



It is strongly recommended that this publication be read in its entirety before installing these products

BITEC
BITUMEN TECHNOLOGY™

SELF ADHERING MEMBRANES

imperflex®
USA

Base Sheet & Underlayment

IMPERFLEX USA is a smooth surface SBS Polymer modified bitumen base sheet or interply, **INTENDED SPECIFICALLY** for use in **IMPERFLEX** Roof Systems.

IMPERFLEX USA may also be used as an underlayment, to protect against water infiltration caused by ice and water dams at penetrations, valleys and edges on sloped roofs. Other uses include waterproofing 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.

imperflex®
MSA

Mineral Surface Cap Sheet

IMPERFLEX MSA is a mineral surface SBS Polymer modified bitumen cap sheet, 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" selvage 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.**

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

*Refer to slope limitation guidelines, inside

**Except for specifications MSA-12-04LM and MSA-12-05LM



Base Sheet & Underlayment

THE INSTALLER

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

APPLICATION INSTRUCTIONS

Instructions can also be found on the container (box) where each roll is stored. However, this publication has complete installation instructions.

SURFACE PREPARATION

This product is designed for installation as an underlayment with shingles, tile, metal roofs or as below grade waterproofing and as the base sheet in various IMPERFLEX Roof Systems.

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 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, wood, masonry and concrete surfaces using an approved water based SA primer. This primer should be applied according to manufacturer's instructions. However, as an option, an ASTM D41 asphalt primer may be used.

BITEC strongly recommends the use of water-base primers specifically manufactured for use with self adhering membranes. Apply according to manufacturers instructions.

TEMPERATURE

Apply IMPERFLEX USA in fair weather when the air, deck and membrane temperature is 50°F (10°C) or above. All surfaces receiving membrane shall be completely dry before product installation.

BASE SHEET APPLICATION

For the various base sheet applications see the MSA section and the system layout diagrams on the following pages.

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.

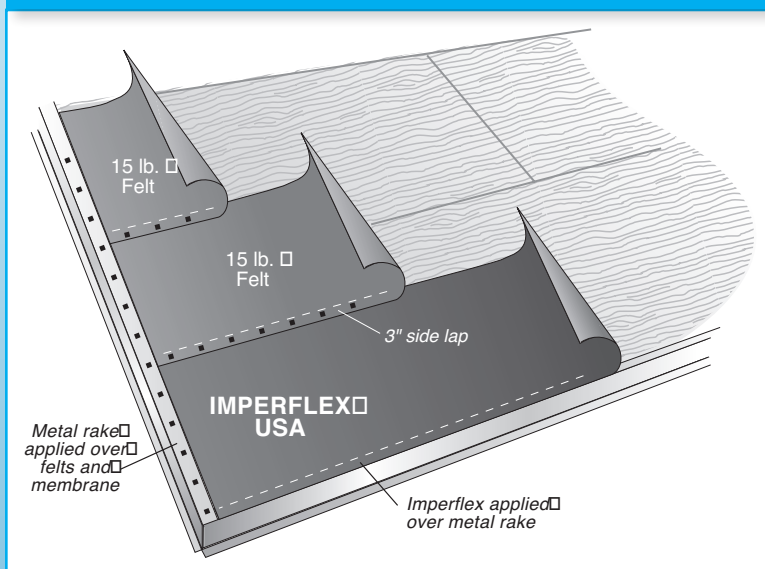
Roll in membrane using a heavy roller to remove any trapped air. FOR ICE DAM PROTECTION, APPLY IMPERFLEX USA TO EXTEND ABOVE THE UPPERMOST EXPECTED LEVEL OF ICE DAMS. End laps should be 6" minimum. Side laps should be 3" minimum.

VALLEY AND RIDGE

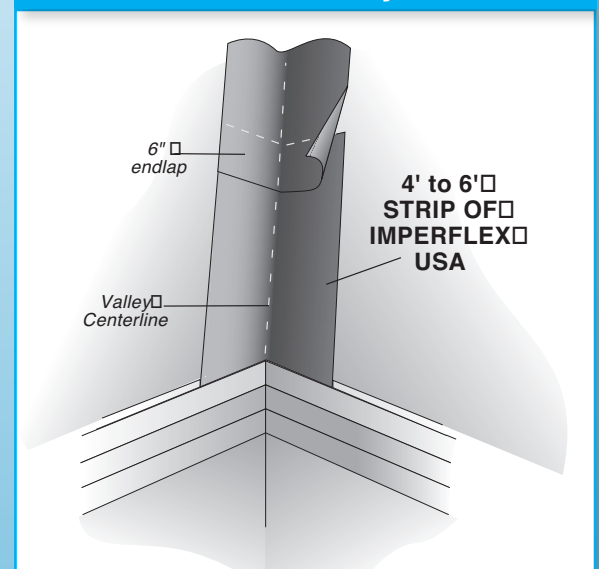
Remove release film. Center roll over area to be waterproofed. Start at low point and work upward. Press and work membrane outward from center of application area. Side laps should be 3" minimum. End laps should be 6" minimum.

