



**MULE-HIDE PRODUCTS CO., INC**  
**20-Year Warranty Design Enhancements**  
**For Fully Adhered TPO**  
**Roofing System Specification**

**TPO Systems**

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. 0.060" or 0.080" thick Mule-Hide TPO Reinforced Membranes.
2. Mule-Hide TPO Bonding Adhesive (solvent based)
3. All 'T' joints overlaid with TPO Non-Reinforced Flashing Membrane with heat welded seams.
4. All field seams must be heat welded.

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

Standard Roof Deck (4)	Insulation Fastener (1)	Insulation Plate
Steel (22 gauge or heavier)	Mule-Hide DP #12	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 DP #12	Mule-Hide 3" Metal Stress Plates
Wood Plank (Min 1-1/2" thick)	Mule-Hide DP #12	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. Pullout testing is required, must exceed 360 pounds with TL Fastener.
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 - with full tear-off
3. Recover - all wet materials removed and verification by a Independent 3rd party moisture scan

**Insulation/Overlayment - Mechanical Attachment\***

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 Insulation	16	24	32
Dens Deck Prime - Min 1/4" thick - Installed over Approved Insulation	12	18	24
OSB - Min 7/16" thick - Installed over Approved Insulation	17	25	32
Approved OSB/Polyisocyanurate Composite - Min 2" thick	17	25	32

**\*NOTES:**

1. Thicknesses stated are for single layer of material.
2. Consult Specification Manual for list of approved insulations for use under overlayment.
3. Polyisocyanurate less than 1.5" must have approved overlayment.
4. Insulation fastening density shall not be less than 1 per 2 square feet on fibrous cement and gypsum decks.

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5. Certain codes may require additional fastening requirements.
6. 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. Insta-Stik by Dow Chemical Company - Warranty Application must include a copy of the manufacturers letter of acceptance for the project, including application rates for that specific project. Other Manufactures may be considered, submit prior to bidding.

**Metal Accessories**

1. All Metal copings, gravel stops, fascia, and drip aprons must be either pre-manufactured by Metal-Era, or constructed with TPO Coated Metal 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 by others.
3. Certain Metal accessories by others may be permitted upon Mule-Hide acceptance prior to construction.
4. The Metal-Era Anchor-Tite System must be used when the sheet metal is to be included under the warranty.
5. Conventional metal edge details that require flanges to be 'stripped in' must be construction from TPO coated sheet metal and stripped in with TPO membrane. All seams are to be heat-welded.
6. All metal scuppers must have welded (soldered) seams.

**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, location, height of the roof, and edge details.

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

<b>Wind Speed</b>	<b>Insulation Type or Overlay</b>	<b>Insulation Fastener</b>
55-MPH	Mule-Hide Polyisocyanurate - Min 1.5" thick and Min 20 psi compressive strength	DP-12
72-MPH	Mule-Hide Polyisocyanurate - Min 1.5" thick and Min 25 psi compressive strength	DP-12
80-MPH	Dens Deck Prime - Min 1/2" - Installed over Mule-Hide Polyisocyanurate - Min 1.5" thick and Min 20 psi compressive strength	HD-14
100-MPH	Atlas AC-IV Polyisocyanurate - Min 2" thick	HD-14
100-MPH	OSB - Min 7/16" - Installed over Mule-Hide Polyisocyanurate - Min 1.5" thick and Min 20 psi compressive strength	HD-14
100-MPH	Atlas ACFoam Nail Base - Min 2" thick	HD-14

**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.**