

*Division 7*



***BITEC***  
BITUMEN TECHNOLOGY™

***Products and  
Application Guide***

*America's Finest  
Modified Bitumen Membranes*

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All Information is given in good faith, but normal tolerances of manufacture and testing will apply. BITEC reserves the right to improve and change its products at any time without prior notice or advice. The use of BITEC products is determined by local con-

ditions and individual requirements of each contract. In consideration of the many factors involved, BITEC cannot be held responsible for the application of its products and for conditions beyond its control. All claims filed against BITEC warranties will be subject to

the provisions set forth at the date of warranty issuance, and any addendums thereto. Under no circumstances will BITEC be held liable for any damage, whether personal injury or property damage, which occur during or after the application of the membrane.

BITEC's APS-4T is a torch applied modified bitumen waterproofing membrane composed of carefully selected asphalts (bitumen) having superior modifying characteristics, blended with high quality polypropylene resins. APS-4T is reinforced with Spunbond Polyester fabric. APS-4T membrane yields the following performance characteristics:

- ★ Impermeable to water
- ★ Low temp flexibility
- ★ UV Resistance
- ★ Excellent adhesion
- ★ Resistant to acids and most bases
- ★ Puncture resistant
- ★ Excellent workability
- ★ Longevity

Spunbond Polyester support, used as a reinforcement in APS-4T has isotropic mechanical properties giving the composite membrane similar mechanical characteristics in all angular directions in relation to the membrane surface. Spunbond Polyester fabric will impart the following properties to the composite membrane:

- ★ Flexibility
- ★ Puncture resistance
- ★ Elasticity
- ★ Mechanical strength
- ★ Fatigue resistance
- ★ Tear strength
- ★ Deterioration resistance
- ★ Dimensional stability

APS-4T incorporates a patented wet talc slurry application to prevent blocking of rolls and to provide a smooth, even torching surface. Polyethylene burn-off film is contained on the torchable face of the roll. This film and embossed

pattern act as a **sight indicator** for the applicator in determining the proper flow needed to insure adequate bonding of plies and seams.

After installation of the roofing membrane is complete, the surface may be coated with a BITEC APPROVED ROOF COATING to increase the overall reflectivity of the system and/or fire rating. BITEC recommends that a period of at least 45 days elapse before roof coatings are applied. This will effectively allow the membrane to "cure" and accept the roof coating.

### PACKAGING

Palletized units contain 20 rolls of APS-4T waterproofing membrane. Each unit is shrink-wrapped in a special polyethylene bag for stability. BITEC recommends that units of material be single stacked.

### APPROVALS



APS-4T, in addition to being an excellent waterproofing membrane for use in roofing applications, may also be used in the waterproofing of:

- ★ Road structures and bridges
- ★ Water reservoirs and artificial canals
- ★ Foundations
- ★ Basements
- ★ Verandas and galleries
- ★ Multi-story car parking and garages
- ★ Roof gardens

<b>Approx. Roll Size*</b>	33.5' x 3.28'	
<b>Seam Width</b>	3" line	
<b>Approx. Coverage</b>	100 ft <sup>2</sup>	
<b>Top Surface</b>	Smooth/Talc	
<b>Bottom Surface</b>	Burn-off Polyethylene	
<b>Nominal Thickness</b>	4 mm	
<b>Nominal Weight</b>	90 lbs	
<b>Reinforcement</b>	Spunbond Polyester fabric	
<b>Softening Point</b> (ASTM D-36)	302°F (150°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed +5°F (-15°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 100 lbf/in	XMD = 70 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 50%	XMD = 55%
<b>Load Strain Product</b> (CGSB 37-GP-56M)	MD = 44,482 N	XMD = 34,251 N
<b>Penetration</b> (ASTM D5)	40 dmm @ 25°C	
<b>Slide</b> (UNI-8202)	<1 mm	
<b>Water Tightness</b> (CGSB 37-GP-56M)	passed	
<b>Dynamic Puncture</b> (CGSB 37-GP-56M)	passed	
<b>Static Puncture</b> (CGSB 37-GP-56M)	passed	

\*Flashing Rolls are Available in Half and Quarter Widths.

BITEC's APS-5T is a torch applied modified bitumen waterproofing membrane composed of carefully selected asphalts (bitumen) having superior modifying characteristics, blended with high quality polypropylene resins. APS-5T is reinforced with Spunbond Polyester fabric. APS-5T membrane yields the following performance characteristics:

- ★ Impermeable to water
- ★ Low temp flexibility
- ★ UV Resistance
- ★ Excellent adhesion
- ★ Resistant to acids and most bases
- ★ Puncture resistant
- ★ Excellent workability
- ★ Longevity

Spunbond Polyester support, used as a reinforcement in APS-5T has isotropic mechanical properties giving the composite membrane similar mechanical characteristics in all angular directions in relation to the membrane surface. The Spunbond Polyester fabric imparts the following properties to the composite membrane:

- ★ Flexibility
- ★ Puncture resistance
- ★ Elasticity
- ★ Mechanical strength
- ★ Fatigue resistance
- ★ Tear strength
- ★ Deterioration resistance
- ★ Dimensional stability

APS-5T incorporates a patented wet talc slurry application to prevent blocking of rolls and to provide a smooth, even torching surface. Polyethylene burn-off film is contained on the torchable face of the roll. This film and embossed

pattern act as a **sight indicator** for the applicator in determining the proper flow needed to insure adequate bonding of plies and seams.

After installation of the roofing membrane is complete, the surface may be coated with a BITEC APPROVED ROOF COATING to increase the overall reflectivity of the system and/or fire rating. BITEC recommends that a period of at least 45 days elapse before roof coatings are applied. This will effectively allow the membrane to "cure" and accept the roof coating.

### PACKAGING

Palletized units contain 20 rolls of APS-5T waterproofing membrane. Each unit is shrink-wrapped in a special polyethylene bag for stability. BITEC recommends that units of material be single stacked.

APS-5T, in addition to being an excellent waterproofing membrane for use in roofing applications, may also be used in the waterproofing of:

- ★ Road structures and bridges
- ★ Water reservoirs and artificial canals
- ★ Foundations
- ★ Basements
- ★ Verandas and galleries
- ★ Multi-story car parking and garages
- ★ Roof gardens

<b>Approx. Roll Size*</b>	25.58' x 3.28'	
<b>Seam Width</b>	3" line	
<b>Approx. Coverage</b>	75 ft <sup>2</sup>	
<b>Top Surface</b>	Smooth/Talc	
<b>Bottom Surface</b>	Burn-off Polyethylene	
<b>Nominal Thickness</b>	5.0 mm	
<b>Nominal Weight</b>	92 lbs	
<b>Reinforcement</b>	Spunbond Polyester fabric	
<b>Softening Point</b> (ASTM D-36)	302°F (150°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed +5°F (-15°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 120 lbf/in	XMD = 80 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 50%	XMD = 55%
<b>Load Strain Product</b> (CGSB 37-GP-56M)	MD = 53,379 N	XMD = 39,144 N
<b>Penetration</b> (ASTM D5)	40 dmm @ 25°C	
<b>Slide</b> (UNI-8202)	<1 mm	
<b>Water Tightness</b> (CGSB 37-GP-56M)	passed	
<b>Dynamic Puncture</b> (CGSB 37-GP-56M)	passed	
<b>Static Puncture</b> (CGSB 37-GP-56M)	passed	

\*Flashing Rolls are Available in Half and Quarter Widths.

BITEC's APM-4T is a torch applied, mineral surfaced, modified bitumen waterproofing membrane, composed of carefully selected asphalts (bitumen) having superior modifying characteristics, and blended with high quality polypropylene resins.

APM-4T is reinforced with a Spunbond Polyester fabric. APM-4T membrane yields the following performance characteristics:

- ★ Impermeable to water
- ★ Low temp flexibility
- ★ UV Resistance
- ★ Excellent adhesion
- ★ Resistant to acids and most bases
- ★ Puncture resistant
- ★ Excellent workability
- ★ Longevity

Spunbond Polyester support, used as a reinforcement in APM-4T has isotropic mechanical properties giving the composite membrane similar mechanical characteristics in all angular directions in relation to the membrane surface.

The Spunbond Polyester fabric imparts the following properties to the composite membrane:

- ★ Flexibility
- ★ Puncture resistance
- ★ Elasticity
- ★ Mechanical strength
- ★ Fatigue resistance
- ★ Tear strength
- ★ Deterioration resistance
- ★ Dimensional stability

The mineral surface protects the membrane from ageing, caused from heat and ultra violet radiation. Most mineral surfacings yield sufficiently high amounts of solar reflectivity to realize some energy savings, depending on building construction and use.

The following heat absorption values are given, calculated on the basis of an ideal black surface as being 100%:

Ideal Black.....	100%
Bituminous Surface ....	94%
Gray Mineral.....	85%
Tan Mineral.....	57%
White Mineral .....	30%

APM-4T incorporates a smooth and even application of polyethylene film to prevent blocking of rolls and to provide a smooth, acceptable torching surface. Polyethylene burn-off film is contained on the torchable face of the roll. The polyethylene burnoff film acts as a **sight indicator** for the applicator in determining the proper flow needed to insure adequate bonding of plies and seams.

After installation of the roofing membrane is complete, the sur-

face may be coated with a BITEC APPROVED ROOF COATING to increase the overall reflectivity of the system and/or fire rating. BITEC recommends that a period of at least 45 days elapse before roof coatings are applied. This will effectively allow the membrane to "cure" and accept the roof coating.

### PACKAGING:

Palletized units contain 20 rolls of APM-4T waterproofing membrane. Each unit is shrink-wrapped in a special polyethylene bag for stability. BITEC recommends that units of material be single stacked.

### APPROVALS



<b>Approx. Roll Size*</b>	32.8' x 3.28'	
<b>Seam Width</b>	3.5" Selvedge	
<b>Approx. Coverage</b>	97 ft <sup>2</sup>	
<b>Top Surface</b>	Mineral	
<b>Bottom Surface</b>	Burn-off Polyethylene	
<b>Nominal Thickness</b>	4 mm	
<b>Nominal Weight</b>	107 lbs	
<b>Reinforcement</b>	Spunbond Polyester fabric	
<b>Softening Point</b> (ASTM D-36)	302°F (150°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed +5°F (-15°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 100 lbf/in	XMD = 70 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 50%	XMD = 55%
<b>Load Strain Product</b> (CGSB 37-GP-56M)	MD = 44,482 N	XMD = 34,251 N
<b>Penetration</b> (ASTM D5)	40 dmm @ 25°C	
<b>Slide</b> (UNI-8202)	<1 mm	
<b>Water Tightness</b> (CGSB 37-GP-56M)	passed	
<b>Dynamic Puncture</b> (CGSB 37-GP-56M)	passed	
<b>Static Puncture</b> (CGSB 37-GP-56M)	passed	

\*Flashing Rolls are Available in Half and Quarter Widths.

BITEC's APM-4.5T is a torch applied, mineral surfaced, modified bitumen waterproofing membrane composed of carefully selected asphalts (bitumen) having superior modifying characteristics, blended with the highest quality polypropylene resins. APM-4.5T is reinforced with a Spunbond Polyester fabric. The APM-4.5T waterproofing membrane yields the following performance characteristics:

- ★ Impermeable to water
- ★ Low temp flexibility
- ★ Thermally stable
- ★ Excellent adhesion
- ★ Resistant to acids and most bases
- ★ Puncture resistant
- ★ Excellent workability
- ★ Longevity

Spunbond Polyester support, used as a reinforcement in APM-4.5T has isotropic mechanical properties giving the composite membrane similar mechanical characteristics in all angular directions in relation to the membrane surface. Spunbond Polyester fabric imparts the following properties to the composite membrane:

- ★ High flexibility
- ★ Puncture resistance
- ★ High elongation
- ★ Mechanical strength
- ★ Fatigue resistance
- ★ Tear strength
- ★ Deterioration resistance
- ★ Dimensional stability

The mineral surface protects the membrane from ageing, caused from heat and ultra violet radiation. Most mineral surfacings yield sufficiently high amounts of solar

reflectivity to realize some energy savings, depending on building construction and use. The following heat absorption values are given, calculated on the basis of an ideal black surface as being 100%:

Ideal Black.....	100%
Bituminous Surface ....	94%
Gray Mineral.....	85%
Tan Mineral.....	57%
White Mineral .....	30%

APM-4.5T incorporates a smooth and even application of polyethylene film to prevent blocking of rolls and to provide a smooth, acceptable torching surface. Polyethylene burn-off film is contained on the torchable face of the roll. The polyethylene burn-off film acts as a **sight indicator** for the applicator in determining the proper flow needed to insure adequate bonding of plies and seams.

After installation of the roofing membrane is complete, the surface may be coated with a BITEC APPROVED ROOF COATING to increase the overall reflectivity of the system and/or fire rating. BITEC recommends that a period of at least 45 days elapse before roof coatings are applied. This will effectively allow the membrane to "cure" and accept the roof coating.

### PACKAGING

Palletized units contain 20 rolls of APM-4.5T waterproofing membrane. Each unit is shrink-wrapped in a special polyethylene bag for stability. BITEC recommends that units of material be single stacked.

### APPROVALS



<b>Approx. Roll Size*</b>	25.58' x 3.28'	
<b>Seam Width</b>	3.5" Selvedge	
<b>Approx. Coverage</b>	75 ft <sup>2</sup>	
<b>Top Surface</b>	Mineral	
<b>Bottom Surface</b>	Burn-off Polyethylene	
<b>Nominal Thickness</b>	4.5 mm	
<b>Nominal Weight</b>	92 lbs	
<b>Reinforcement</b>	Spunbond Polyester fabric	
<b>Softening Point</b> (ASTM D-36)	302°F (150°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed +5°F (-15°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 100 lbf/in	XMD = 70 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 50%	XMD = 55%
<b>Load Strain Product</b> (CGSB 37-GP-56M)	MD = 44,482 N	XMD = 34,251 N
<b>Penetration</b> (ASTM D5)	30 dmm @ 25°C	
<b>Slide</b> (UNI-8202)	<1 mm	
<b>Water Tightness</b> (CGSB 37-GP-56M)	passed	
<b>Dynamic Puncture</b> (CGSB 37-GP-56M)	passed	
<b>Static Puncture</b> (CGSB 37-GP-56M)	passed	

\*Flashing Rolls are Available in Half and Quarter Widths.

# SPM-4.5T

# SBS Torch Applied Cap Sheet

BITEC's SPM-4.5T is a torch applied, mineral surfaced, modified bitumen waterproofing membrane composed of carefully selected asphalts (bitumen) having superior modifying characteristics, blended with high quality styrene-butadiene-styrene rubber. SPM-4.5T is reinforced with Spunbond Polyester fabric. The SPM-4.5T waterproofing membrane yields the following performance characteristics:

- ★ Impermeable to water
- ★ Low temp flexibility
- ★ Thermally stable
- ★ Excellent adhesion
- ★ Resistant to acids and most bases
- ★ Puncture resistant
- ★ Excellent workability
- ★ Longevity

Spunbond Polyester support, used as a reinforcement in SPM-4.5T has isotropic mechanical properties giving the composite membrane similar mechanical characteristics in all angular directions in relation to the membrane surface. Spunbond Polyester fabric imparts the following properties to the composite membrane:

- ★ High flexibility
- ★ Puncture resistance
- ★ High elongation
- ★ Mechanical strength
- ★ Fatigue resistance
- ★ Tear strength
- ★ Deterioration resistance
- ★ Dimensional stability

The mineral surface protects the membrane from ageing, caused from heat and ultra violet radiation. Most mineral surfacings yield

sufficiently high amounts of solar reflectivity to realize some energy savings, depending on building construction and use. The following heat absorption values are given, calculated on the basis of an ideal black surface as being 100%:

Ideal Black.....	100%
Bituminous Surface .....	94%
Gray Mineral.....	85%
Tan Mineral.....	57%
White Mineral .....	30%

SPM-4.5T incorporates a smooth and even application of polypropylene film to prevent blocking of rolls and to provide a smooth, acceptable torching surface. Polypropylene burn-off film is contained on the torchable face of the roll. The polypropylene burnoff film acts as a **sight indicator** for the applicator in determining the proper flow needed to insure adequate bonding of plies and seams.