– IMPERFLEX USA AS ICE AND WATER PROTECTION –

At Roof Eave



In the Valley





Mineral Surface Cap Sheet

THE INSTALLER

IMPERFLEX MSA is manufactured for use only by trained professional roofing and waterproofing contractors.

APPLICATION INSTRUCTIONS

Instructions can also be found on the container (box) where each roll is stored. However, this publication has additional installation instructions.

SURFACE PREPARATION

All surfaces to be waterproofed with this product must be smooth, dry, 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, wood, masonry and concrete surfaces using an approved water based SA primer. Primer should be applied according to manufacturers instructions.

BITEC strongly recommends the use of water-base primers specifically manufactured for self adhering membranes. However, as an option, an ASTM D41 asphalt primer may be used.

On wood or any other decks suspect of excessive movement, cut USA Base Ply and the MSA Cap Sheet into half (1/2) sheet lengths before installation. This will ease installation and help prevent wrinkling, ridging and fishmouthing. Be sure that all end laps are sealed with lap adhesive such as BITEC PMA-186 or PMA-2000.

Install one ply of IMPERFLEX USA by mechanical attachment. Then install the MSA. The IMPERFLEX USA may also be installed as an inverted base ply with adhesive side up, mechanically fastened, leaving the release film in place until ready to install the IMPERFLEX MSA cap sheet membrane.

TEMPERATURE

Apply IMPERFLEX MSA in fair weather when the air, deck and membrane temperature is 50°F (5°C) and rising up to 110°F (43°C). All surfaces receiving membrane shall be completely dry before product installation.

CAP SHEET APPLICATION

1. Starter strip

Peel back half sheet of release film. Align membrane at lower edge of roof and adhere the exposed membrane area to the prepared surface in shingle fashion. Always ensure proper alignment. Continue to peel both halves of 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 selvage release film.

When using an adhesive to adhesive side installation, remove only small areas of release film from the USA base ply to prevent contamination of the self adhering surface before applying the MSA cap sheet. Extreme care must be exercised when using and installing two self-adhering surfaces together to prevent contamination, wrinkles or air pockets. Once a small area (each roll) is stuck together, it must be rolled with the heavy roller. Do not wait until an entire area (several rolls) is installed before "rolling in" membrane.

2. Subsequent courses of membrane

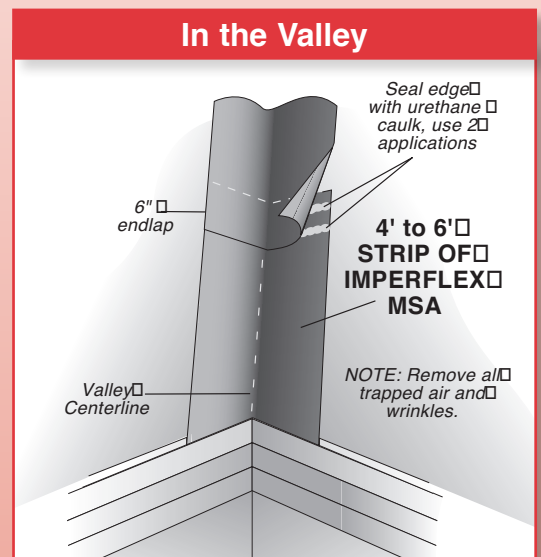
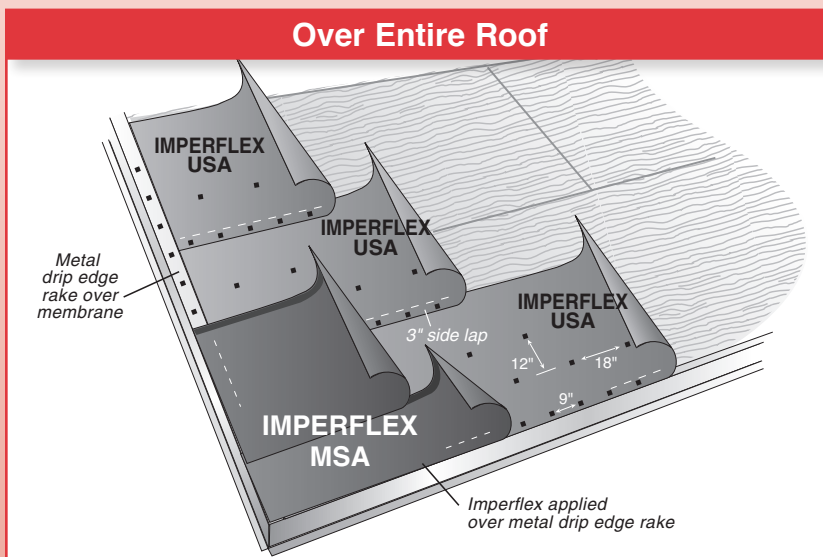
Install subsequent courses in a similar fashion staggering finished end laps by at least 3 ft. Finished end laps should be 6" min., while finished side laps should be 3.5" min. All end laps should be sealed using modified bitumen adhesive and rolled in at the time of application.

