

# 30-Year Warranty Design Enhancements

"The name trusted in roofing since 1906"



## TPO – Fully Adhered

Revision Date: May 6, 2019

**All products specified for this roofing system must be manufactured or approved by Mule-Hide Products Co. This criteria is limited to buildings of 100' in height or less.**

### Membrane / Adhesive Type / Other

1. 0.080" thick Mule-Hide TPO Reinforced Membranes.
2. Mule-Hide TPO Bonding Adhesive, Low-VOC Bonding Adhesive, Low-VOC 1168 or AeroWeb (solvent based)
3. All 'T' joints overlaid with pre-manufactured TPO T-Joint Covers heat welded in place.
4. Must use pre-fabricated accessories: Pipe Seals, Split Pipe Seals, Square Tubing Wraps, TPO Universal Corners, TPO Inside Corners and TPO Outside Corners.
5. All field seams must be heat welded.
6. Flashings to be min 0.060" TPO - Min 8" flashing height

**Deck Type / Typical Fastener** – Contact Mule-Hide Technical Department for minimum pullout criteria

Standard Roof Deck (4)	Insulation Fastener (1)	Insulation Plate
Steel (22 gauge or heavier)	Mule-Hide HD #14	Mule-Hide 3" Metal Stress Plates
Structural Concrete (3,000 psi)	Mule-Hide HD-14 (2)	Mule-Hide 3" Metal Stress Plates
Plywood (Min 15/32" thick)	Mule-Hide HD #14	Mule-Hide 3" Metal Stress Plates
Wood Plank (Min 1-1/2" thick)	Mule-Hide HD #14	Mule-Hide 3" Metal Stress Plates
Fibrous Cement & Gypsum (2)(3)	TL Fasteners by Tru-Fast	3" Galvalume Insulation Plate by Tru-Fast

### 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. Requires fastener pull test.
4. Contact Mule-Hide Technical Department for other roof decks or non-standard roof decks.

### Slope Requirement/Drainage

1. Positive drainage required (no ponding 48 hours after a rain)
2. 1/4" per horizontal foot preferred
3. 1/8" slope with sufficient number of drains and crickets/saddles may be considered

### Construction Type

1. New Construction
2. Reroof - All existing roofing materials removed
3. Recover – Contact Mule-Hide Technical Department

**Insulation/Overlayment - Mechanical Attachment\*** (for 55-MPH peak wind gust warranty)

Insulation Type or Overlay	Fasteners per 4' x 8' board		
	Field	Perimeter	Corner
Approved Polyisocyanurate - Min 2" thick (top layer) - Min 20 psi	8	12	16
Approved Polyisocyanurate - Min 1.5" up to 2" thick - Min 20 psi	12	18	24
HD Fiberboard - Min 1/2" thick- Installed over Approved Polyisocyanurate	16	24	32
Dens Deck Prime - Min 1/4" - Installed over Approved Polyisocyanurate	12	18	24
OSB - Min 7/16" thick - Installed over Approved Polyisocyanurate	17	25	32
Approved OSB/Polyisocyanurate Composite - Min 2" thick	17	25	32

See Notes on next page

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### 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. Insulation fastening density shall not be less than 1 per 2 square feet on fibrous cement and gypsum decks.
6. 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.

### Insulation/Overlayment - Adhesive Attachment

1. **Mule-Hide Helix® MAX Low-Rise Adhesives.** Refer to the specifications and appropriate Helix® MAX Product Data Sheet for acceptable insulations, substrates, and bead spacing.

### Metal Accessories

1. For Warranted Wind Speeds of 55-MPH, all metal copings, gravel stops, fascia, and drip aprons must be either Mule-Hide pre-manufactured Edge Metal, or constructed with TPO Coated Metal with continuous clips as per approved Mule-Hide details.
2. Mule-Hide All Purpose Bar is required when a compression bar termination is specified and must be utilized in conjunction with a counterflashing.
3. For Warranted Winds Speeds greater than 55-MPH, Mule-Hide pre-manufactured Metal Edge must be used.
4. Conventional metal edge details that require flanges to be 'stripped in' with TPO Cover Tape are NOT ALLOWED. In these cases use either TPO Coated Metal details with heat welded TPO membrane stripping or our Mule-Hide pre-manufactured Metal Edge.
5. All metal scuppers must have welded (soldered) seams and continuous flange. Pre-fabricated scuppers are strongly recommended.

### Other Requirements

1. No 'As-Built' projects. All projects are to be reviewed and approved prior to installation.
2. Shop drawings must include all pertinent details.
3. Contact Mule-Hide Technical Department for specific code requirements such as Factory Mutual (FM) or Underwriters Laboratory (UL).

### Warranty Wind Speed (Maximum Peak Gusts)

Wind speed coverage for a specific project will vary depending on a variety of factors, including the deck type, fastening density, building location, height of the roof, and edge details.

**Contact Mule-Hide Technical Department for specific requirements.**

### NOTES:

1. These are enhancements to the Mule-Hide TPO Fully Adhered System Specification, as written in the Mule-Hide TPO Specification Manual. Refer to the Mule-Hide TPO Specification Manual for complete specification and details.
2. The information contained in this document is general information. Requirements may be different for each specific job based on the conditions of each building. Always contact Mule-Hide Technical Department to review the specific job conditions prior to bidding.