After installation of the roofing membrane is complete, the surface may be coated with a BITEC APPROVED ROOF COATING to increase the overall reflectivity of the system and/or fire rating. BITEC recommends that a period of at least 45 days elapse before roof coatings are applied. This will effectively allow the membrane to "cure" and accept the roof coating.

## PACKAGING

Palletized units contain 24 rolls of SPM-4.5T waterproofing membrane. Each unit is shrink-wrapped in a special polyethylene bag for stability. BITEC recommends that units of material be single stacked.

## APPROVALS



<b>Approx. Roll Size*</b>	25.58' x 3.28'	
<b>Seam Width</b>	3.5" Selvedge	
<b>Approx. Coverage</b>	75 ft <sup>2</sup>	
<b>Top Surface</b>	Mineral	
<b>Bottom Surface</b>	Burn-off Polypropylene	
<b>Nominal Thickness</b>	4.5 mm	
<b>Nominal Weight</b>	92 lbs	
<b>Reinforcement</b>	Spunbond Polyester fabric	
<b>Softening Point</b> (ASTM D-36)	250°F (120°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed -13°F (-25°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 120 lbf/in	XMD = 85 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 60%	XMD = 70%
<b>Load Strain Product</b> (CGSB 37-GP-56M)	MD = 64,054 N	XMD = 52,934 N
<b>Penetration</b> (ASTM D5)	40 dmm @ 25°C	
<b>Slide</b> (UNI-8202)	<1 mm	
<b>Water Tightness</b> (CGSB 37-GP-56M)	passed	
<b>Dynamic Puncture</b> (CGSB 37-GP-56M)	passed	
<b>Static Puncture</b> (CGSB 37-GP-56M)	passed	

\*Flashing Rolls are Available in Half and Quarter Widths.

# SPS-3H

## SBS Mop Applied Cap Sheet

BITEC's SPS-3H is a hot asphalt applied, smooth surfaced, modified bitumen waterproofing membrane, composed of carefully selected asphalts (bitumen) having superior modifying characteristics, blended with high quality styrene-butadiene-styrene rubber. The SPS-3H is reinforced with a Spunbond Polyester fabric. The SPS-3H waterproofing membrane yields the following performance characteristics:

- ★ Impermeable to water
- ★ Low temp flexibility
- ★ Thermally stable
- ★ Excellent adhesion
- ★ Resistant to acids and most bases
- ★ Puncture resistant
- ★ Excellent workability
- ★ Longevity

Spunbond Polyester support used as a reinforcement in SPS-3H has isotropic mechanical properties giving the composite membrane similar mechanical characteristics in all angular directions in relation to the membrane surface. The Spunbond Polyester fabric will impart the following properties to the composite membrane:

- ★ High flexibility
- ★ Puncture resistance
- ★ High elongation
- ★ Mechanical strength
- ★ Fatigue resistance
- ★ Tear strength
- ★ Deterioration resistance
- ★ Dimensional stability

SPS-3H incorporates a smooth and even application of fine sand to prevent blocking of rolls and to provide a smooth, acceptable application surface.

SPS-3H can be applied by using hot asphalt or any BITEC APPROVED ELASTOMERIC COLD PROCESS ADHESIVE. (When using cold adhesives, follow the specific adhesive manufacturer's installation specifications.)

After installation of the roofing membrane is complete, the surface must be coated with an APPROVED BITEC ROOF COATING to protect the membrane from the harmful effects of ultra violet radiation and for U.L. fire rating if required. BITEC recommends that a period of at least 45 days elapse before the roof coatings are applied. This will effectively allow the membrane to "cure" and accept the roof coating.

SPS-3H has no mineral surface, and therefore must be coated with a BITEC APPROVED COATING, or receive a flood coating of ASTM

D312 roofing asphalt with roofing gravel applied at a minimum rate of 400 lb./sq.

SPS-3H can be used as either a cap sheet, an interply, or a base sheet. The overall roofing system performance will be enhanced by its use as a base sheet.

### PACKAGING

Palletized units contain 24 rolls of SPS-3H waterproofing membrane. Each unit is shrink-wrapped in a special polyethylene bag for stability. BITEC recommends that units of material be single stacked.

### APPROVALS



<b>Approx. Roll Size*</b>	33.5' x 3.28'	
<b>Seam Width</b>	3" line	
<b>Approx. Coverage</b>	100 ft <sup>2</sup>	
<b>Top Surface</b>	Fine Sand	
<b>Bottom Surface</b>	Sand	
<b>Nominal Thickness</b>	3 mm	
<b>Nominal Weight</b>	73 lbs	
<b>Reinforcement</b>	Spunbond Polyester fabric	
<b>Softening Point</b> (ASTM D-36)	250°F (120°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed -13°F (-25°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 105 lbf/in	XMD = 75 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 60%	XMD = 70%
<b>Load Strain Product</b> (CGSB 37-GP-56M)	MD = 56,048 N	XMD = 46,706 N
<b>Penetration</b> (ASTM D5)	40 dmm @ 25°C	
<b>Slide</b> (UNI-8202)	<1 mm	
<b>Water Tightness</b> (CGSB 37-GP-56M)	passed	
<b>Dynamic Puncture</b> (CGSB 37-GP-56M)	passed	
<b>Static Puncture</b> (CGSB 37-GP-56M)	passed	

\*Flashing Rolls are Available in Half and Quarter Widths.

# SPM-3.5H

# SBS Mop Applied Cap Sheet

BITEC's SPM-3.5H is a hot asphalt applied, mineral surfaced, modified bitumen waterproofing membrane composed of carefully selected asphalts (bitumen) having superior modifying characteristics, blended with high quality styrene-butadiene-styrene rubber. The SPM-3.5H is reinforced with a Spunbond Polyester fabric. The SPM-3.5H waterproofing membrane yields the following performance characteristics:

- ★ Impermeable to water
- ★ Low temp flexibility
- ★ Thermally stable
- ★ Excellent adhesion
- ★ Resistant to acids and most bases
- ★ Puncture resistant
- ★ Excellent workability
- ★ Longevity

Spunbond Polyester support, used as a reinforcement in SPM-3.5H has isotropic mechanical properties giving the composite membrane similar mechanical characteristics in all angular directions in relation to the membrane surface. Spunbond Polyester fabric imparts the following properties to the composite membrane:

- ★ High flexibility
- ★ Puncture resistance
- ★ High elongation
- ★ Mechanical strength
- ★ Fatigue resistance
- ★ Tear strength
- ★ Deterioration resistance
- ★ Dimensional stability

The mineral surface protects the membrane from ageing, caused from heat and ultra violet radiation. Most mineral surfacings yield sufficiently high amounts of solar

reflectivity to realize some energy savings, depending on building construction and use.

The following heat absorption values are given, calculated on the basis of an ideal black surface as being 100%:

Ideal Black.....	100%
Bituminous Surface ....	94%
Gray Mineral.....	85%
Tan Mineral.....	57%
White Mineral .....	30%

SPM-3.5H incorporates a smooth, even application of fine sand to prevent blocking of rolls and to provide a smooth, acceptable application surface. SPM-3.5H can be applied by using hot asphalt or any BITEC APPROVED ELASTOMERIC COLD PROCESS ADHESIVE. (When using cold adhesives, follow the specific adhesive manufacturer's installation specifications.)

After installation of the roofing membrane is complete, the surface may be coated with a BITEC APPROVED ROOF COATING to increase the overall reflectivity of the system and/or fire rating. BITEC recommends that a period of at least 45 days elapse before roof coatings are applied. This will effectively allow the membrane to "cure" and accept the roof coating.

### PACKAGING

Palletized units contain 20 rolls of SPM-3.5H waterproofing membrane. Each unit is shrink-wrapped in a special polyethylene bag for stability. BITEC recommends that units of material be single stacked.

### APPROVALS



<b>Approx. Roll Size*</b>	33.9' x 3.28'	
<b>Seam Width</b>	3.5" Selvedge	
<b>Approx. Coverage</b>	100 ft <sup>2</sup>	
<b>Top Surface</b>	Mineral	
<b>Bottom Surface</b>	Sand	
<b>Nominal Thickness</b>	3.5 mm	
<b>Nominal Weight</b>	100 lbs	
<b>Reinforcement</b>	Spunbond Polyester fabric	
<b>Softening Point</b> (ASTM D-36)	250°F (120°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed -13°F (-25°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 105 lbf/in	XMD = 75 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 60%	XMD = 70%
<b>Load Strain Product</b> (CGSB 37-GP-56M)	MD = 56,048 N	XMD = 46,706 N
<b>Penetration</b> (ASTM D5)	40 dmm @ 25°C	
<b>Slide</b> (UNI-8202)	<1 mm	
<b>Water Tightness</b> (CGSB 37-GP-56M)	passed	
<b>Dynamic Puncture</b> (CGSB 37-GP-56M)	passed	
<b>Static Puncture</b> (CGSB 37-GP-56M)	passed	

\*Flashing Rolls are Available in Half and Quarter Widths.

# SPM-4H

## SBS Mop Applied Cap Sheet

BITEC SPM-4H is a hot asphalt applied, mineral surfaced, modified bitumen waterproofing membrane composed of carefully selected asphalts (bitumen) having superior modifying characteristics, blended with high quality styrene-butadiene-styrene rubber. The SPM-4H is reinforced with Spunbond Polyester fabric. SPM-4H membrane yields the following performance characteristics:

- ★ Impermeable to water
- ★ Low temp flexibility
- ★ Thermally stable
- ★ Excellent adhesion
- ★ Resistant to acids and most bases
- ★ Puncture resistant
- ★ Excellent workability
- ★ Longevity

Spunbond Polyester support, used as a reinforcement in SPM-4H has isotropic mechanical properties giving the composite membrane similar mechanical characteristics in all angular directions in relation to the membrane surface. The Spunbond Polyester fabric imparts the following properties to the composite membrane:

- ★ High flexibility
- ★ Puncture resistance
- ★ High elongation
- ★ Mechanical strength
- ★ Fatigue resistance
- ★ Tear strength
- ★ Deterioration resistance
- ★ Dimensional stability

The mineral surface protects the membrane from ageing, caused from heat and ultra violet radiation. Most mineral surfacings yield sufficiently high amounts of solar reflectivity to realize some energy

savings, depending on building construction and use. The following heat absorption values are given, calculated on the basis of an ideal black surface as being 100%:

Ideal Black.....	100%
Bituminous Surface ....	94%
Gray Mineral.....	85%
Tan Mineral.....	57%
White Mineral .....	30%

SPM-4H incorporates a smooth and even application of fine sand to prevent blocking of rolls and to provide a smooth, acceptable application surface.

SPM-4H can be applied by using hot asphalt, torching or any BITEC APPROVED ELASTOMERIC COLD PROCESS ADHESIVE. (When using cold adhesives, follow the specific adhesive manufacturer's installation specifications.)

After installation of the roofing membrane is complete, the surface may be coated with a BITEC APPROVED ROOF COATING to increase overall reflectivity of the system and/or fire rating. BITEC recommends that a period of at least 45 days elapse before roof coatings are applied. This will effectively allow the membrane to "cure" and accept the roof coating.

### PACKAGING

Palletized units contain 20 rolls of SPM-4H waterproofing membrane. Each unit is shrink-wrapped in a special polyethylene bag for stability. BITEC recommends that units of material be single stacked.

### APPROVALS



<b>Approx. Roll Size*</b>	32.8' x 3.28'	
<b>Seam Width</b>	3.5" Selvege	
<b>Approx. Coverage</b>	97 ft <sup>2</sup>	
<b>Top Surface</b>	Mineral	
<b>Bottom Surface</b>	Sand	
<b>Nominal Thickness</b>	4 mm	
<b>Nominal Weight</b>	105 lbs	
<b>Reinforcement</b>	Spunbond Polyester fabric	
<b>Softening Point</b> (ASTM D-36)	250°F (120°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed -13°F (-25°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 105 lbf/in	XMD = 75 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 60%	XMD = 70%
<b>Load Strain Product</b> (CGSB 37-GP-56M)	MD = 56,048 N	XMD = 46,706 N
<b>Penetration</b> (ASTM D5)	40 dmm @ 25°C	
<b>Slide</b> (UNI-8202)	<1 mm	
<b>Water Tightness</b> (CGSB 37-GP-56M)	passed	
<b>Dynamic Puncture</b> (CGSB 37-GP-56M)	passed	
<b>Static Puncture</b> (CGSB 37-GP-56M)	passed	

\*Flashing Rolls are Available in Half and Quarter Widths.

# SPM-4H-250

## SBS Mop Applied Cap Sheet

BITEC's SPM-4H-250 is a hot asphalt applied, mineral surfaced, modified bitumen waterproofing membrane composed of carefully selected asphalts (bitumen) having superior modifying characteristics, blended with high quality styrene-butadiene-styrene rubber. The SPM-4H-250 is reinforced with a Spunbond Polyester fabric. SPM-4H-250 waterproofing membrane yields the following performance characteristics:

- ★ Impermeable to water
- ★ Low temp flexibility
- ★ Thermally stable
- ★ Excellent adhesion
- ★ Resistant to acids and most bases
- ★ Puncture resistant
- ★ Excellent workability
- ★ Longevity

Spunbond Polyester support, used as a reinforcement in SPM-4H-250 has isotropic mechanical properties giving the composite membrane similar mechanical characteristics in all angular directions in relation to the membrane surface. Spunbond Polyester fabric imparts the following properties to the composite membrane:

- ★ High flexibility
- ★ Puncture resistance
- ★ High elongation
- ★ Mechanical strength
- ★ Fatigue resistance
- ★ Tear strength
- ★ Deterioration resistance
- ★ Dimensional stability

The mineral surface protects the membrane from ageing, caused from heat and ultra violet radiation. Most mineral surfacings yield sufficiently high amounts of solar

reflectivity to realize some energy savings, depending on building construction and use. The following heat absorption values are given, calculated on the basis of an ideal black surface as being 100%:

Ideal Black.....	100%
Bituminous Surface ....	94%
Gray Mineral.....	85%
Tan Mineral.....	57%
White Mineral .....	30%

SPM-4H-250 incorporates a smooth and even application of fine sand to prevent blocking of rolls and to provide a smooth, acceptable application surface.

SPM-4H-250 can be applied by using hot asphalt, torching or any BITEC APPROVED ELASTOMERIC COLD PROCESS ADHESIVE. (When using cold adhesives, follow the specific adhesive manufacturer's installation specifications.)

After installation of the roofing membrane is complete, the surface may be coated with a BITEC APPROVED ROOF COATING to increase overall reflectivity of the system and/or fire rating. BITEC recommends that a period of at least 45 days elapse before roof coatings are applied. This will effectively allow the membrane to "cure" and accept the roof coating.

### PACKAGING

Palletized units contain 20 rolls of SPM-4H-250 waterproofing membrane. Each unit is shrink-wrapped in a special polyethylene bag for stability. BITEC recommends that units of material be single stacked.