3. 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.

4. Residential roof valley and ridge

Remove release film. Center roll over area to be waterproofed. Start at low point and work upward. Press and work membrane outward from center.



Specification

MSA-12-01

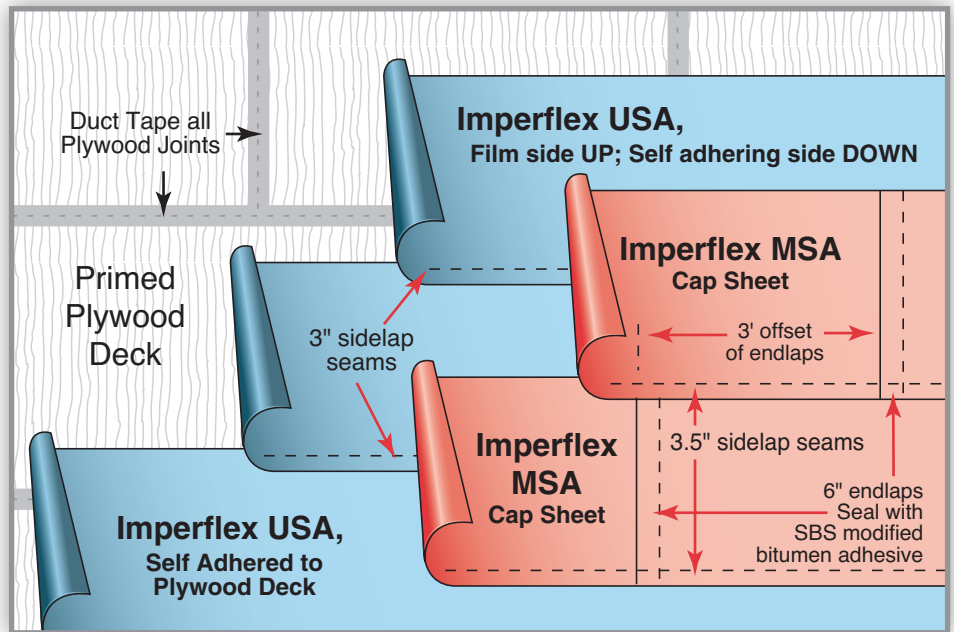
12-Yr Material Only
Warranty

DECK: Plywood with all joints taped using duct tape. Plywood surface must be primed using a water based SA primer.

BASE SHEET: IMPERFLEX USA (film)

