROOFING MEMBRANES

P.O. Box 497 • No. 2 Industrial Park Drive • Morrilton, Arkansas 72110 • Fax (501) 354-3019 • Phone 1-800-535-8597