### APPROVALS



<b>Approx. Roll Size*</b>	32.8' x 3.28'	
<b>Seam Width</b>	3.5" Selvedge	
<b>Approx. Coverage</b>	97 ft <sup>2</sup>	
<b>Top Surface</b>	Mineral	
<b>Bottom Surface</b>	Sand	
<b>Nominal Thickness</b>	4 mm	
<b>Nominal Weight</b>	105 lbs	
<b>Reinforcement</b>	Spunbond Polyester fabric	
<b>Softening Point</b> (ASTM D-36)	250°F (120°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed -13°F (-25°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 120 lbf/in	XMD = 85 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 60%	XMD = 60%
<b>Load Strain Product</b> (CGSB 37-GP-56M)	MD = 64,054 N	XMD = 45,372 N
<b>Penetration</b> (ASTM D5)	40 dmm @ 25°C	
<b>Slide</b> (UNI-8202)	<1 mm	
<b>Water Tightness</b> (CGSB 37-GP-56M)	passed	
<b>Dynamic Puncture</b> (CGSB 37-GP-56M)	passed	
<b>Static Puncture</b> (CGSB 37-GP-56M)	passed	

\*Flashing Rolls are Available in Half and Quarter Widths.

# SFM-3.5H

# SBS Mop Applied Cap Sheet

BITEC's SFM-3.5H is a hot asphalt applied, mineral surfaced, modified bitumen waterproofing membrane composed of carefully selected asphalts (bitumen) having superior modifying characteristics, blended with high quality styrene-butadiene-styrene rubber. SFM-3.5H is reinforced with a high-strength fiberglass mat. The SFM-3.5H waterproofing membrane yields the following performance characteristics:

- ★ Impermeable to water
- ★ Low temp flexibility
- ★ Thermally stable
- ★ Excellent adhesion
- ★ Resistant to acids and most bases
- ★ Excellent workability
- ★ Longevity
- ★ Mechanical strength
- ★ Deterioration resistance
- ★ Dimensional stability

The mineral surface protects the membrane from ageing, caused from heat and ultra violet radiation. Most mineral surfacings yield sufficiently high amounts of solar reflectivity to realize some energy savings, depending on building construction and use.

The following heat absorption values are given, calculated on the basis of an ideal black surface as being 100%:

Ideal Black.....	100%
Bituminous Surface .....	94%
Gray Mineral.....	85%
Tan Mineral.....	57%
White Mineral .....	30%

SFM-3.5H incorporates a smooth and even application of fine sand to prevent blocking of

rolls and to provide a smooth, acceptable application surface.

SFM-3.5H can be applied by using hot asphalt or any BITEC APPROVED ELASTOMERIC COLD PROCESS ADHESIVE. (When using cold adhesives, always follow the specific adhesive manufacturer's installation specifications.)

After installation of the roofing membrane is complete, the surface may be coated with any BITEC APPROVED ROOF COATING to protect the membrane from the harmful effects of ultra violet radiation and for U.L. fire rating if required.

BITEC recommends that a period of at least 45 days elapse before roof coatings are applied. This will effectively allow the membrane to "cure" and accept the roof coating.

## PACKAGING

Palletized units contain 20 rolls of SFM-3.5H waterproofing membrane. Each unit is shrink-wrapped in a special polyethylene bag for stability. BITEC recommends that units of material be single stacked.

## APPROVALS



<b>Approx. Roll Size*</b>	33.9' x 3.28'	
<b>Seam Width</b>	3.5" Selvedge	
<b>Approx. Coverage</b>	100 ft <sup>2</sup>	
<b>Top Surface</b>	Mineral	
<b>Bottom Surface</b>	Sand	
<b>Nominal Thickness</b>	3.5 mm	
<b>Nominal Weight</b>	100 lbs	
<b>Reinforcement</b>	Fiberglass	
<b>Softening Point</b> (ASTM D-36)	250°F (120°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed -13°F (-25°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 80 lbf/in	XMD = 75 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 30%	XMD = 30%
<b>Load Strain Product</b> (CGSB 37-GP-56M)	MD = 21,351 N	XMD = 20,017 N
<b>Penetration</b> (ASTM D5)	40 dmm @ 25°C	
<b>Slide</b> (UNI-8202)	<1 mm	
<b>Water Tightness</b> (CGSB 37-GP-56M)	passed	
<b>Dynamic Puncture</b> (CGSB 37-GP-56M)	passed	
<b>Static Puncture</b> (CGSB 37-GP-56M)	passed	

\*Flashing Rolls are Available in Half and Quarter Widths.

# SFM-4H

## SBS Mop Applied Cap Sheet

BITEC's SFM-4H is a hot asphalt applied, mineral surfaced, modified bitumen waterproofing membrane composed of carefully selected asphalts (bitumen) having superior modifying characteristics, blended with high quality styrene-butadiene-styrene rubber. SFM-4H is reinforced with a high-strength fiberglass mat. SFM-4H waterproofing membrane yields the following performance characteristics:

- ★ Impermeable to water
- ★ Low temp flexibility
- ★ Thermally stable
- ★ Excellent adhesion
- ★ Resistant to acids and most bases
- ★ Excellent workability
- ★ Longevity
- ★ Mechanical strength
- ★ Deterioration resistance
- ★ Dimensional stability

The mineral surface protects the membrane from ageing, caused from heat and ultra violet radiation. Most mineral surfacings yield sufficiently high amounts of solar reflectivity to realize some energy savings, depending on building construction and use.

The following heat absorption values are given, calculated on the basis of an ideal black surface as being 100%:

Ideal Black.....	100%
Bituminous Surface ....	94%
Gray Mineral.....	85%
Tan Mineral.....	57%
White Mineral .....	30%

SFM-4H incorporates a smooth and even application of fine sand to prevent blocking of rolls and

to provide a smooth, acceptable application surface.

SFM-4H can be applied by using hot asphalt or any BITEC APPROVED ELASTOMERIC COLD PROCESS ADHESIVE. (When using cold adhesives, follow the specific adhesive manufacturer's installation specifications.)

After installation of the roofing membrane is complete, the surface may be coated with any BITEC APPROVED ROOF COATING to protect the membrane from the harmful effects of ultra violet radiation and for UL fire rating if required.

BITEC recommends that a period of at least 45 days elapse before roof coatings are applied. This will effectively allow the membrane to "cure" and accept the roof coating.

### PACKAGING

Palletized units contain 20 rolls of SFM-4H waterproofing membrane. Each unit is shrink-wrapped in a special polyethylene bag for stability. BITEC recommends that units of material be single stacked.

### APPROVALS



<b>Approx. Roll Size*</b>	32.8' x 3.28'	
<b>Seam Width</b>	3.5" Selvedge	
<b>Approx. Coverage</b>	97 ft <sup>2</sup>	
<b>Top Surface</b>	Mineral	
<b>Bottom Surface</b>	Sand	
<b>Nominal Thickness</b>	4 mm	
<b>Nominal Weight</b>	105 lbs	
<b>Reinforcement</b>	Fiberglass mat	
<b>Softening Point</b> (ASTM D-36)	250°F (120°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed -13°F (-25°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 80 lbf/in	XMD = 75 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 30%	XMD = 30%
<b>Load Strain Product</b> (CGSB 37-GP-56M)	MD = 21,351 N	XMD = 20,017 N
<b>Penetration</b> (ASTM D5)	40 dmm @ 25°C	
<b>Slide</b> (UNI-8202)	<1 mm	
<b>Water Tightness</b> (CGSB 37-GP-56M)	passed	
<b>Dynamic Puncture</b> (CGSB 37-GP-56M)	passed	
<b>Static Puncture</b> (CGSB 37-GP-56M)	passed	

\*Flashing Rolls are Available in Half and Quarter Widths.

## UL CLASS "A" FIRE-RATED CAP SHEET, REQUIRING NO ADDITIONAL SURFACE COATINGS

BITEC's SFM-3.5H-FR is a hot asphalt applied, mineral surfaced, modified bitumen waterproofing membrane composed of carefully selected asphalts (bitumen) having superior modifying characteristics, blended with high quality styrene-butadiene-styrene rubber. SFM-3.5H-FR is reinforced with a high strength fiberglass mat and yields the following performance characteristics:

- ★ Impermeable to water
- ★ Low temp flexibility
- ★ Thermally stable
- ★ Excellent adhesion
- ★ Resistant to acids and most bases
- ★ Excellent workability
- ★ Longevity
- ★ Mechanical strength
- ★ Deterioration resistance
- ★ Dimensional stability

The mineral surface protects the membrane from ageing, caused from heat and ultra violet radiation. Most mineral surfacings yield sufficiently high amounts of solar reflectivity to realize some energy savings, depending on building construction and use. The following heat absorption values are given, calculated on the basis of an ideal black surface as being 100%:

Ideal Black.....	100%
Bituminous Surface....	94%
Gray Mineral.....	85%
Tan Mineral.....	57%
White Mineral.....	30%

SFM-3.5H-FR incorporates a

smooth and even application of fine sand to prevent blocking of rolls and to provide a smooth, acceptable application surface.

INSTALL SFM-3.5H-FR IN HOT ASPHALT ONLY.

Special formulation gives SFM-3.5H-FR a degree of fire resistance to effectively pass UL CLASS "A" testing without the use of additional surfacings or protective coatings. Systems require a minimum of one UL TYPE G2 base sheet for CLASS "A" rating, for both combustible and non-combustible decks. Consult UL Building Materials Directory for specific system details, or contact the BITEC Technical Services Department.

### PACKAGING

Palletized units contain 20 rolls of SFM-3.5H-FR waterproofing membrane. Each unit is shrink-wrapped in a special polyethylene bag for stability. BITEC recommends that units be single stacked.

### APPROVALS



<b>Approx. Roll Size*</b>	33.9' x 3.28'	
<b>Seam Width</b>	3.5" Selvedge	
<b>Approx. Coverage</b>	100 ft <sup>2</sup>	
<b>Top Surface</b>	Mineral	
<b>Bottom Surface</b>	Sand	
<b>Nominal Thickness</b>	3.5 mm	
<b>Nominal Weight</b>	103 lbs	
<b>Reinforcement</b>	Fiberglass mat	
<b>Softening Point</b> (ASTM D-36)	250°F (120°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed -4°F (-20°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 120 lbf/in	XMD = 120 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 40%	XMD = 40%
<b>Load Strain Product</b> (CGSB 37-GP-56M)	MD = 42,702 N	XMD = 42,702 N
<b>Penetration</b> (ASTM D5)	40 dmm @ 25°C	
<b>Slide</b> (UNI-8202)	<1 mm	
<b>Water Tightness</b> (CGSB 37-GP-56M)	passed	
<b>Dynamic Puncture</b> (CGSB 37-GP-56M)	passed	
<b>Static Puncture</b> (CGSB 37-GP-56M)	passed	

\*Flashing Rolls are Available in Half and Quarter Widths.

## UL CLASS "A" FIRE-RATED CAP SHEET, REQUIRING NO ADDITIONAL SURFACE COATINGS

BITEC's SFM-4H-FR is a hot asphalt applied, mineral surfaced, modified bitumen waterproofing membrane composed of carefully selected asphalts (bitumen) having superior modifying characteristics, blended with high quality styrene-butadiene-styrene rubber. SFM-4H-FR is reinforced with a high strength fiberglass mat and yields the following performance characteristics:

- ★ Impermeable to water
- ★ Low temp flexibility
- ★ Thermally stable
- ★ Excellent adhesion
- ★ Resistant to acids and most bases
- ★ Excellent workability
- ★ Longevity
- ★ Mechanical strength
- ★ Deterioration resistance
- ★ Dimensional stability

The mineral surface protects the membrane from ageing, caused from heat and ultra violet radiation. Most mineral surfacings yield sufficiently high amounts of solar reflectivity to realize some energy savings, depending on building construction and use. The following heat absorption values are given, calculated on the basis of an ideal black surface as being 100%:

Ideal Black.....	100%
Bituminous Surface ....	94%
Gray Mineral.....	85%
Tan Mineral.....	57%
White Mineral .....	30%

SFM-4H-FR incorporates a

smooth and even application of fine sand to prevent blocking of rolls and to provide a smooth, acceptable application surface.

**INSTALL SFM-4H-FR IN HOT ASPHALT ONLY.**

Special formulation gives SFM-4H-FR a degree of fire resistance to effectively pass UL CLASS "A" testing without the use of additional surfacings or protective coatings. Systems require a minimum of one UL TYPE G2 base sheet for CLASS "A" rating, for both combustible and non-combustible decks. Consult the UL Building Materials Directory for specific system details, or contact BITEC's Technical Services Department.

### PACKAGING

Palletized units contain 20 rolls of SFM-4H-FR waterproofing membrane. Each unit is shrink-wrapped in a special polyethylene bag for stability. BITEC recommends that units be single stacked.

### APPROVALS



<b>Approx. Roll Size*</b>	33.9' x 3.28'	
<b>Seam Width</b>	3.5" Selvedge	
<b>Approx. Coverage</b>	100 ft <sup>2</sup>	
<b>Top Surface</b>	Mineral	
<b>Bottom Surface</b>	Sand	
<b>Nominal Thickness</b>	4 mm	
<b>Nominal Weight</b>	105 lbs	
<b>Reinforcement</b>	Fiberglass mat	
<b>Softening Point</b> (ASTM D-36)	250°F (120°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed -4°F (-20°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 120 lbf/in	XMD = 120 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 40%	XMD = 40%
<b>Load Strain Product</b> (CGSB 37-GP-56M)	MD = 42,702 N	XMD = 42,702 N
<b>Penetration</b> (ASTM D5)	40 dmm @ 25°C	
<b>Slide</b> (UNI-8202)	<1 mm	
<b>Water Tightness</b> (CGSB 37-GP-56M)	passed	
<b>Dynamic Puncture</b> (CGSB 37-GP-56M)	passed	
<b>Static Puncture</b> (CGSB 37-GP-56M)	passed	

\*Flashing Rolls are Available in Half and Quarter Widths.

# COMPABASE FA-2T

## APP Torch Applied Base Sheet

BITEC's Compabase FA-2T modified bitumen base sheet is composed of select atactic polypropylene resins blended with high quality, distilled bitumen (asphalt), and reinforced with a fiberglass mat.

FA-2T carries a UL Type G2 classification, and can be used in any APP modified bitumen waterproofing system.

Compabase FA-2T may be either mechanically fastened or torch applied to approved substrates.

BITEC's Compabase FA-2T used in conjunction with BITEC APS-4T, APM-4T or APM-4.5T will not only enhance the overall modified bitumen membrane system, but will provide the cap sheet with a compatible base for attachment, lessening the probability of insufficient bonding.

Being completely compatible with the cap sheet, Compabase FA-2T will afford the necessary ingredients for a state-of-the-art waterproofing system.

Over particular systems, that incorporate BITEC APP cap

sheets, extended warranty periods can be offered to the order of up to 20 years when using Compabase FA-2T as the roofing system's base sheet.

### **PACKAGING**

Compabase FA-2T comes palletized, containing 24 rolls per palletized unit, shrink-wrapped in a specially engineered polyethylene bag for durability in handling.

### **APPLICATION**

Compabase FA-2T is applied by either heat welding or mechanically fastening to approved substrates. Compabase FA-2T shall be installed having 3" and 4" side and end laps, respectively. (See laying patterns #3 & #4 on pg. 32.)

Compabase FA-2T may be spot welded to certain substrates provided prior approval has been obtained from BITEC's Technical Services Department.

### **STORAGE & HANDLING**

Compabase FA-2T is shipped in palletized shrink-wrapped units of 24 rolls per unit. Rolls should be stored under cover away from direct exposure to the elements

until immediately before use. If it becomes necessary to store material on the job site or roof deck, units should be covered with an opaque tarpaulin or similar cover. (Clear or black protective coverings are not acceptable.)

Units should also be stored elevated from the roof deck by placement on a pallet. If possible, materials should be stored inside away from direct sunlight at the job site. Do not stack units more than two high.