CAP SHEET: IMPERFLEX MSA

NOTE: End laps must be offset 3' and sealed with SBS modified bitumen adhesive



Specification

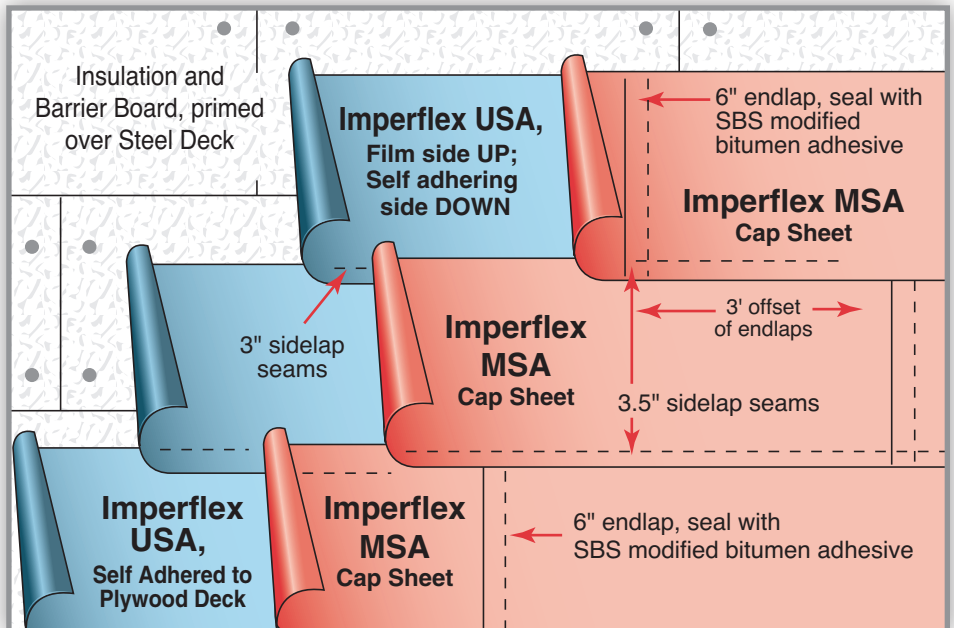
MSA-12-02

12-Yr Material Only
Warranty

DECK: Steel with insulation and barrier board, primed using a water based SA primer.

