



## 20-Year EPDM Warranty

### **MULE-HIDE HAS THE LOWEST INSTALLED COST SOLUTION FOR 20-YEAR WARRANTED FULLY ADHERED EPDM SYSTEMS OVER WOOD AND METAL DECKS**

Three facts support this statement:

- Mule-Hide Acrylic Water Base Bonding Adhesive is a single-sided, wet lay-in application, reducing labor costs and providing double the coverage rate of a typical contact adhesive.
- Mule-Hide Products minimum requirements of using #12 fasteners for insulation attachment reduces the contractor's material costs versus GenFlex and Firestone minimum requirements of #14 or #15 fasteners.
- Mule-Hide Products option to use 60 mil Pre-Taped EPDM Membrane provides the contractor with significant savings versus the use of 6" In-Seam Tape applied in the field.

Below is a list of contractor required enhancements to receive a Mule-Hide 20-year Standard or Premium System Warranty.

#### **Membrane / Adhesive Type / Other**

1. 60 mil Mule-Hide EPDM: Standard Black, White-on-Black, or Reinforced Black Membranes.
2. Field seams:
  - 6" In-Seam Tape & Tape Primer
  - 3" Pre-Taped EPDM & Tape Primer
  - 3" In-Seam Tape & Tape Primer with 6" Cured Cover Tape
3. RMS w/Tape and Tape Primer must be used at base of all parapet walls.
4. All T-joints overlaid with EPDM Uncured Flashing Tape.

#### **Deck Type / Typical Fastener - Refer to Specifications for minimum pullout criteria.**

<b>Standard Roof Deck</b>	<b>Insulation Fastener</b>	<b>Insulation Plate</b>
Steel (22 gauge or heavier)	Mule-Hide Drill Point #12	Mule-Hide 3" Metal Stress Plate
Structural Concrete (3,000 psi)	Mule-Hide HPD Fastener #14	
Fibrous Cement & Gypsum	TL Fasteners by TruFast	3" TL Insulation Plate by TruFast

#### **NOTES:**

1. Heavier gauge fasteners may be required for Factory Mutual, code, or wind warranties.
2. Other fasteners may be considered, submit request to Mule-Hide prior to bidding.
3. Pullout testing is required, must exceed 360 pounds with TL Fastener.
4. Contact Mule-Hide Technical Department for non-standard roof decks.
5. 2.4" seam plates are NOT approved for use to fasten insulation.

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### Insulation/Overlayment - Adhesive Attachment

Helix® Low-Rise Adhesive by Mule-Hide, available in cartridges, tanks, 15 gallon "ponies" or 50 gallon drums. Application rates vary based on job conditions. Contractor must contact the Mule-Hide Technical Department for individual product details.

### Insulation/Overlayment - Mechanical Attachment\*

Insulation Type or Overlay	Fasteners per 4' x 8' board		
	Field	Perimeter	Corner
Mule-Hide Poly ISO – min. 2" thick (top layer) – min. 20 psi	8	12	16
Mule-Hide Poly ISO – min. 1.5" up to 2" thick – min. 20 psi	12	18	24
STRUCKTODEK® HD Fiberboard with Primed Red Coating – min. 1/2" thick- Installed as an overlay or recover board	16	24	32
DensDeck® Prime or Securock® Roof Boards – min. 1/4" - Installed as an overlay or recover board	12	18	24
OSB – min. 7/16" thick - Installed as an overlay	17	25	32

#### NOTES:

1. InsulFoam and InsulFoam R-Tech insulation is approved for warranty but it must be installed with an approved overlay board.
2. Thicknesses stated are for single layer of material.
3. Consult Specification Manual for list of approved insulations for use under overlayment.
4. Polyisocyanurate less than 1.5" and InsulFoam expanded polystyrene must have approved overlayment.
5. Premium Warranty requires the use of Mule-Hide Polyisocyanurate insulation.
6. Insulation fastening density shall not be less than 1 per 2 square feet on fibrous cement and gypsum decks. Certain codes may require additional fastening requirements.
7. Mule-Hide defines perimeter areas as a minimum of 8 feet. Corners areas are the intersections of the perimeter areas.
8. Factory Mutual defines perimeter areas as the lesser of 0.1 times the building width or 0.4 times the building height. Corners areas are the intersections of the perimeter areas.

### Metal Accessories

1. All metal copings, gravel stops, fascia, and drip aprons must be Mule-Hide Edge Metal & Accessories for Single-Ply Roofing Systems or pre-manufactured as per approved details.
2. Mule-Hide All Purpose Bar is required when a compression bar termination is specified and must be utilized in conjunction with counterflashing.
3. Mule-Hide Edge Metal & Accessories for Single-Ply Roofing Systems must be used when the sheet metal is to be included under the warranty.
4. All metal scuppers must have welded (soldered) seams.