### **APPROVALS**



<b>Approx. Roll Size</b>	49.2' x 3.28'	
<b>Seam Width</b>	3"	
<b>Approx. Coverage</b>	150 ft <sup>2</sup>	
<b>Top Surface</b>	Sand	
<b>Bottom Surface</b>	Polyethylene Film	
<b>Nominal Thickness</b>	2 mm	
<b>Nominal Weight</b>	70 lbs	
<b>Reinforcement</b>	Fiberglass	
<b>Softening Point</b> (ASTM D-36)	302°F (150°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed +14°F (-10°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 78 lbf/in	XMD = 67 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 6%	XMD = 6%

### **ADVANTAGES OF USING COMPABASE**

- ★ Complete system compatibility with superior 2-ply modified bitumen system performance.
- ★ Available in APP or SBS
- ★ Superior flexibility, even in cold temperatures.
- ★ Select distilled bitumen and made-on-purpose polymers.
- ★ Quality reinforcing materials for good dimensional stability
- ★ Easy to apply

# COMPABASE PS-2H

## SBS Mop Applied Base Sheet

BITEC's Compabase PS-2H is composed of select distilled bitumen and SBS; reinforced with Spunbond Polyester Fabric. Compabase PS-2H will eliminate the concerns of compatibility and performance between SBS cap sheets bonded to oxidized bitumen base sheets by heat welding. Compabase PS-2H also enhances the overall flexibility and fatigue resistance of hot applied systems.

Compabase PS-2H also eliminates the concern that the oxidized bitumen component of the roof system is the "weak link" in performance. Oxidized bitumen base sheets are not modified with SBS polymer. These base sheets are hard, brittle and have poor flexibility at lower temperatures in comparison to modified bitumen base sheets. Oxidized bitumen does not blend well with SBS polymer.

Compabase PS-2H, when used in conjunction with any BITEC SBS modified bitumen membrane, will give you a membrane system unsurpassed in performance.

BITEC'S Compabase PS-2H,

used in lieu of oxidized bitumen base sheets and applied with modified SBS cap sheets, will turn your one-ply modified bitumen roofing membrane system into a two-ply modified bitumen roofing system with excellent performance characteristics.

### PACKAGING

Compabase PS-2H comes palletized, containing 24 rolls per palletized unit, shrink-wrapped in a specially engineered polyethylene bag for durability in handling.

### APPLICATION

Compabase PS-2H is applied by using ASTM TYPE III or TYPE IV roofing asphalt, or by mechanical attachment. Compabase PS-2H shall be installed having 3" and 4" minimum side and end laps, respectively. (See laying patterns #1 or #2 on pg. 31.)

Compabase PS-2H may be installed using any BITEC APPROVED ELASTOMERIC ADHESIVES. (Any projects requiring labor and material warranty must have prior approval from BITEC's Technical Services Department if elastomeric adhesives are to be used.)

### STORAGE AND HANDLING

Compabase PS-2H is shipped in palletized, shrink-wrapped units of 24 rolls per unit. Rolls should be stored under cover away from direct exposure to the elements until immediately before use. If it becomes necessary to store material on the job site or roof deck, units should be covered with an opaque tarpaulin or similar cover. (Clear or black protective coverings are not acceptable.)

Units should also be elevated from the roof deck by placement upon a pallet. If possible, material should be stored away from direct sunlight during storage at job site. Do not stack units two or more high.

### APPROVALS



### ADVANTAGES OF USING COMPABASE

- ★ Complete system compatibility with superior 2-ply modified bitumen system performance.
- ★ Available in APP or SBS
- ★ Superior flexibility, even in cold temperatures.
- ★ Select distilled bitumen and made-on-purpose polymers.
- ★ Quality reinforcing materials for good dimensional stability
- ★ Easy to apply

<b>Approx. Roll Size</b>	49.2' x 3.28'
<b>Seam Width</b>	3"
<b>Approx. Coverage</b>	150 ft <sup>2</sup>
<b>Top Surface</b>	Sand
<b>Bottom Surface</b>	Sand
<b>Nominal Thickness</b>	2 mm
<b>Nominal Weight</b>	70 lbs
<b>Reinforcement</b>	Spunbond Polyester fabric
<b>Softening Point</b> (ASTM D-36)	240°F (116°C)
<b>Cold Flexibility</b> (UNI-8202)	passed +14°F (-10°C)
<b>Tensile Strength</b> (ASTM D-5147)	MD = 105 lbf/in    XMD = 80 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 50%    XMD = 50%

# COMPABASE FS-2H

## SBS Mop Applied Base Sheet

BITEC's Compabase FS-2H is composed of select distilled bitumen and SBS; reinforced with a high strength fiberglass mat.

Compabase FS-2H will eliminate the concerns of compatibility and performance between SBS cap sheets bonded to oxidized bitumen base sheets by heat welding. Compabase FS-2H also enhances the overall flexibility and fatigue resistance of hot applied systems.

Compabase FS-2H also eliminates the concern that the oxidized bitumen component of the roof system is the "weak link" in performance. Oxidized bitumen base sheets are not modified with SBS polymer. They are hard, brittle and have poor flexibility at lower temperatures as compared to modified bitumen base sheets. Oxidized bitumen does not blend well with SBS polymer.

Compabase FS-2H, when used in conjunction with any BITEC SBS modified bitumen membrane, will give you a membrane system unsurpassed in performance.

BITEC's Compabase FS-2H, used in lieu of oxidized bitumen

base sheets, and applied with modified SBS cap sheets, will turn your one-ply modified bitumen roofing membrane system into a two-ply modified bitumen roofing system with excellent performance characteristics.

### PACKAGING

Compabase FS-2H comes palletized, containing 24 rolls per palletized unit, shrink-wrapped in a specially engineered polyethylene bag for durability in handling.

### APPLICATION

Compabase FS-2H is applied by using ASTM TYPE III or TYPE IV roofing asphalt, or by mechanical attachment.

Compabase FS-2H shall be installed having 3" and 4" minimum side and end laps, respectively. (See laying patterns #1 or #2 on pg. 31.)

Compabase FS-2H may be installed using any BITEC APPROVED ELASTOMERIC ADHESIVES. (Any projects requiring labor and material warranty must have prior approval from BITEC's Technical Services Department if elastomeric adhesives are to be used.)

### STORAGE AND HANDLING

Compabase FS-2H is shipped in palletized, shrink-wrapped units of 24 rolls per unit. Rolls should be stored under cover away from direct exposure to the elements until immediately before use. If it becomes necessary to store material on the job site or roof deck, units should be covered with an opaque tarpaulin or similar cover. (Clear or black protective coverings are not acceptable.)

Units should also be elevated from the roof deck by placement upon a pallet. If possible, material should be stored away from direct sunlight during storage at the job site. Do not stack units two or more high.

### APPROVALS



### ADVANTAGES OF USING COMPABASE

- ★ Complete system compatibility with superior 2-ply modified bitumen system performance.
- ★ Available in APP or SBS
- ★ Superior flexibility, even in cold temperatures.
- ★ Select distilled bitumen and made-on-purpose polymers.
- ★ Quality reinforcing materials for good dimensional stability
- ★ Easy to apply

<b>Approx. Roll Size</b>	49.2' x 3.28'	
<b>Seam Width</b>	3"	
<b>Approx. Coverage</b>	150 ft <sup>2</sup>	
<b>Top Surface</b>	Sand	
<b>Bottom Surface</b>	Sand	
<b>Nominal Thickness</b>	2 mm	
<b>Nominal Weight</b>	70 lbs	
<b>Reinforcement</b>	Fiberglass	
<b>Softening Point</b> (ASTM D-36)	240°F (116°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed +14°F (-10°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 80 lbf/in	XMD = 70 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 6%	XMD = 6%

### UL Listed Type G2, ASTM D 4601-04, TYPE II

BITEC BETA BASE is designed for use in both modified bitumen and conventional BUR roof systems requiring UL listed, Type G2 base sheet. BETA BASE can be mechanically attached, hot applied, or applied in approved BITEC ELASTOMERIC ADHESIVES.

BETA BASE is produced using

oxidized (unmodified bitumen), reinforced with high strength fiberglass mat. Surfacing is either talc or sand. Ply stripes are furnished for ease in alignment and as an aid in application. BETA BASE covers approx. 300 ft<sup>2</sup> when applied as per specifications.

Any technical questions should be directed to BITEC's Technical

Services Department, by calling (800) 535-8597. Your local salesperson and distributor carry this information as well.

#### PACKAGING

BETA BASE comes palletized, containing 20 rolls per palletized unit, shrink-wrapped in a specially engineered polyethylene bag for durability in handling.

#### BETA BASE I

BETA BASE I contains **no filled components (0%)** as inorganic fillers. Realizing that pinholes with many glass felts cause problems in drying roofs in, we have eliminated this difficulty by using an unfilled asphalt of excellent quality.

BETA BASE I comes in palletized units of 20 rolls ea. Units should be stored inside away from exposure to the elements until immediately before use, if possible. BETA BASE I can be used during cold weather if care is taken to warm the rolls by storing them in a warehouse or contained area with ambient temperature of +55° F.

##### TECHNICAL SCHEDULE\*

<b>Reinforcement</b>	Fiberglass
<b>Roll Weight (Approx.)</b>	75 Lb.
<b>Length</b>	approx. 108 ft.
<b>Width</b>	approx. 36 in.
<b>Area</b>	approx. 324 ft <sup>2</sup>
<b>Surface (Top / Bottom)</b>	Sand / Sand
<b>Tensile (MD/CD)</b>	55
<b>Filler</b>	0%
<b>Side Lap</b>	2"

\*All data is given as approx. values

#### BETA BASE II

BETA BASE II contains approximately 25% inorganic fillers. This blend gives the sheet good flexibility in cooler temperatures. Sand is applied to both surfaces as a release agent and an aid to installation.

BETA BASE II comes in palletized units of 20 rolls ea. Units should be stored inside away from exposure to the elements until immediately before use, if possible. BETA BASE II can be used during cold weather if precautions are taken to house the product where the ambient temperature is +55° F.

##### TECHNICAL SCHEDULE\*

<b>Reinforcement</b>	Fiberglass
<b>Roll Weight (Approx.)</b>	75 Lb.
<b>Length</b>	approx. 108 ft.
<b>Width</b>	approx. 36 in.
<b>Area</b>	approx. 324 ft <sup>2</sup>
<b>Surface (Top / Bottom)</b>	Sand / Sand
<b>Tensile (MD/CD)</b>	55
<b>Filler</b>	25%
<b>Side Lap</b>	2"

\*All data is given as approx. values

Imperflex USA is a smooth surfaced, SBS polymer modified bitumen underlayment. It is intended for use primarily as a residential roof underlayment to protect against water infiltration from ice and water dams at penetrations, valleys and edges on sloped roofs. It can also be used to waterproof below-grade foundations, footings and basements.

Imperflex USA is composed of select SBS polymers blended with distilled asphalt, and reinforced with high-strength fiberglass mat. The membrane is protected on the bottom by a split, silicon-coated release film, which must be removed before installation. The release film prevents the roll from sticking during storage and aids in installation.

The membrane is coated on top with factory installed refractory slag or polyethylene film. Note: you must specify which surface you require when ordering.

The membrane is durable, resists coating slide at normal roof temperatures, self-sealing and resists water infiltration from snow and ice accumulation.

### **THE INSTALLER**

This product is manufactured for use only by trained, professional roofing contractors and waterproofers.

### **APPLICATION INSTRUCTIONS**

Instructions can also be found on the container (box) where each roll is stored.

### **SURFACE PREPARATION**

All surfaces to be waterproofed with this product must be smooth, dry, and free of projections, bulges and old roofing materials. Dust and moisture on any surface to be waterproofed and/or the membrane itself will prevent proper

adhesion and could result in leaks. Never install this product over any old or existing roofing material or existing metal roofs.

This product is designed for installation as an underlayment with shingles, tile, metal roofs or as below grade waterproofing. **This product comes with a factory installed adhesive and does not require other adhesives, hot asphalt or heat welding to be installed. This product cannot be used as a component in any BITEC, INC., commercial roofing specifications, except as noted.**

Prime all metal, masonry and concrete surfaces using primer conforming to ASTM D41 standards. **Primer is not required on wood surfaces, but is recommended.** Primer should be applied at a rate of 1 gallon per 250-350 ft<sup>2</sup> (23-32 m<sup>2</sup>).

### **TEMPERATURE**

Apply IMPERFLEX USA in fair weather when the air, deck and membrane temperature is 40°F (5°C) or above and rising.

### **UNDERLAYMENT APPLICATION**

Apply Imperflex USA in shingle fashion a minimum of 24" above the exterior wall of the building, or as required by code. Peel back half sheet of release film. Align membrane at lower edge of roof and adhere the exposed membrane area to the prepared surface. Continue to peel both halves of release film in a manner that will allow smooth and even application of the membrane.

**Roll in membrane using a heavy roller to remove any trapped air.** FOR ICE DAM PROTECTION, APPLY IMPERFLEX USA TO EXTEND ABOVE THE UPPERMOST EXPECTED LEVEL OF ICE DAMS. End laps should be 6" minimum. Side laps should be 3" minimum.

### **INFORMATION & ASSISTANCE**

For more complete information see our Imperflex brochure and/or call the BITEC Technical Services Department at 1-800-535-8597.

<b>Approx. Roll Size</b>	45.75' x 3.28	
<b>Seam Width</b>	3"	
<b>Approx. Coverage</b>	150 ft <sup>2</sup>	
<b>Top Surface</b>	Fine mineral or PE film	
<b>Bottom Surface</b>	Release film	
<b>Nominal Thickness</b>	1.5 mm (60 mil)	
<b>Nominal Weight</b>	85 lbs	
<b>Reinforcement</b>	Fiberglass	
<b>Softening Point</b> (ASTM D-36)	240° F (116° C)	
<b>Cold Flexibility</b> (UNI-8202)	passed 14° F (-10°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 75 lbf/in	XMD = 60 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 3%	XMD = 3%

This product meets or exceeds ASTM D 1970.

Imperflex MSA is a mineral surfaced, SBS polymer modified bitumen cap sheet. It is intended for use on residential roofs where roof slopes prevent effective use of shingles, tile and/or metal.

Imperflex MSA is composed of select SBS polymers blended with distilled asphalt, and reinforced with high-strength fiberglass mat. A split, silicon-coated release film must be removed before installation. This film prevents the roll from sticking during storage and aids installation.

The membrane is coated on top with factory installed, colored ceramic coated roof granules. Silicon-coated film protects the 3.5" selvedge edge. The film must be removed for proper installation.

The membrane is durable, resists coating slide at normal roof temps and is self-sealing. It is used as an exposed membrane and is eligible for a ten-year material only warranty. (Except for specifications MSA-12-05LM and MSA-12-06LM).

**Do not install on any roof with slope less than 1/2" in 12", or in areas where water stands, or forms ponds.**

### THE INSTALLER

Imperflex MSA is manufactured for use by trained professional roofing contractors and waterprooferers.

### APPLICATION INSTRUCTIONS

Instructions can also be found on the container (box) where each roll is stored.

### SURFACE PREPARATION

All surfaces to be waterproofed with this product must be smooth, dry, and free of projections, bulges and old roofing materials. Dust and moisture on any surface to be waterproofed and/or the membrane itself will prevent proper adhesion and could result in leaks. **Never install this product over any old or existing roofing material or existing metal roofs.**

Imperflex MSA is to be used as a cap sheet only, on slopes equal to or

greater than 1/2" in 12". MSA comes with a factory installed adhesive. MSA cannot be used as a component in any BITEC, Inc., commercial roofing specifications, except as noted.

Prime all metal, masonry and concrete surfaces using primer conforming to ASTM D41 standards. Primer should be applied at a rate of 1 gallon per 250-350 ft<sup>2</sup> (23-32 m<sup>2</sup>).

Install one ply of ASTM D2178 Type IV ply sheet with the **non-sanded** surface up, by mechanical attachment. Install this base ply before the MSA. **Imperflex USA** may also be used as a base sheet, with either side up. When inverted, the sheet must be mechanically fastened to the deck and the release film must be removed as the MSA cap sheet membrane is installed.

### TEMPERATURE

Apply IMPERFLEX MSA in fair weather when the air, deck and membrane temperature is between 50°F (5°C) and 110°F (43°C).