CAP SHEET: IMPERFLEX MSA

NOTE: End laps must be offset 3' and sealed with SBS modified bitumen adhesive



Specification

MSA-12-03

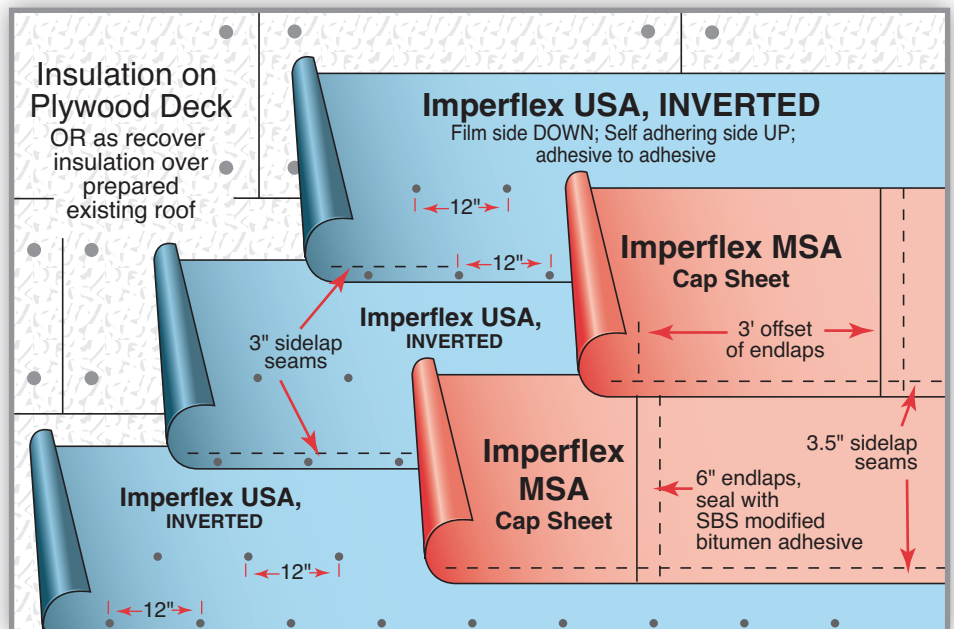
12-Yr Material Only
Warranty

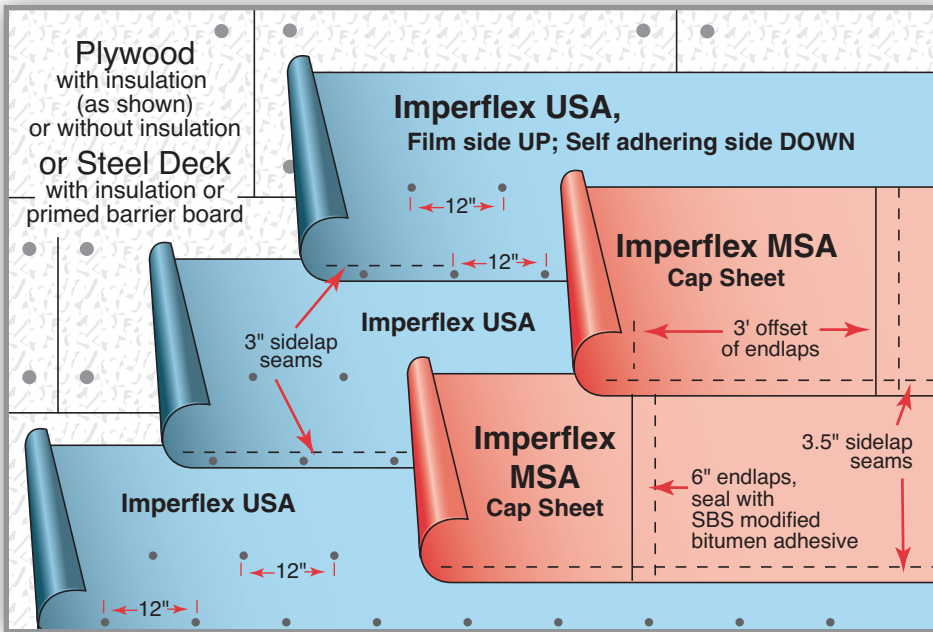
DECK: Plywood with insulation or re-cover insulation

BASE SHEET: IMPERFLEX USA (film) inverted; mechanically attached

CAP SHEET: IMPERFLEX MSA

NOTE: End laps must be offset 3' and sealed with SBS modified bitumen adhesive



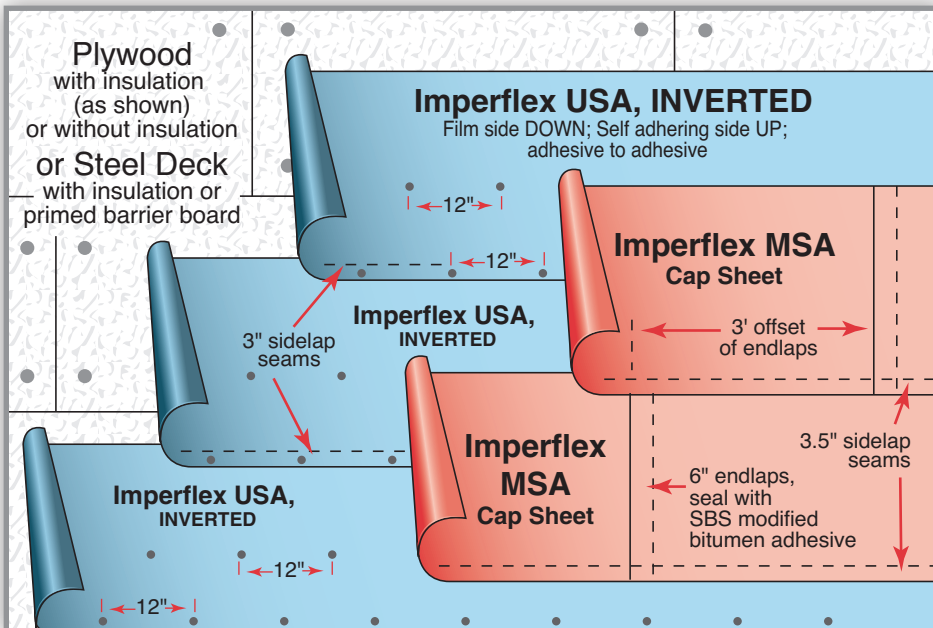


Specification
MSA-12-04.LM
 *12-Yr Labor/Material Warranty

DECK: Plywood with or without insulation, or Steel Deck with insulation or barrier board, primed

BASE SHEET: IMPERFLEX USA, mechanically attached
CAP SHEET: IMPERFLEX MSA

NOTE: End laps must be offset 3' and sealed with SBS modified bitumen adhesive



Specification
MSA-12-05.LM
 *12-Yr Labor/Material Warranty

DECK: Plywood with or without insulation, or Steel Deck with insulation or barrier board, primed

BASE SHEET: IMPERFLEX USA (film) inverted; mechanically attached
CAP SHEET: IMPERFLEX MSA

NOTE: End laps must be offset 3' and sealed with SBS modified bitumen adhesive

IMPERFLEX Roof Systems should not be installed directly over a wood plank deck without a layer of roof insulation and/or Dens-Deck or other approved barrier board.