# 20-yr Fully Adhered EPDM

## Competitive Analysis

### Adhesives

GenFlex and Firestone only allow GenFlex or Firestone branded polyisocyanurate for insulation. No wood fiber, etc. The restriction to polyisocyanurate insulation only means the contractor must use solvent-base- adhesive in the application. Mule-Hide approves fiberboard, which allows the contractor to use Mule-Hide Acrylic Water Base Bonding Adhesive. Mule-Hide Acrylic Water Base Bonding Adhesive is quicker to install and results in a lower installed cost for the contractor. See the cost comparisons below between contact adhesives and single-side, wet lay-in Mule-Hide Acrylic Water Base Bonding Adhesive.

Material Comparison (Adhesive Costs for a 100' x 100' Job)				
Adhesive Name	Cost Per 5-Gallon Pail	Coverage Rate per Pail (Sq. Ft.)	Qty of pails Needed for Job	Adhesive Cost for Job
Solvent-Base	\$94.00	300	34	\$3,196.00
Low VOC	\$157.00	300	34	\$5,338.00
AquaBase 120	\$207.00	300	34	\$7,038.00
Low VOC 1168	\$192.00	300	34	\$6,528.00
X-23 Low VOC	\$169.00	300	34	\$5,746.00
AeroWeb Low VOC	\$475.00	1000	10	\$4,750.00
Acrylic Water Base	\$186.00	600	17	\$3,162.00

Labor Comparison	
Contact Adhesive Labor Steps	Acrylic Water Base Bonding Adhesive Labor Steps
✓ Apply adhesive to substrate	✓ Apply adhesive to substrate
Apply adhesive to back of membrane	✓ Roll membrane into wet adhesive
Wait for adhesive to dry until tacky (10 - 90 minutes)	✓ Broom membrane
✓ Roll membrane into adhesive	
✓ Broom membrane	

Even though the Acrylic Water Base Bonding Adhesive is the second most expensive product per 5-gallon pail, the increased coverage rate makes it the lower installed material cost solution. The value of Acrylic Water Base Bonding Adhesive is even more evident when you analyze the labor savings the single-side, wet lay-in application provides by eliminating the second adhesive application pass to the membrane and the wait time for the solvent to flash off.

**Core Fact: Using Mule-Hide Acrylic Water Base Bonding Adhesive instead of solvent-base bonding adhesives reduces material and labor costs.**

*Numbers for calculation purposes only, valid as of October 2018*





## 20-yr Fully Adhered EPDM Competitive Analysis

### Fasteners

GenFlex requires #15 fasteners be used for membrane attachment AND insulation attachment. Mule-Hide requires Drill Point Fasteners #12 for insulation and HDP Fasteners #14 for membrane attachment. GenFlex's requirement of using #15 fasteners for membrane and insulation attachment is much more expensive than Mule-Hide's fastening requirements.

*Using Mule-Hide fastener pricing, compare the cost of the GenFlex requirement to use #15 fasteners for insulation and membrane to the Mule-Hide requirement of Drill Point Fasteners #12 for insulation attachment and HDP Fasteners #14 for membrane attachment.*

Firestone requires #14 fasteners be used for membrane attachment AND insulation attachment. Mule-Hide requires Drill Point Fasteners #12 for insulation and HDP Fasteners #14 for membrane attachment. Firestone's requirement of using #14 fasteners for membrane and insulation attachment is more expensive than Mule-Hide's fastening requirements.

*Using Mule-Hide fastener pricing, compare the cost of the Firestone requirement to use #14 fasteners for insulation and membrane to the Mule-Hide requirement of Drill Point Fasteners #12 for insulation attachment and HDP Fasteners #14 for membrane attachment.*



#### Material Comparison

(Fastener Cost Comparison on a 100 square, 1-1/2" Insulation, 20-year warranted job)

Manufacturer	Minimum Screw Size & Length	Use - Insulation or Membrane	Fasteners needed for 100' x 100' job	Cost per 1,000	Cost per Fastener	Job Cost
Mule-Hide Products	Drill Point #12 - 2-7/8"	Insulation	5800	\$71.61	\$0.072	\$415.34
	HDP Fastener #14 - 3"	Membrane	400	\$87.06	\$0.087	\$34.82
Total fastener price						<b>\$450.16</b>
GenFlex	#15 - 3"	Insulation	5800	\$127.18	\$0.127	\$737.64
	#15 - 3"	Membrane	400	\$127.18	\$0.127	\$50.87
Total fastener price						<b>\$788.52</b>
Firestone	#14 - 3"	Insulation	5800	\$87.06	\$0.087	\$504.95
	#14 - 3"	Membrane	400	\$87.06	\$0.087	\$34.82
Total fastener price						<b>\$539.77</b>