### CAP SHEET APPLICATION

#### **Starter strip**

Peel back a half sheet of release film. Align membrane at the lower

edge of the roof and adhere the exposed membrane area to the prepared surface in shingle fashion. Always ensure proper alignment. Continue to peel both halves of the release film in a manner that will allow smooth and even application of the membrane. Roll in by using a heavy roller to remove any trapped air. Remove the selvedge release film.

### **Subsequent membrane courses**

Install subsequent courses in a similar fashion staggering finished end laps at least 3 ft. Finished end laps should be 6" min., while finished side laps should be 3.5" min. All end laps should be sealed using modified bitumen adhesive and rolled in at the time of application.

### **Construction details**

Construction details are the same as for commercial grade SBS modified bitumen cap sheets. Refer to BITEC, Inc. published specifications for proper execution of flashing and construction details.

### INFORMATION & ASSISTANCE

For more complete information see our Imperflex brochure and/or call the BITEC Technical Services Department at 1-800-535-8597.

<b>Approx. Roll Size</b>	32.8' x 3.28'	
<b>Seam Width</b>	3.5"	
<b>Approx. Coverage</b>	100 ft <sup>2</sup>	
<b>Top Surface</b>	Colored Granules*	
<b>Bottom Surface</b>	Release film	
<b>Nominal Thickness</b>	3.5 mm (140 mils)	
<b>Nominal Weight</b>	100 lbs	
<b>Reinforcement</b>	Fiberglass	
<b>Softening Point</b> (ASTM D-36)	250°F (120°C)	
<b>Cold Flexibility</b> (UNI-8202)	passed -13°F (-25°C)	
<b>Tensile Strength</b> (ASTM D-5147)	MD = 80 lbf/in	XMD = 75 lbf/in
<b>Elongation to Break</b> (ASTM D-5147)	MD = 30%	XMD = 30%

This product meets or exceeds ASTM D 1970.

\* Standard colors are White, Green, Jet Black and Buff. Blended colors are Tan Blend, Black Blend, Gray Blend.

# APP - GENERAL APPLICATION INSTRUCTIONS

## **APPLICATION**

Depending on the roof type, BITEC APP membranes can be either fully adhered, spot or partially adhered, or loose laid. BITEC specifications applicable to this product should be consulted to determine which system should be employed.

When applying membrane, the polyethylene burn-off film should always be down, facing the roof deck. Prior to application, the membrane should be unrolled completely, aligned and set, before the actual heat welding of the membrane occurs.

The membrane should then be rolled up half way, leaving the other half fully extended. (This will insure that the membrane will remain aligned during the heat welding process.)

Begin torching the burn-off film surface of the membrane, using a sweeping motion, maintaining even heating. The actual torching motion should be done in an "L" configuration, preheating the previously installed membrane lap, then sweeping across the roll face while advancing the roll over the roof surface.

As the roll is advanced, a bead of modified bitumen should be seen flowing from between the lap seam a distance of  $\frac{1}{4}$ " to  $\frac{3}{8}$ " from the membrane edge, which is being advanced. This "flow out" should be consistent and uninterrupted.

It is recommended that all exposed bitumen either be granulated while the bitumen is still hot, or coated with an aluminum coating after cooling.

Seams which are not fully bonded can be repaired by inserting a hot trowel between the affected seam and lightly torching. Upon removal of the hot trowel, pressure should be applied to the top ply, forcing the modified bitumen to flow out the desired distance.

All side and end laps should be a minimum of 3" and 6" respectively. If the membrane is loose laid, an area of 40" each side of the end lap should be fully bonded to the roof surface.

Where end laps are made on APP granule surfaced membranes it is important to do the following:

**Warm the granule surfaced membrane only enough to allow the granules to change color slightly, indicating the bitumen has softened enough to allow the granules to sink into the bitumen.**

**This must be done slowly with care and reduced heat so as not to overheat the membrane which can damage the polyester reinforcement.**

When the granules become encapsulated with bitumen, a proper end lap seal can be achieved. Remember that the bitumen must flow together for a properly "heat welded" seam or end lap. If the top membrane is only stuck over the granules, end lap seams will leak due to improper application.

Protect adjacent areas from scorching where end laps are made by using burn boards, scraps of material or a piece of sheet metal used for that purpose.

Caution should also be exercised not to direct any torch flame toward previously applied membrane, to prevent scorching and/or damaging areas where lap seams or end laps are not being made.

**DO NOT MIX APP PRODUCTS WITH SBS PRODUCTS.**

**BITEC APP MEMBRANES MAY NOT BE INSTALLED IN HOT ROOFING ASPHALT, COLD PROCESS ADHESIVES OR BY MECHANICAL ATTACHMENT.**

**BITEC APP MEMBRANES ARE NOT RECOMMENDED FOR USE OVER COAL TAR OR PITCH ROOFS UNLESS THE EXISTING DECK IS SEPARATED FROM THE BITEC MEMBRANE BY A MINIMUM  $\frac{1}{2}$ " THICK, MECHANICALLY ATTACHED RECOVER BOARD.**

**BITEC DOES NOT ALLOW THE USE OF PLASTIC ROOFER'S CEMENT WITH ITS MEMBRANES.**

**AS WITH ANY ROOFING PROJECT, GOOD ROOFING PRACTICES SHOULD ALWAYS BE FOLLOWED. CONSULT THE BITEC SPECIFICATION AND DETAILS BOOK FOR INFORMATION GOVERNING CERTAIN SYSTEMS.**

## **TOOLS REQUIRED**

Tools needed to apply BITEC APP waterproofing membrane are: a propane torch having a UL-certified regulator, propane bottle, spatula or round nose roofer's trowel, a roofer's knife, pair of work gloves, flat-soled shoes and an ABC dry chemical fire extinguisher.

Before using this product, be sure that all information concerning the installation of this product and safety guidelines pertaining thereto have been read and fully understood. The application of modified membranes requires the use of explosive gas and molten asphalts, which if mishandled can and will cause personal injury and/or property damage.

## **THE CONTRACTOR**

It is the contractor's responsibility to observe all fire prevention policies and practices, to train, instruct and warn employees on the use of torching equipment.

Follow OSHA and NRCA provisions for fire protection, including but not limited to those listed in OSHA 1910.151, 155, 156, 157, and 1910.110, which apply to torch application. The contractor should be familiar with NFPA 58 "Standard for the Storage and Handling of Liquefied Petroleum Gas" and any other appropriate publications of the National LP Gas Association.

## **FIRE DEPT. REGULATIONS**

The contractor should be familiar with all local fire codes in his area. The contractor is responsible for obtaining all necessary permits or certificates before any work is started.

## **PERSONNEL**

Proper clothing should be worn at all times while installing any modified membrane. Long sleeve shirt, long pants, leather or durable flat soled shoes and work gloves. Workmen, other than the torch operator, should be no closer than 3' from open flame.

# APP APPLICATION - Non-Nailable Decks (.1)

If plans or specifications require installation of an APP modified bitumen membrane system over a non-nailable deck, apply in accordance with these specifications. BITEC System Specification Numbers for non-nailable systems, include the (.1) designation to indicate that **NO FASTENERS** have been used in the system.

## **1.00 PRIMER**

Non-nailable decks are usually some form of concrete and must be primed with ASTM D41 asphalt primer for proper adhesion.

Normally, nailable decks are not primed. Only for unusual situations or with self-adhering membranes would a nailable deck be primed. Contact BITEC Technical Services Department regarding any unusual conditions that require priming a nailable deck.

ASTM D41 primer must also be used on masonry wall surfaces that are to have any membrane flashings adhered to the surface.

Primer is also required on **any** metal surfaces built into the membrane system. Wherever primer is used it must be allowed to dry thoroughly before any membrane is applied to the primed surface.

## **2.00 ROOF INSULATION**

The following insulation types are acceptable for use with APP membranes:

- Perlite
- Wood Fiber
- Glass Fiber
- Cellular Glass
- Polyisocyanurate (ISO)

## **3.00 CANT STRIPS**

At flashing details, where the roof makes the transition from horizontal to a vertical surface, a non-combustible cant strip must be used.

## **4.00 BASE SHEETS**

A minimum of one ply of Type G2 fiberglass base sheet must be installed over the insulation or deck with ASTM D312 hot asphalt before the roof membrane is heat welded.

Other base sheets may be used depending on project specifications and/or local code requirements or specification requirements.

## **5.00 FASTENERS**

Fasteners can be used in some non-nailable deck situations, but pre-drilling of the deck will be required before the fastener is installed. Fasteners must be designed and approved for the type deck being used. For specification information regarding situations where fasteners are used in non-nailable decks, see the specification for Nailable Decks.

Where fasteners are used to secure flashings to vertical surfaces, they must be of an appropriate type for the situation encountered. You may also contact BITEC's Technical Services Department at (800) 535-8597 for information regarding fastener selection.

## **6.00 DRAIN OUTLETS**

Drainage outlets shall be installed below the roof deck surface to permit POSITIVE DRAINAGE of the roof deck and to prevent water ponding at the drain rim.

Base ply should be evenly trimmed with the drain flange, followed with a 40" x 40" heat welded collar of BITEC APS-4T smooth surface membrane.

This collar must extend into and be fully adhered to the interior of the drain flange and interior surface. The APP membrane shall be fully adhered to the base ply, flashing collar, and extend into the drain. A 30" x 30" 4 lb. Lead or 16 oz. copper flashing is optional over the field membrane.

When used, the metal flashing should be primed with ASTM D41 primer and allowed to thoroughly dry. An APP membrane target flashing should extend 4" beyond the lead or copper flashing.

Clamp rings must be installed and tightened when the membrane is still warm. Broken or missing clamp rings must be replaced. Each drain must have a properly fitted strainer.

## **7.00 PENETRATION FLASHINGS**

Where pipes or other penetrations occur in the roof surface, a collar of smooth APS-4T membrane should be installed over the base ply extending a minimum of 4" beyond the flanges.

A metal flashing shall be installed having a continuous flange, 4" min. width, on top of the APP membrane collar.

The collar should be heated and soft before the flange is set in place. This will provide **one seal**.

**ALL METAL FLASHING FLANGES MUST BE PRIMED WITH AN ASPHALT PRIMER AND ALLOWED TO DRY BEFORE MEMBRANE AND FLASHINGS ARE INSTALLED.**

On non-nailable decks where wood blocking is provided, the metal flange must be nailed 3" o.c., 3/4" from the perimeter edge.

When no nailer is provided, sheet metal flashing bases no larger than 18" square may be installed without fasteners.

For bases larger than 18", the bases should be mechanically fastened to the deck with an appropriate type fastener for the type deck being fastened to, and an additional target flashing may be necessary to bury the fastener head.

The field membrane must be fully adhered to the APS-4T membrane collar and primed metal flange. This provides a **second seal**.

All seams must be troweled and filled with molten bitumen. A top target ply of cap sheet membrane must be installed at each penetration. This provides a **third seal**.

Where pitch pan type flashings are used at penetrations, they must be installed in accordance with BITEC Detail #32.

When other approved prefabricated penetration items are used, they should be installed in accordance with that manufacturers instructions.

Plastic cement should not be used to fill pitch pans because it is inferior to the quality of modified bitumen products available. Pitch pans should

# APP APPLICATION - Non-Nailable Decks (.1)

either be fitted with rain collars, and/or the filler should be coated with a protective coating.

## 8.00 BASE FLASHING

Base flashing plies are to be integrated into the membrane system as additional plies and are to be interleaved with the membrane plies as the system is installed. Therefore, base flashing plies should not just be stacked on top of the membrane plies. Also, since phased construction is not recommended, all membrane and base flashing plies should be finished daily.

BITEC modified bitumen systems are superior roof systems. The required base flashing system installation described here and detailed in the Construction Details section of the *BITEC Roofing Material Specifications and Details Manual*, will provide a superior flashing system.

When a base flashing is installed against a wood substrate, a UL Type G2 fiberglass base sheet must be nailed to the wood or other nailable substrate first. Nails should be 8" o.c. each direction. This provides an anchor sheet to which the base flashing is attached.

Where base flashings are installed against masonry substrates, the surface must be smooth, clean, primed and dry.

When multi-ply systems are installed the interply membrane(s) must also be included in the base flashing extra plies.

All base flashing plies must be securely anchored to the vertical surface and protected at the top by a counterflashing or termination bar, securely anchored and sealed to the wall.

Maximum height for base flashings systems is 24". Flashings above 24" are considered wall flashings, not covered in BITEC warranties.

Cold applied mastics may not be used with APP products and should not be necessary when these products are properly installed.

## 9.00 ROOF DECK

The BITEC System Specification

Numbers use (.1) in the specification number to designate that no fasteners have been used in the system.

The roof deck must be smooth, dry, clean and free of sharp projections and depressions, and properly sloped to the outlets. Weak areas or depressed areas should be corrected before roof application begins. The contractor is responsible for determining that the deck substrate is acceptable before roof application begins.

THE ROOFING CONTRACTOR, ARCHITECT AND THE ENGINEER MUST ALLOW FOR POSITIVE DRAINAGE WHEN DESIGNING THE ROOF DECK OR THE ROOF SYSTEM.

BITEC, INC. DEFINES POSITIVE DRAINAGE AS FOLLOWS: ROOF DECK BECOMES DEVOID OF WATER WITHIN 72 HOURS AFTER LIQUID PRECIPITATION HAS OCCURRED. BITEC WILL NOT BE RESPONSIBLE FOR MEMBRANE DAMAGE AS A RESULT OF INADEQUATE ROOF DECK DRAINAGE.

## 10.00 FINAL SURFACING

As an option, a BITEC APPROVED ROOF COATING can be applied to the finished membrane system.

BITEC RECOMMENDS THAT A PERIOD OF AT LEAST 45 DAYS LAPSE BEFORE THE ROOF COATING IS APPLIED. (ROOF COATING MAY BE REQUIRED TO COMPLY WITH THE UL OR FM SYSTEM REQUIREMENTS.)

BITEC DOES NOT WARRANTY ROOF COATINGS AND WILL NOT COVER MEMBRANE DAMAGE OR FAILURE OF ANY ROOF SYSTEM RESULTING FROM DAMAGE BY ANY ROOF COATING.

## 11.00 WARRANTIES

BITEC, INC. offers two warranties:

- (1) 10/12-YR. MATERIAL ONLY
- (2) 10-YR. Limited "INSURED" ROOFING WARRANTY\*

In order to obtain Warranty (2), which covers labor and materials, an AUTHORIZED BITEC APPLICATOR must install the roofing system.

A small warranty fee is assessed if the system is not coated or does not have a factory applied mineral surface.

Final inspection by a BITEC FIELD REPRESENTATIVE will be necessary before issuance of warranty.

Information regarding BITEC warranties may be obtained from the BITEC Technical Services Department by calling (800) 535-8597.

\*Extended warranty periods of 12, 15 and 20 years are available for approved systems.

NOTE: It is recommended that product be stored away from direct sunlight and indoors until immediately before use.

# APP APPLICATION - Nailable Decks (.2)

If plans or specifications require installation of an APP modified bitumen membrane system over a nailable deck, apply in accordance with these specifications. BITEC System Specification Numbers for nailable systems, include the (.2) designation to indicate that **FASTENERS HAVE BEEN USED** in the system.

## 1.00 PRIMER

ASTM D41 primer must be used on masonry wall surfaces that are to have any membrane flashings adhered to the surface. Primer is also required on **any** metal surfaces built into the membrane system. Wherever primer is used it must be allowed to dry thoroughly before any membrane is applied to the primed surface.

Normally, nailable decks are not primed. Only for unusual situations or with self-adhering membranes would a nailable deck be primed. Contact BITEC Technical Services Department regarding any unusual conditions that require priming a nailable deck.

## 2.00 ROOF INSULATION

The following insulation types are acceptable for use with APP membranes:

- Perlite
- Wood Fiber
- Glass Fiber
- Cellular Glass
- Polyisocyanurate (ISO)

## 3.00 CANT STRIPS

At flashing details, where the roof makes the transition from horizontal to a vertical surface, a non-combustible cant strip must be used.