All wood decks should provide adequate structural support so as to not allow excessive joint movement between panels that may cause wrinkles and movement in the membrane installation, which may also eventually cause splitting of the membrane. Joint clips are required in the joints of all plywood, OSB and similar decking materials.

BITEC strongly recommends the installation of a barrier board over all types of wood decks.

On wood or any other decks suspect of excessive movement, cut USA Base Ply and the MSA Cap Sheet into half (1/2) sheet lengths before installation. This will ease installation and help prevent wrinkling, ridging and fishmouthing. Be sure that all end laps are sealed with lap adhesive such as BITEC PMA-186 or PMA-2000.

BITEC requires the use of an approved water based primer specifically manufactured for use with self adhering membranes when **IMPERFLEX** roof systems are to be installed directly over wood decks.

Roof decks of all types must have a minimum of 1/2" per foot slope to provide adequate drainage.

IMPERFLEX roof systems should only be installed when weather conditions are suitable and the weather forecast does not include rain or other precipitation and only when temperatures are 50°F and rising. In cool or cold weather, **IMPERFLEX** materials should be kept inside and in a heated space. Rolls must be unrolled and allowed to relax before installation.

Self adhering surfaces must be protected from contamination caused by wind blown dust, debris, moisture and even high humidity to allow proper adhesion. Therefore, careful consideration must be given to selecting the installation of any self adhering roof system.

IMPERFLEX self adhering roof systems will require several days of sunny weather and warm temperatures for the interfacing adhesive surfaces to properly bond to each other.

It is absolutely imperative that each individual roll of **IMPERFLEX** be rolled into place before another roll is installed to remove any wrinkles and air pockets. Experience will be required to develop good installation methods that will save time and make for an acceptable installation. Good roofing practices are required and only experienced professional contractors should attempt these applications.

*Installations for Labor & Material Warranties must be installed by BITEC, INC. authorized applicators only.

USE, INSTALLATION and LIMITATIONS

CAUTION:

- BITEC, INC. assumes no responsibility for any loss arising from misuse and/or misapplication of these products.
- IMPERFLEX MSA shall never be applied directly to an existing roof system.
- IMPERFLEX USA shall never be left permanently exposed to the sun and for never longer than 60 days.
- IMPERFLEX USA is a vapor barrier. Proper ventilation must be maintained in moist climates to prevent interior condensation and to minimize ice dams.
- IMPERFLEX MSA and/or USA are not designed to be installed on mobile home roofs. Do not install this product on mobile homes, prefabricated structures or where the roof deck, attic space, or areas under roof deck lack adequate ventilation. Do not install this product directly to any type of roof insulation.
- Improper use of and/or improper installation of IMPERFLEX products will void your warranty.
- Other conditions may apply to the use and installation of IMPERFLEX products. Please refer to our publication "Roofing Material Specifications and Details" for information not covered in this document. Please call 800-535-8597 to receive your free copy or to inquire about conditions not covered.

SLOPE LIMITATIONS

Good roofing practice requires all modified bitumen roof systems result in positive drainage. In all cases a minimum roof slope of 1/2" in 12 will be required. Sufficient drainage, for this purpose, is defined as complete and immediate removal of water from the roof surface resulting in no areas of standing water or ponds. BITEC strongly recommends this minimum slope guideline be adhered to, especially as it pertains to the installation of IMPERFLEX products. The determination of slope and the design of any roof system, as well as the selection of the roof system components, which includes the deck and can include existing roof components, is the sole responsibility of the contractor(s), owner(s) and/or owners' representative(s), and building code official(s). BITEC, INC. will not determine the suitability of IMPERFLEX for use on any construction or that the construction possesses an effective slope prior to product installation.

IMPERFLEX products are manufactured to effectively provide a watertight roof membrane system if installed properly and in accordance to published BITEC, INC., standards and industry good roofing practice and on any construction that will accommodate its use.

LIMITED TEN-YEAR WARRANTY (MSA MEMBRANE ONLY)

IMPERFLEX MSA membrane is covered by a limited ten-year material only warranty, except as noted otherwise. Warranty must be registered to be in effect. Please call 800-535-8597 to request a copy of the warranty.

MINIMUM RECOMMENDATIONS

BITEC, INC., strongly recommends that a **trained, professional roofing contractor** install IMPERFLEX products. Your selection of a roofing contractor for the project is very important. Ask the contractor for references and check each reference before entering into any contract. Also, request from the contractor a list of materials for the project as well as information about those materials.

BITEC, INC., recommends these products to be used only for residential and light commercial roofs.