**Core Fact: A Mule-Hide contractor will save \$338.36 in fastener costs versus a GenFlex contractor and \$89.61 in fastener costs versus a Firestone contractor.**

*Numbers for calculation purposes only, valid as of October 2018*



## 20-yr Fully Adhered EPDM Competitive Analysis

### 3" Pre-Taped vs. 6" Seam Tape

GenFlex and Firestone do allow the use of 3" seam tape for all seams in their 20-year warranted systems. Mule-Hide requires 6" seam tape, 3" seam tape with 6" cover strip, OR 3" factory applied tape (Mule-Hide Pre-Taped EPDM) for its warranted systems. Mule-Hide can match the GenFlex and Firestone 3" seam allowance with a much more efficient product; Pre-Taped EPDM. Mule-Hide Pre-Taped EPDM reduces seaming labor by more than 50% over the field application of 3" seam tape.

*The use of 3" Pre-Taped EPDM is significantly less expensive in material cost in a Mule-Hide fully adhered 20-year warranted system. In addition, the labor savings of Pre-Taped EPDM versus standard seam tape installation brings the installed cost of using 3" Pre-Taped EPDM much lower than the 6" Seam Tape. See the calculations below:*

<b>Material Comparison (One 10' x 100' EPDM roll with field applied 6" Seam Tape)</b>				
Accessory Component	Cost per unit	Coverage Rate	QTY Needed	Material Cost
60 mil EPDM	\$606.25	1000 sq. ft.	1	\$606.25
Tape Primer (7" wide x 2-sides - 110lf.)	\$28.13	250 sf/gal	0.5	\$14.07
6" Seam Tape	\$127.81	100 l.f.	1.1	\$140.59
<b>Total Material Cost</b>				<b>\$760.91</b>

<b>Material Comparison (One 10' x 100' Pre-Taped EPDM roll with 3" Seam Tape)</b>				
Accessory Component	Cost per unit	Coverage Rate	QTY Needed	Material Cost
60 mil EPDM	\$643.75	1000 sq. ft.	1	\$643.75
Tape Primer (4" wide x 1-side - 100 ft., 7" wide x 2-side - 10')	\$28.13	250 sf/gal	0.2	\$5.63
6" Seam Tape at end lap	\$138.00	100 l.f.	0.1	\$12.78
<b>Total Material Cost</b>				<b>\$662.16</b>

<b>Labor Comparison</b>	
6" Field Applied Seam Tape Labor Steps – 10' x 100' roll	3" Pre-Taped EPDM Labor Steps – 10' x 100' roll
Apply tape primer to seam on bottom sheet	✓ Apply tape primer to seam on top sheet
✓ Apply tape primer to seam on top sheet	✓ Apply tape primer to bottom sheet on end lap
✓ Apply tape primer to bottom sheet on end lap	✓ Apply tape primer to top sheet on end lap
✓ Apply tape primer to top sheet on end lap	✓ Set seam tape in end lap
Set seam tape in seam	✓ Roll seam tape in end lap
✓ Set seam tape in end lap	✓ Pull release liner on seam tap
Roll seam tape in seam	✓ Roll seam
✓ Roll seam tape in end lap	
✓ Pull release liner on seam tape	
✓ Roll seam	

**Core Fact:** When using 10' x 100' Pre-Taped EPDM rolls on a 20-year fully adhered project, a Mule-Hide contractor will save \$98.75 per roll in materials plus reduce labor costs versus the use of field applied 6" seam tape.



## 20-yr Fully Adhered EPDM *Competitive Analysis*

### Extras

GenFlex charges extra to have the metal included in the warranty. If the contractor purchases Mule-Hide Edge Metal & Accessories for Single-Ply Roofing Systems through ABC, the metal is automatically covered in the warranty at no additional cost.

**Core Fact: Mule-Hide does not charge the contractor extra to include Mule-Hide Edge Metal & Accessories for Single-Ply Roofing Systems in the system warranty.**

A contractor is required to have GenFlex Q3 status. Q3 status means the contractor must have completed 3 quality inspections with no re-inspections. That statement could be open for interpretation: 3 quality inspections without a re-inspection on those three projects or 3 quality inspections without a re-inspection ever on any job?

**Core Fact: Mule-Hide does not specifically exclude a warranty eligible contractor from obtaining a 20-year warranty.**

### Mule-Hide 20-Year Warranty Advantage

A Mule-Hide fully adhered EPDM roofing system over a wood or steel roof deck utilizing the following accessories is the better overall value when a 20-year warranty is required.

- Mule-Hide Acrylic Water Base Bonding Adhesive
- Drill Point Fasteners #12 for insulation attachment
  - 60 mil Pre-Taped EPDM Membrane