## 4.00 BASE SHEETS

A minimum of one ply of Type G2 fiberglass base sheet must be installed over the insulation or deck with approved fasteners or ASTM D312 hot asphalt before the roof membrane is heat welded. Other base sheets may be used depending on project specifications and/or local code requirements or specification requirements.

For nailable decks such as wood without any roof insulation, light-weight insulating concrete or gypsum decks, a minimum of one ply of Type G2 base sheet must be fastened to the deck.

As a minimum, the base sheet should be fastened 9" o.c. at the laps and 18" o.c. in two rows along the center of the sheet. For wood decks, nails must be annular ring shank or spiral shank nails with minimum 1" diameter caps. **Smooth shank nails, plastic cap nails and square head nails are not acceptable.** Screw and plate fasteners are acceptable.

## 5.00 FASTENERS

Fasteners used in nailable type decks must be designed and approved for the type deck being used. Fastener application pattern requirements vary according to the type of insulation and deck being used and the wind uplift resistance requirements for the projects geographical region. Consult Factory Mutual Research Corporation (FMRC) publications for fastener approvals governing the project's geographical region, or the *FMRC Building Materials Approval Guide*, governing BITEC products and system approvals.

Typically, screw and plate type fasteners are required to secure roof insulation boards to metal decks.

Plastic stress plates should not be used in situations where a torch applied membrane is being applied over the plates.

Nails must be annular ring shank or spiral shank nails with min. 1" diameter caps. **Smooth shank nails, plastic cap nails and square head nails are not acceptable.** For some applications, larger caps may be required.

Some nailable decks may require specialized fasteners for fastening membrane plies or roof insulation. Consult insulation manufacturers, fastener manufacturers or BITEC's Technical Services Department for additional information.

Where fasteners are used to secure flashings to vertical surfaces, they must be of an appropriate type for the situation encountered.

Poured decks such as lightweight insulating concrete and gypsum deck will require specialized fasteners and the fastening pattern is normally determined by engineering calculations in accordance with publication ASCE 7-95 for specific geographical areas and environmental

conditions to meet certain wind uplift resistance requirements.

You may also contact BITEC's Technical Services Department at (800) 535-8597 for information regarding fastener selection.

## 6.00 DRAIN OUTLETS

Drainage outlets shall be installed below the roof deck surface to permit **POSITIVE DRAINAGE** of the roof deck and to prevent water ponding at the drain rim. Base ply should be evenly trimmed with the drain flange, followed with a 40" x 40" heat welded collar of BITEC APS-4T smooth surface membrane. This collar must extend into and be fully adhered to the drain flange.

The APP membrane shall be fully adhered to the base ply, flashing collar, and extend into the drain. A 30" x 30", 4 lb. lead or 16 oz. copper flashing is optional over the field membrane. When used, the metal flashing should be primed with ASTM D41 primer, and allowed to thoroughly dry. An APP membrane target flashing must be installed to extend 4" beyond the lead or copper flashing.

Clamp rings should be installed and tightened while the membrane is still warm. Broken or missing clamp rings must be replaced. Each drain must have a properly fitted strainer.

## 7.00 PENETRATION FLASHINGS

Where pipes or other penetrations occur in the roof surface, a collar of smooth APS-4T membrane should be installed over the base ply extending a minimum of 4" beyond the flanges. A metal flashing shall be installed having a continuous flange, 4" minimum width, on top of the APP membrane collar. The collar should be heated and soft before the flange is set in place. This will provide **one seal**.

**ALL METAL FLASHING FLANGES MUST BE PRIMED WITH AN ASPHALT PRIMER AND ALLOWED TO DRY BEFORE MEMBRANE AND FLASHINGS ARE INSTALLED.**

On nailable decks where wood blocking is provided, the metal flange must be nailed 3" o.c., 3/4" from the perimeter edge. When no nailer provisions are provided, sheet metal flashing bases

Continued, next page ►

## APP APPLICATION - Nailable Decks (-2)

no larger than 18" square may be installed without fasteners. For bases larger than 18", the bases should be mechanically fastened to the deck with an appropriate type fastener, and an additional target flashing may be necessary to bury the fastener head.

On nailable decks, the metal flange must be nailed 3" o.c., 3/4" from the perimeter edge.

The field membrane must be fully adhered to the APS-4T membrane collar and primed metal flange. This provides a **second seal**. All seams must be troweled and filled with molten bitumen. A top target ply of cap sheet membrane must be installed at each penetration. This provides a **third seal**.

Where pitch pan type flashings are used at penetrations, they must be installed in accordance with BITEC Detail #32. When other approved pre-fabricated penetration items are used, they should be installed in accordance with that manufacturer's instructions.

All exposed modified bitumen "bleed out" must be surfaced with granules while the bitumen is still hot, or coated later for UV protection.

Plastic cement should not be used to fill pitch pans because it is inferior to the quality of modified bitumen products available. Pitch pans should either be fitted with rain collars, and /or the filler should be coated with a protective coating.

### 8.00 BASE FLASHING

Base flashing plies are to be integrated into the membrane system as additional plies and are to be interleaved with the membrane plies as the system is installed. Therefore, base flashing plies should not just be stacked on top of the membrane plies.

Also, since phased construction is not recommended, all membrane and base flashing plies should be finished daily.

BITEC modified bitumen systems are superior roof systems and the required base flashing system installation described here and detailed in the Construction Details section of the *BITEC Roofing Material Specifications and Details Manual*, will provide a much superior flashing system.

When a base flashing is installed against a wood substrate, a UL Type G2 fiberglass base sheet must be nailed to the wood or other nailable substrate first. Nails should be 8" o.c. each direction. This provides an anchor sheet to which the base flashing is attached. Flashing membranes should never be adhered directly to a wood surface.

Where base flashings are installed against masonry substrates, the surface must be smooth, clean, primed and dry.

When multi-ply systems are installed the interply membrane(s) must also be included in the base flashing extra plies.

All base flashing plies must be securely anchored to the vertical surface and protected at the top by a counterflashing or termination bar securely anchored and sealed to the wall.

Maximum height for base flashings systems is 24". Flashings above 24" are considered wall flashings, not covered in BITEC warranties.

Cold applied mastics may not be used with APP products and should not be necessary when these products are properly installed.

All exposed bitumen must be surfaced with granules while still hot or coated for UV protection.

### 9.00 ROOF DECK

The BITEC System Specification Numbers use (.2) in the specification number to designate that fasteners have been used in the system.

The roof deck must be smooth, dry, clean and free of sharp projections and depressions, and properly sloped to the outlets. Weak or depressed areas should be corrected before roof application begins. The contractor is responsible for determining that the deck substrate is acceptable before roof application begins.

THE ROOFING CONTRACTOR, ARCHITECT AND THE ENGINEER MUST ALLOW FOR POSITIVE DRAINAGE WHEN DESIGNING THE ROOF DECK OR ROOF SYSTEM.

BITEC DEFINES POSITIVE DRAINAGE AS FOLLOWS: ROOF DECK BECOMES DEVOID OF WATER

WITHIN 72 HOURS AFTER LIQUID PRECIPITATION HAS OCCURRED. BITEC WILL NOT BE RESPONSIBLE FOR MEMBRANE DAMAGE AS A RESULT OF INADEQUATE ROOF DECK DRAINAGE.

### 10.00 FINAL SURFACING

As an option, a BITEC APPROVED ROOF COATING can be applied to the finished membrane system.

BITEC RECOMMENDS THAT A PERIOD OF AT LEAST 45 DAYS LAPSE BEFORE THE ROOF COATING IS APPLIED. (ROOF COATING MAY BE REQUIRED TO COMPLY WITH UL OR FM SYSTEM REQUIREMENTS.)

BITEC DOES NOT WARRANTY ROOF COATINGS AND WILL NOT COVER MEMBRANE DAMAGE OR FAILURE OF ANY ROOF SYSTEM RESULTING FROM DAMAGE BY ANY ROOF COATING.

### 11.00 WARRANTIES

BITEC, INC. offers two warranties:

- (1) 10/12-YR. MATERIAL ONLY
- (2) 10-YR. Limited "INSURED" ROOFING WARRANTY\*

In order to obtain Warranty (2), which covers labor and materials, a BITEC AUTHORIZED APPLICATOR must install the roofing system. A small warranty fee is assessed if the system is not coated or does not have a factory applied mineral surface.

Final inspection by a BITEC FIELD REPRESENTATIVE will be necessary before issuance of warranty.

Information regarding BITEC warranties may be obtained from BITEC's Technical Services Department by calling (800) 535-8597.

\*Extended warranty periods of 12, 15 and 20 years are available for approved systems.

NOTE: It is recommended that product be stored away from direct sunlight and indoors until immediately before use.

# SBS - GENERAL APPLICATION INSTRUCTIONS

## APPLICATION

Depending on the type of roof, BITEC SBS membranes can be either fully adhered, spot or partially adhered, or loose laid. BITEC specifications applicable to this product should be consulted to determine which system should be employed.

When applying the membrane, the fine sand surface should always be down facing the roof deck.

Prior to application, the membrane should be unrolled completely, aligned, allowed to relax and set before the actual installation of the membrane occurs.

The membrane should then be rolled up half way, leaving the other half fully extended. (This will insure that the membrane will remain aligned during the installation process.)

SBS membranes are designed to be applied by conventional methods of hot mopping, using ASTM D312 TYPE III mopping asphalt. ASTM TYPE IV should be used on slopes greater than 3" in 12".

The Roofing Contractor shall not let the mopping asphalt temperature fall below 450°F, or overheat the asphalt to overcome rapid cooling. BITEC recommends that mopping asphalt EVT requirements be met when applying insulation or fiberglass ply sheets.

For more information on proper asphalt temperatures, refer to "BITEC Roofing Material Specifications and Details" manual, pg. 16, Section 1.04.

Mopping of base and cap sheet plies shall be done at a rate of 25 lbs./100 ft. sq. in a solid mopping of hot asphalt. It is essential that the asphalt be applied uniformly at a distance not to exceed 4' in front of the advancing roll surface.

A continuous, 1/4" bead of uninterrupted mopping asphalt shall be seen coming from the end and side laps. Seams which are not fully bonded can be repaired by inserting a hot trowel between the affected seam and lightly torching. Upon removal of the hot trowel, pressure should be applied to the top ply, forcing the modified bitumen to flow out the desired distance.

All side and end laps should be a

minimum of 4" and 6" respectively.

If the membrane is loose laid, an area of 40" each side of the end lap should be fully bonded to roof surface.

It is recommended that all exposed bitumen either be granulated while the bitumen is still hot, or coated with an aluminum coating after cooling.

Gravel surfacing is an option for SBS modified bitumen membrane systems and a BITEC requirement for some systems. See specific application requirements.

## DO NOT MIX APP PRODUCTS WITH SBS PRODUCTS.

BITEC SBS HOT APPLIED MEMBRANES CAN BE INSTALLED IN HOT ROOFING ASPHALT OR IN BITEC APPROVED COLD PROCESS ADHESIVES.

BITEC SBS MEMBRANES ARE NOT RECOMMENDED FOR USE OVER COAL TAR OR PITCH ROOFS UNLESS THE EXISTING DECK IS SEPARATED FROM THE BITEC MEMBRANE BY A MINIMUM 1/2" THICK, MECHANICALLY ATTACHED RECOVER BOARD.

BITEC DOES NOT ALLOW THE USE OF PLASTIC ROOFER'S CEMENT WITH ANY OF ITS MEMBRANES.

AS WITH ANY ROOFING PROJECT, GOOD ROOFING PRACTICES SHOULD ALWAYS BE FOLLOWED. CONSULT THE BITEC SPECIFICATION AND DETAILS BOOK FOR INFORMATION GOVERNING CERTAIN SYSTEMS.

## TOOLS REQUIRED

Tools needed to apply BITEC SBS waterproofing membranes are: a roofer's kettle, lug bucket, roofer's mop, dial thermometer, spatula or round nose roofer's trowel, a roofer's knife, pair of work gloves, flat soled shoes and an ABC dry chemical fire extinguisher at the kettle and on the roof.

BEFORE USING THIS PRODUCT, BE CERTAIN THAT ALL INFORMATION CONCERNING THE INSTALLATION OF THIS PRODUCT AND SAFETY GUIDELINES PERTAINING THERETO HAVE BEEN READ AND

FULLY UNDERSTOOD.

THE APPLICATION OF MODIFIED BITUMEN MEMBRANES REQUIRES THE USE OF EXPLOSIVE GAS AND MOLTEN ASPHALTS, WHICH IF MIS-HANDLED CAN AND WILL CAUSE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

## THE CONTRACTOR

It is the contractor's responsibility to observe all fire prevention policies and practices, to train, instruct and warn employees on the use of torching equipment.

Follow OSHA and NRCA provisions for fire protection, including but not limited to those listed in OSHA 1910.151, 155, 156, 157, and 1910.110, which apply to torch application. The contractor should be familiar with NFPA 58 "Standard for the Storage and Handling of Liquefied Petroleum Gas" and any other appropriate publications of the National LP Gas Association.

## FIRE DEPT. REGULATIONS

The contractor should be familiar with all local fire codes in his area. The contractor is responsible for obtaining all necessary permits or certificates before any work is started.

## PERSONNEL

Proper clothing should be worn at all times while installing any modified membrane. Long sleeve shirt, long pants, leather or durable flat soled shoes and work gloves.

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THE ROOFING CONTRACTOR AND HIS EMPLOYEES ARE THE KEY TO SUCCESS REGARDING SAFETY...  
SAFETY SHOULD ALWAYS BE FIRST!

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NOTE: It is recommended that product be stored away from direct sunlight and indoors until immediately before use.

# SBS APPLICATION - Non-Nailable Decks (.1)

If plans or specifications require installation of an SBS modified bitumen membrane system over a non-nailable deck, apply in accordance with these specifications. BITEC System Specification Numbers for non-nailable systems, include the (.1) designation to indicate that **NO FASTENERS HAVE BEEN USED** in the system.

## 1.00 PRIMER

Non-nailable decks are usually a form of concrete and must be primed with ASTM D41 asphalt primer for proper adhesion.

Only for unusual conditions or with self-adhering membranes would a nailable deck be primed. Contact the BITEC Technical Service Department regarding any unusual conditions that would not allow priming of a non-nailable deck.

ASTM D41 primer must also be used on masonry wall surfaces that are to have any membrane flashings adhered to the surface. Primer is also required on **any** metal surfaces built into the membrane system. Wherever primer is used, it must be allowed to dry thoroughly before any membrane is applied to the primed surface.

## 2.00 ROOF INSULATION

The following insulation types are acceptable for use with SBS membranes:

- Perlite
- Wood Fiber
- Glass Fiber
- Cellular Glass
- Polyisocyanurate (ISO)

## 3.00 CANT STRIPS

At flashing details, where the roof makes the transition from horizontal to a vertical surface, a non-combustible cant strip must be used.

## 4.00 BASE SHEETS

A minimum of one ply of Type G2 fiberglass base sheet must be installed over the insulation or deck with ASTM D312 hot asphalt before the roof membrane is heat welded.

Other base sheets may be used depending on project specifications and/or local code requirements or specification requirements.

## 5.00 FASTENERS

Fasteners can be used with some non-nailable decks situations, but pre-drilling of the deck will be required before the fastener is installed. Fasteners must be designed and approved for the type deck being used.

For specification information regarding situations where fasteners are used in non-nailable decks, see the specification for Nailable Decks.

Where fasteners are used to secure flashings to vertical surfaces, they must be of an appropriate type for the situation encountered. You may also contact BITEC's Technical Services Department at (800) 535-8597 for information regarding fastener selection.

## 6.00 DRAIN OUTLETS

Drainage outlets shall be installed below the roof deck surface to permit **POSITIVE DRAINAGE** of the roof deck and to prevent water ponding at the drain rim.