IMPERFLEX products used in light commercial roof applications shall be limited to certain flashing details as well as residential-like applications. All metal and wood surfaces receiving IMPERFLEX must be primed with an approved water base SA primer.

BITEC, INC. strongly recommends that the roof system installation provide positive drainage.

BITEC, INC. strongly recommends that all surfaces to receive IMPERFLEX products be dry, cleaned and prepared properly in order to provide a surface that will allow the membrane to bond completely and to effectively create waterproof seams.

Imperfex membranes used over wood decks or any other deck suspect of having excessive movement must be cut into half (1/2) lengths before installation.

IMPERFLEX membranes must be rolled in using a heavy steel roller to remove air and improve contact with surfaces. Flashing sheets can be rolled in using a seam roller or suitable tool.

IMPERFLEX end laps should be sealed using SBS modified bitumen adhesive to improve seal.

PRODUCT USES

BITEC, INC. recommends this product to be used only for waterproofing and roofing residential and light commercial roofs. IMPERFLEX products in light commercial roof applications shall be limited to certain flashing details as well as residential-like applications.

All metal must be primed and sandwiched between layers of IMPERFLEX USA and IMPERFLEX MSA.

IMPERFLEX products are not designed to fully replace or act as a substitute for polymer modified bitumen heat welded; hot asphalt; or adhesive applied roof membranes and systems. IMPERFLEX products are an adjunct to these products. IMPERFLEX products may or may not be suitable for certain constructions.

PRODUCT INFORMATION AND ASSISTANCE

More information about this product can be obtained by calling your local BITEC technical sales representative, or by calling 800-535-8597, or at www.bi-tec.com.

This brochure contains the most up-to-date information on IMPERFLEX membranes; however, changes and modifications to this publication and to IMPERFLEX products may be made without notice.

LIMITATION OF LIABILITY

BITEC, INC., at its option and sole discretion will fully, or partially replace, or fully or partially refund to the customer the purchase price of this product if found defective in materials or our workmanship which result in a roof leak. All other remedies and liabilities, including, and without limitation, liability for consequential damage, personal injury, loss of profits, loss of use, loss of income, and all other warranties including and without limitation, the implied warranty are excluded. Customer will pay all freight charges if product or a portion thereof is replaced. Physical damage to membrane from any cause is excluded.

BITEC warranties do not cover problems due to building or substrate movements.

The purchaser and installer are solely responsible for proper storage, use and installation of these products.

Please refer to the IMPERFLEX MSA "Limited Ten-Year Material Warranty" for coverage and exclusions.



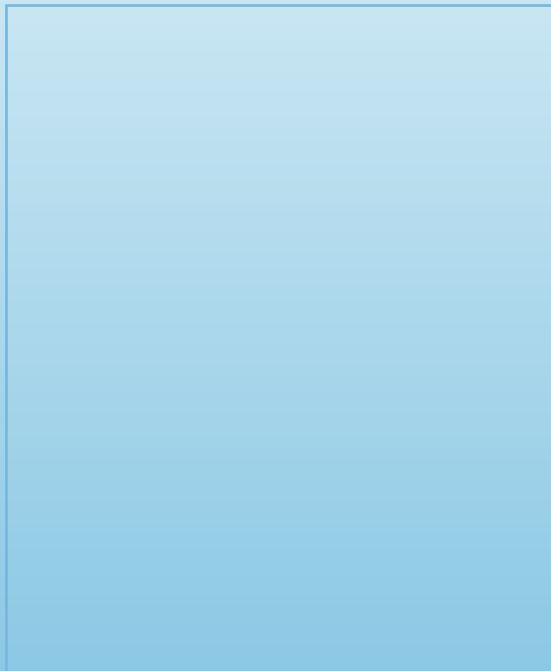
SELF ADHERING MEMBRANES



Base Sheet & Underlayment

PHYSICAL PROPERTIES		
Modifier	Styrene Butadiene Styrene	
Approx. Roll Size	45.75' x 3.28'	
Seam Width	3"	
Approx. Coverage	150 ft ²	
Top Surface	Fine mineral or PE film	
Bottom Surface	Release film	
Nominal Thickness	2 mm (80 mil)	
Nominal Weight	85 lb	
Reinforcement	Fiberglass	
ASTM D-36 Softening Point	240° F (116° C)	
UNI-8202 Cold Flex. Temp	14° F (-10°C)	
ASTM D-412 Tensile Strength (lb/in)	Long. 75	Trans. 60
ASTM D-412 % Elongation to Break	Long. 3	Trans. 3