Base ply should be evenly trimmed with the drain flange, followed with a 40" x 40" collar of BITEC SBS smooth surface membrane set in hot asphalt.

This collar must extend into and be fully adhered to the interior of the drain flange and interior surface. The SBS membrane shall be fully adhered to the base ply, flashing collar, and extend into the drain. A 30" x 30", 4 lb. lead or 16 oz. copper flashing is optional over the field membrane.

When used, the metal flashing should be primed with ASTM D41 primer and allowed to thoroughly dry before being set in hot asphalt.

An SBS membrane target flashing must then be installed to extend 4" beyond the lead or copper flashing (when used) and be set in hot asphalt or applied in SBS modified flashing cement. This top target flashing at roof drains should be at least 30" x 30" at roof drains when metal flashings are not used.

Clamp rings should be installed and tightened while the membrane is still warm. Broken or missing clamp rings must be replaced.

Repair or replace clamp bolts and accessories as necessary. Each drain should have a properly fitted strainer.

## 7.00 PENETRATION FLASHINGS

Where pipes or other penetrations occur in the roof surface, a collar of smooth SPS-3H membrane should be installed over the base ply, extending a minimum of 4" beyond the flanges.

A metal flashing shall be installed having a continuous flange, 4" minimum width, on top of the SBS membrane collar. The collar should be set in hot asphalt. The sheet metal flashing flange is then set in hot asphalt and securely fastened when possible. This will provide **one seal**.

**ALL METAL FLASHING FLANGES MUST BE PRIMED WITH AN ASPHALT PRIMER AND ALLOWED TO DRY BEFORE MEMBRANE AND FLASHINGS ARE INSTALLED.**

On non-nailable decks where wood blocking is provided, the metal flange must be nailed 3" o.c., 3/4" from the perimeter edge. When no nailer provisions are provided, sheet metal flashing bases no larger than 18" sq. may be installed without fasteners.

For bases larger than 18", the bases should be mechanically fastened to the deck with appropriate type fasteners, and an additional target flashing may be necessary to bury the fastener head.

The field membrane must be fully adhered to the SPS-3H membrane collar and primed metal flange with hot asphalt. This provides a **second seal**. All seams must be troweled and filled with molten bitumen or SBS modified flashing cement.

A top target ply of cap sheet membrane must be installed at each penetration. This provides a **third seal**.

Where pitch pan type flashings are used at penetrations, they must be installed in accordance with BITEC Detail #32. When other approved pre-fabricated penetration items are used, they should be installed in accordance with that manufacturers instructions.

All exposed asphalt, modified bitumen or mastic must be surfaced with granules while still hot or coated for UV protection.

Plastic cement should not be used to fill pitch pans because it is inferior to the quality of modified bitumen products available. Pitch pans should either

# SBS APPLICATION - Non-Nailable Decks (.1)

be fitted with rain collars, and /or the filler should be coated with a protective coating.

## 8.00 BASE FLASHING

Base flashing plies are to be integrated into the membrane system as additional plies and are to be interleaved with the membrane plies as the system is installed. Therefore, base flashing plies should not just be stacked on top of the membrane plies. Also, since phased construction is not recommended, all membrane and base flashing plies should be finished daily.

BITEC modified bitumen systems are superior roof systems. The required base flashing system installation described here and detailed in the Construction Details section of the *BITEC Roofing Material Specifications and Details Manual*, will provide a much superior flashing system.

When a base flashing is installed against a wood substrate, a UL Type G2 fiberglass base sheet must be nailed to the wood or other nailable substrate first. Nails should be 8" o.c. each direction. This provides an anchor sheet to which the base flashing is attached. Flashing membranes should never be adhered directly to a wood surface.

The top ply of base flashing on SBS systems may be heat welded (torch applied) SPM-4.5T for a cleaner application.

Where base flashings are installed against masonry substrates, the surface must be smooth, clean, primed and dry.

When multi-ply systems are installed the interply membrane(s) must also be included in the base flashing extra plies.

All base flashing plies must be securely anchored to the vertical surface and protected at the top by a counterflashing or termination bar securely anchored and sealed to the wall.

Maximum height for base flashings systems is 24". Flashings above 24" are considered wall flashings, not covered in BITEC warranties.

Cold applied SBS modified mastics may not be used with any prod-

ucts that have a plastic film on the back side. They are designed for torch application only. Also, cold applied SBS modified mastics may only be used for the top ply in multi-ply base flashing systems.

All exposed asphalt, modified bitumen or mastic must be surfaced with granules while still hot, or coated later for UV protection.

## 9.00 ROOF DECK

The BITEC System Specification Numbers use (.1) in the specification number to designate that no fasteners have been used in the system.

The roof deck must be smooth, dry, clean and free of sharp projections and depressions, and properly sloped to the outlets. Weak areas or depressed areas should be corrected before roof application begins. The contractor is responsible for determining that the deck substrate is acceptable before roof application begins.

**THE ROOFING CONTRACTOR, ARCHITECT AND ENGINEER MUST ALLOW FOR POSITIVE DRAINAGE WHEN DESIGNING THE ROOF DECK OR ROOF SYSTEM.**

**BITEC DEFINES POSITIVE DRAINAGE AS FOLLOWS: ROOF DECK BECOMES DEVOID OF WATER WITHIN 72 HOURS AFTER LIQUID PRECIPITATION HAS OCCURRED. BITEC WILL NOT BE RESPONSIBLE FOR MEMBRANE DAMAGE AS A RESULT OF INADEQUATE ROOF DECK DRAINAGE.**

## 10.00 FINAL SURFACING

As an option, a BITEC APPROVED ROOF COATING can be applied to the finished membrane system.

**BITEC RECOMMENDS THAT A PERIOD OF AT LEAST 45 DAYS LAPSE BEFORE THE ROOF COATING IS APPLIED. (ROOF COATING MAY BE REQUIRED TO COMPLY WITH UL OR FM SYSTEM REQUIREMENTS).**

**BITEC DOES NOT WARRANTY ROOF COATINGS AND WILL NOT COVER MEMBRANE DAMAGE OR FAILURE OF ANY ROOF SYSTEM RESULTING FROM DAMAGE BY ANY ROOF COATING.**

Gravel surfacing is an option for

SBS modified bitumen roof membrane systems and a BITEC requirement for some systems.

When gravel surfacing is required or specified, it should be spread in ASTM D312 Type III asphalt immediately upon application of the hot asphalt. If the asphalt cools too much the gravel will not embed in the asphalt properly and will eventually wash or wear away prematurely, leaving the membrane system without any surfacing protection.

Gravel used should meet ASTM D 1863-93 requirements, (Re-approved in 1996) and be applied at a minimum rate of 400 pounds per 100 square feet. Additional gravel may be required, depending on the specific gravel source, actual size available and how well it provides coverage.

## 11.00 WARRANTIES

BITEC, INC. offers two warranties:

- (1) 10/12-YR. MATERIAL ONLY
- (2) 10-YR. Limited "INSURED" ROOFING WARRANTY\*

In order to obtain Warranty (2), which covers labor and materials, an AUTHORIZED BITEC APPLICATOR must install the roofing system. An approved roof coating must be provided if the membrane does not have a factory applied mineral surface.

Final inspection by a BITEC FIELD REPRESENTATIVE will be necessary before issuance of warranty.

Information regarding BITEC warranties may be obtained from BITEC's Technical Services Department by calling (800) 535-8597.

\*Extended warranty periods of 12, 15 and 20 years are available for approved systems.

**NOTE: It is recommended that product be stored away from direct sunlight and indoors until immediately before use.**

## SBS APPLICATION - Nailable Decks (-2)

If plans or specifications require installation of an SBS modified bitumen membrane system over a nailable deck, apply in accordance with these specifications. The BITEC System Specification Numbers for nailable systems, include the (-2) designation to indicate that **FASTENERS HAVE BEEN USED** in the system.

### 1.00 PRIMER

ASTM D41 primer must be used on masonry wall surfaces that are to have any membrane flashings adhered to the surface. Primer is also required on **any** metal surfaces built into the membrane system. Wherever primer is used, it must be allowed to dry thoroughly before any membrane is applied to the primed surface.

Nailable decks normally are not primed. Only for unusual conditions or with self-adhering membranes would a nailable deck be primed. Contact BITEC Technical Service Department regarding any unusual conditions that require priming a nailable deck.

### 2.00 ROOF INSULATION

The following insulation types are acceptable for use with SBS membranes:

- Perlite
- Wood Fiber
- Glass Fiber
- Cellular Glass
- Polyisocyanurate (ISO)

### 3.00 CANT STRIPS

At flashing details, where the roof makes the transition from horizontal to a vertical surface, a non-combustible cant strip must be used.

### 4.00 BASE SHEETS

A minimum of one ply of Type G2 fiberglass base sheet must be installed over roof insulation, set in ASTM D312 hot asphalt before the roof membrane is installed. Other base sheets may be used depending on project specifications and/or local code requirements or specification requirements.

For nailable decks such as wood without any roof insulation, light-weight

insulating concrete or gypsum decks, a minimum of one ply of Type G2 base sheet must be fastened to the deck. As a minimum, the base sheet should be fastened 9" o.c. at the laps and 18" o.c. in two rows along the center of the sheet. For wood decks, nails must be annular ring shank or spiral shanked nails with minimum 1" diam. caps. **Smooth shank nails, plastic cap nails and square head nails are not acceptable.** Screw and plate fasteners are acceptable.

### 5.00 FASTENERS

Fasteners used with nailable type decks must be designed and approved for the type deck being used. Fastener application pattern requirements vary according to the type of insulation and deck being used and the wind uplift resistance requirements for the project's geographical region.

Consult Factory Mutual Research Corporation (FMRC) publications for fastener approvals governing the project's geographical region, or the *FMRC Approval Guide*, governing BITEC products and system approvals.

Typically, screw and plate type fasteners are required to secure roof insulation boards to metal decks.

Plastic stress plates should not be used in situations where a torch applied membrane is being applied over the plates.

Nails must be annular ring shank or spiral shanked nails with minimum 1" diameter caps. **Smooth shank nails, plastic cap nails and square head nails are not acceptable.** For some applications, larger caps may be required.

Some nailable decks may require specialized fasteners for fastening membrane plies or roof insulation. Consult insulation manufacturers, fastener manufacturers or the BITEC Technical Services Department for additional information.

Where fasteners are used to secure flashings to vertical surfaces, they must be of an appropriate type for the situation encountered.

Poured decks such as lightweight

insulating concrete and gypsum deck will require specialized fasteners and the fastening pattern is normally determined by engineering calculations in accordance with publication ASCE 7-95 for specific geographical areas and environmental conditions to meet certain wind uplift resistance requirements.

You may also contact BITEC's Technical Services Department at (800) 535-8597 for information regarding fastener selection.

### 6.00 DRAIN OUTLETS

Drainage outlets shall be installed below the roof deck surface to permit **POSITIVE DRAINAGE** of the roof deck and to prevent water ponding at the drain rim. Base ply should be evenly trimmed with the drain flange, followed with a 40" x 40" collar of BITEC SBS smooth surface membrane set in hot asphalt.

This collar must extend into and be fully adhered to the interior of the drain flange and interior surface. The SBS membrane shall be fully adhered to the base ply, flashing collar, and extend into the drain.

A minimum 30" x 30", 4 lb. lead or 16 oz. copper flashing is optional over the field membrane. When used, the metal flashing should be primed with ASTM D41 primer, and allowed to thoroughly dry before being set in hot asphalt.

An SBS membrane target flashing must then be installed to extend 4" beyond the lead or copper flashing (when used) and be set in hot asphalt or applied in SBS modified flashing cement. This top target flashing at roof drains should be at least 30" x 30" at roof drains when metal flashings are not used.

A clamp ring must be installed and tightened while the membrane is still warm. Broken or missing clamp rings must be replaced. Each drain should have a properly fitted strainer.

### 7.00 PENETRATION FLASHINGS

Where pipes or other penetrations occur in the roof surface, a collar of smooth SPS-3H membrane should be installed over the base ply extending a

# SBS APPLICATION - Nailable Decks (.2)

minimum of 4" beyond the flanges. A metal flashing shall be installed having a continuous flange, 4" minimum width, on top of the SBS membrane collar. The collar should be set in hot asphalt. The sheet metal flashing flange is then set in hot asphalt and securely fastened when possible. This will provide **one seal**.

ALL METAL FLASHING FLANGES MUST BE PRIMED WITH AN ASPHALT PRIMER AND ALLOWED TO DRY BEFORE MEMBRANE AND FLASHINGS ARE INSTALLED.

On nailable decks where wood blocking is provided, the metal flange must be nailed 3" o.c., 3/4" from the perimeter edge. When no nailer provisions are provided, sheet metal flashing bases no larger than 18" square may be installed without fasteners.

For bases larger than 18", the bases should be mechanically fastened to the deck with an appropriate type fastener, and an additional target flashing may be necessary to bury the fastener head.

The field membrane must be fully adhered to the SPS-3H membrane collar and primed metal flange with hot asphalt. This provides a **second seal**. All seams must be troweled and filled with molten bitumen or SBS modified flashing cement. A top target ply of cap sheet membrane must be installed at each penetration. This provides a **third seal**.

Where pitch pan type flashings are used at penetrations, they must be installed in accordance with BITEC Detail #32. When other approved pre-fabricated penetration items are used, they should be installed in accordance with that manufacturer's instructions.

All exposed asphalt, modified bitumen or mastic must be surfaced with granules while still hot or later coated for UV protection.

Plastic cement should not be used to fill pitch pans because it is inferior to the quality of modified bitumen products available. Pitch pans should either be fitted with rain collars, and /or the filler should be coated with a protective coating.

## 8.00 BASE FLASHING

Base flashing plies are to be integrated into the membrane system as additional plies and are to be interleaved with the membrane plies as the system is installed. Therefore, base flashing plies should not just be stacked on top of the membrane plies. Also, since phased construction is not recommended, all membrane and base flashing plies should be finished daily.

BITEC modified bitumen systems are superior roof systems. The required base flashing system installation described here and detailed in the *BITEC Roofing Material Specifications and Details Manual*, will provide a much superior flashing system.

When a base flashing is installed against a wood substrate, a UL Type G2 fiberglass base sheet must be nailed to the wood or other nailable substrate first. Nails should be 8" o.c. each direction. This provides an anchor sheet to which the base flashing is attached. Flashing membranes should never be adhered directly to a wood surface.

The top ply of base flashing on SBS systems may be heat welded (torch applied) SPM-4.5T for a cleaner application.

Where base flashings are installed against masonry substrates, the surface must be smooth, clean, primed and dry.

When multi-ply systems are installed the interply membrane(s) must also be included in the base flashing extra plies.

All base flashing plies must be securely anchored to the vertical surface and protected at the top by a counterflashing or termination bar securely anchored and sealed to the wall.

Maximum height for base flashings systems is 24". Flashings above 24" are considered wall flashings, not covered in BITEC warranties.

Cold applied SBS modified mastics may not be used with any products that have a plastic film on the back

side. They are designed for torch application only. Also, cold applied SBS modified mastics may only be used for the top ply in multi-ply base flashing systems.

All exposed asphalt, modified bitumen or mastic must be surfaced with granules while still hot or coated for UV protection.

## 9.00 ROOF DECK

The BITEC System Specification Numbers use (.2) in the specification number to designate that fasteners have been used in the system.

The roof deck must be smooth, dry, clean and free of sharp projections and depressions, and properly sloped to the outlets. Weak areas or depressed areas should be corrected before roof application begins.

The contractor is responsible for determining that the deck substrate is acceptable before roof application begins.

THE ROOFING CONTRACTOR, THE ARCHITECT AND THE ENGINEER MUST ALLOW FOR POSITIVE DRAINAGE WHEN DESIGNING THE ROOF DECK OR ROOF SYSTEM.

BITEC DEFINES POSITIVE DRAINAGE AS FOLLOWS: ROOF DECK BECOMES DEVOID OF WATER WITHIN 72 HOURS AFTER LIQUID PRECIPITATION HAS OCCURRED.

BITEC WILL NOT BE RESPONSIBLE FOR MEMBRANE DAMAGE AS A RESULT OF INADEQUATE ROOF DECK DRAINAGE.

## 10.00 FINAL SURFACING

As an option, a BITEC APPROVED ROOF COATING can be applied to the finished membrane system.

BITEC RECOMMENDS THAT A PERIOD OF AT LEAST 45 DAYS LAPSE BEFORE THE ROOF COATING IS APPLIED. (ROOF COATING MAY BE REQUIRED TO COMPLY WITH UL OR FM SYSTEM REQUIREMENTS.)

BITEC DOES NOT WARRANTY ROOF COATINGS AND WILL NOT

Continued, next page ►

## SBS APPLICATION - Nailable Decks (.2), continued

COVER MEMBRANE DAMAGE OR FAILURE OF ANY ROOF SYSTEM RESULTING FROM DAMAGE BY ANY ROOF COATING.

Gravel surfacing is an option for SBS modified bitumen roof membrane systems and is a BITEC requirement for some systems.

When gravel surfacing is required or specified, it should be spread in ASTM D312 Type III asphalt immediately upon application of the hot asphalt.

If the asphalt cools too much the gravel will not embed in the asphalt properly and will wash or wear away prematurely, leaving the surface membrane system without any protection.

Gravel used should meet ASTM D

1863-93 requirements (Reapproved in 1996) and be applied at a minimum rate of 400 lbs. per 100 sq. ft. Additional gravel may be required, depending on the specific gravel source, actual size available and how well it provides coverage.

### 11.00 WARRANTIES

BITEC, INC. offers two warranties:

(1) 10/12-YR. MATERIAL ONLY

(2) 10-YR. Limited "INSURED" ROOFING WARRANTY\*

In order to obtain Warranty (2), which covers labor and materials, an AUTHORIZED BITEC APPLICATOR must install the roofing system. An approved roof coating must be pro-

vided if the membrane does not have a factory applied mineral surface.

Final inspection by a BITEC FIELD REPRESENTATIVE will be necessary before issuance of warranty.

Information regarding BITEC warranties may be obtained from BITEC's Technical Services Department by calling (800) 535-8597.

\*Extended warranty periods of 12, 15 and 20 years are available for approved systems.

NOTE: It is recommended that product be stored away from direct sunlight and indoors until immediately before use.

## FR Membrane Application Precautions

BITEC SBS "FR" family of membranes are installed according to other SBS membrane application instructions, with the following exceptions:

1) **BITEC SBS "FR" membranes must be installed in Hot Asphalt only. No other method is acceptable.**

2) Never attempt to install BITEC SBS "FR" membranes over any APP product.

3) Never use any APP products in conjunction with BITEC SBS "FR" membranes.

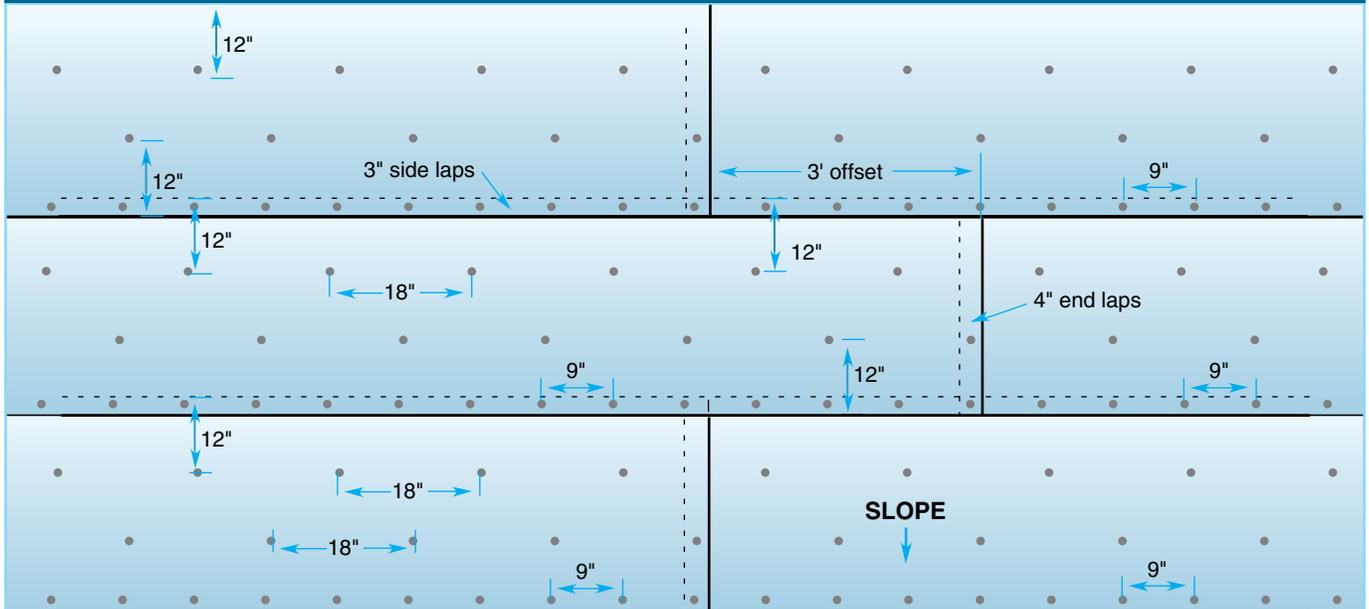
4) All exposed mopping bitumen, adhesive or mastic must be surfaced with matching color granules while the bitumen is still molten or the adhesive is fresh and uncured.

5) An approved aluminum coating may be applied later as a maintenance coating if desired or to coat exposed areas for UV protection.

6) BITEC SBS "FR" membranes do not require any additional coating for UL Classification, but the UL Classification may be maintained with approved aluminum coatings as a maintenance coating.

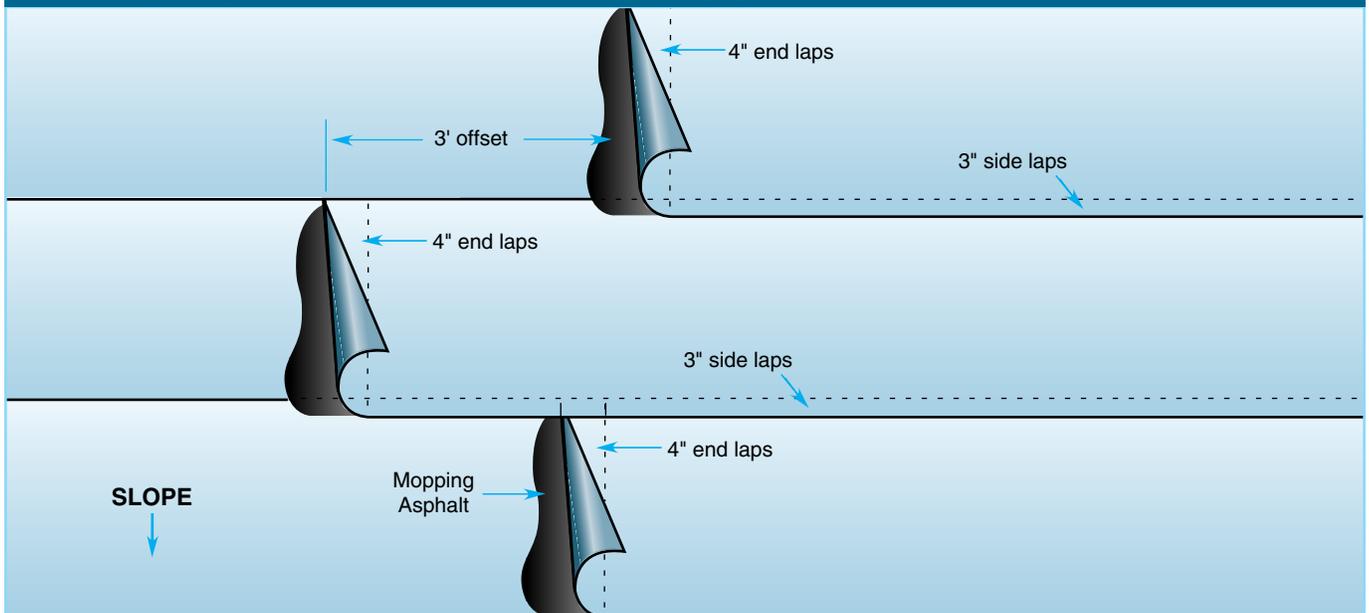
# COMPABASE LAYING DIAGRAMS

## 1. Laying Diagram for Mechanically-Attached Base Sheet



- Side laps shall be a minimum of 3 inches
- Mechanical fasteners 9 inches o.c. for side laps
- Field shall be attached by mechanically fastening 12 inches from edge, 18 inches o.c. staggered
- Consult fastener guide or FM publication in order to determine the kind of fastener
- End laps shall be a minimum of 4 inches
- End laps shall be offset a minimum of 3 feet

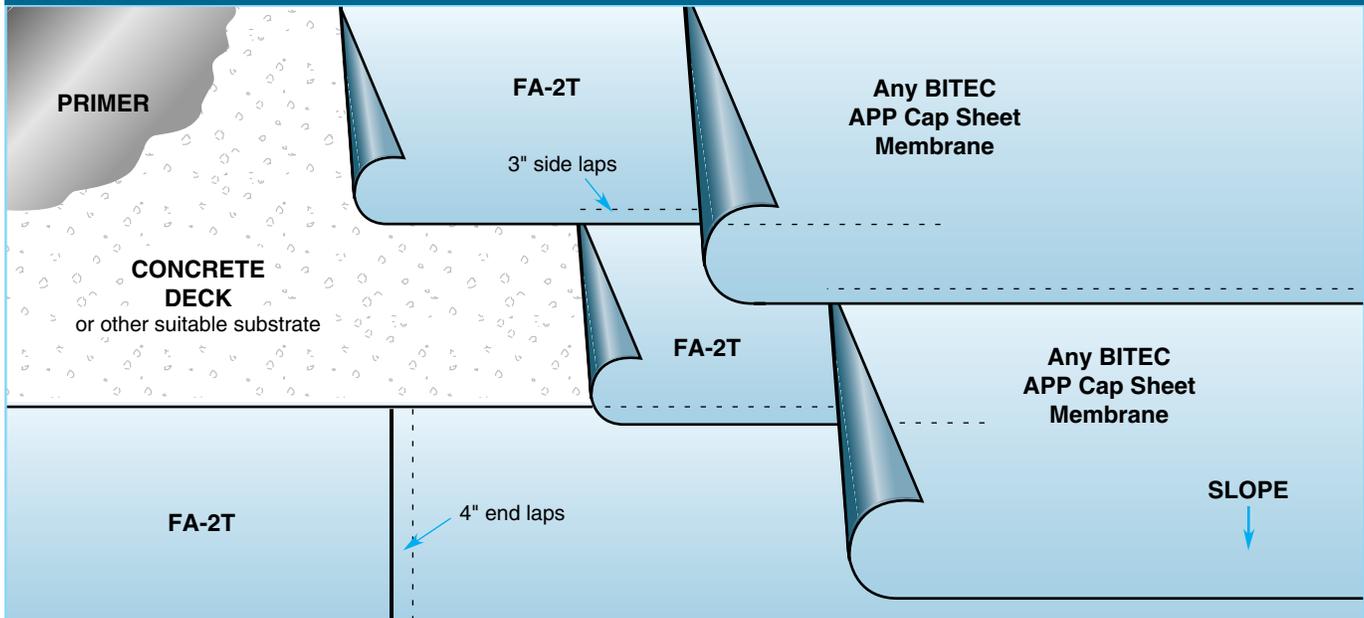
## 2. Laying Diagram for Hot-Mopped Base Sheet



- Basesheet shall be adhered in ASTM Type III or Type IV mopping asphalt
- Side laps shall be 3 inches minimum
- End laps shall be 4 inches minimum
- Mopping asphalt shall be applied at a rate of 25 pounds per 100 square feet
- End laps shall be offset a minimum of 3 feet

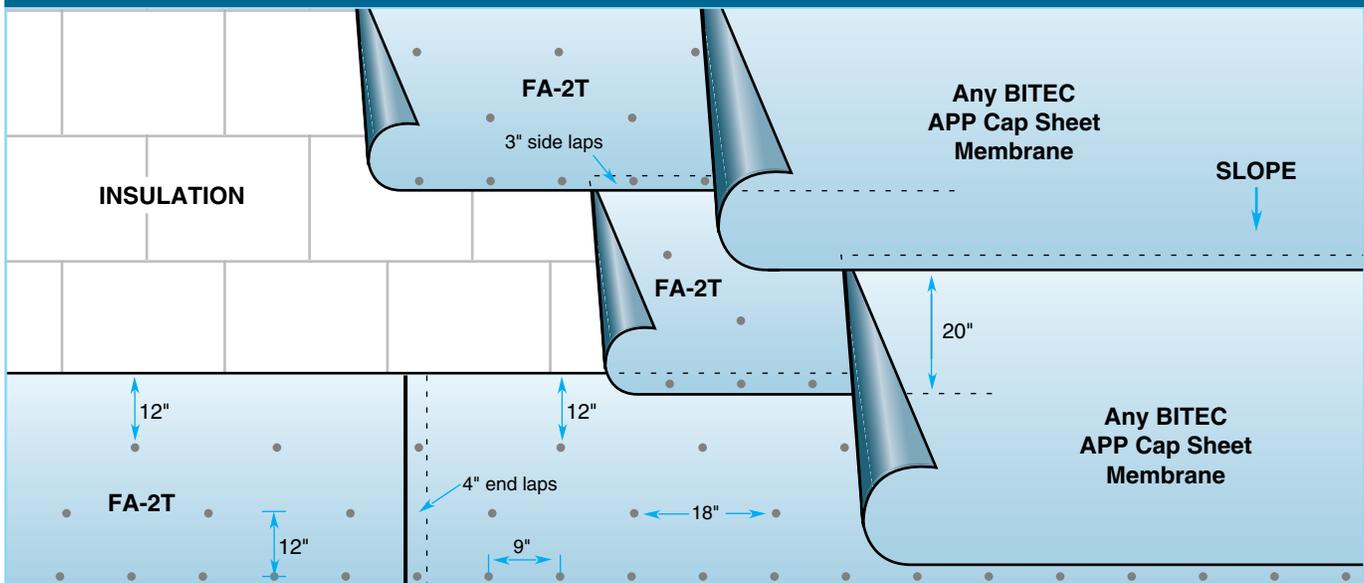
# COMPABASE LAYING DIAGRAMS

## 3. Laying Diagram for Torch Applied Base Sheet



- FA-2T may be torched directly to primed smooth BUR system or to primed structural concrete deck
- **All end laps for APP cap sheet and FA-2T shall be staggered a minimum of 3'**
- Side and end laps shall be 3" and 4" respectively
- Any BITEC APP cap sheet membrane shall be installed by heat welding with seams offset 20" from installed FA-2T

## 4. Laying Diagram for Mech. Attached FA-2T over Insulation



- FA-2T can be nailed or mechanically fastened to all nailable substrates using approved fasteners
- Side and end laps shall be 3" and 4" respectively
- Side laps are to be fastened 9" o.c.
- Field shall be fastened at 18 in. o.c. staggered, 12" in from side in two rows.
- APP cap sheet shall be offset 20" from FA-2T seam
- If heat welded, side laps and end laps shall be 3" and 4" respectively
- **End laps of both APP and FA-2T shall be staggered a minimum of 3'**



#2, Revised 10/07-3



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**MANUFACTURERS OF ADVANCED TECHNOLOGY WATERPROOFING MEMBRANES**  
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