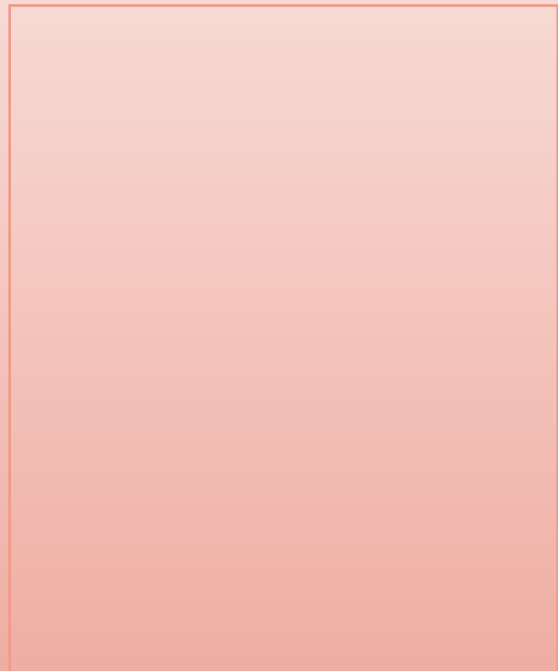
This product meets or exceeds ASTM D 1970
All values are approximate



Mineral Surface Cap Sheet

PHYSICAL PROPERTIES		
Modifier	Styrene Butadiene Styrene	
Approx. Roll Size	32.8' x 3.28'	
Seam Width	3.5"	
Approx. Coverage	100 ft ²	
Top Surface	Colored granules*	
Bottom Surface	Release film	
Nominal Thickness	3.5 mm (140 mils)	
Nominal Weight	100 lb	
Reinforcement	Fiberglass	
ASTM D-36 Softening Point	250° F (120° C)	
UNI-8202 Cold Flex. Temp	-13° F (-25°C)	
ASTM D-412 Tensile Strength (lb/in)	Long. 80	Trans. 75
ASTM D-412 % Elongation to Break	Long. 30	Trans. 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.
All values are approximate



PRODUCT STORAGE and MATERIAL HANDLING

STORAGE AND HANDLING

Store IMPERFLEX products in their original containers on pallets, inside or under cover, protected from the elements. Avoid prolonged storage above 90°F (32°C). Product may stick together and/or discolor if stored at elevated temperatures. Do not store product in moisture prone areas or where moisture is a problem. Keep these products in their original container, upright until immediately before use. Store any remaining membrane in original container to protect it for future use.

CAUTION:

- Never use IMPERFLEX products for any purpose other than its intended use. Misuse or abuse to the product may result in property damage or personal injury.
- BITEC, INC. assumes no responsibility for any loss arising from misuse and/or misapplication of these products.
- Dispose of any unused IMPERFLEX products in accordance with local codes. (IMPERFLEX products do not contain asbestos.)
- IMPERFLEX products should not be used in

any interior space due to their asphaltic odor.

- IMPERFLEX products can be slippery when wet or covered with frost and/or ice.
- Keep IMPERFLEX products and all roofing components away from children and animals.
- Other conditions may apply to the use and installation of IMPERFLEX products. Please refer to our publication "Roofing Material Specifications and Details" for information not covered in this document. Please call 1-800-535-8597 to receive your free copy.

PRODUCT INFORMATION and ASSISTANCE

More information about this product can be obtained by calling your local BITEC Technical Sales Representative, or by calling 800-535-8597, or at www.bi-tec.com

This brochure contains the most up-to-date information on IMPERFLEX membranes; however, changes and modifications to this publication and to IMPERFLEX products may be made without notice.

Self adhering roof membrane systems require good site preparation and working conditions. Proper installation methods and workmanship are a must.

These roofing materials should not be installed assuming that the installation is easy.

As with all roofing installations, it is the responsibility of the contractor or installer to provide for adequate fall protection for all personnel engaged in the roofing and construction phase.

These revisions are made to improve installation and performance of IMPERFLEX Self Adhering roof membrane assemblies.

IMPERFLEX products contain high-quality distilled asphalt and "made-on-purpose" polymers, creating a monolithic sheet that is free of brittle, non-flexible oxidized asphalt.

Only the highest quality raw materials are used in making BITEC products.



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Specifications subject to change without notice



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

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MANUFACTURERS OF ADVANCED TECHNOLOGY WATERPROOFING MEMBRANES