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EVALUATION REPORT

Mule-Hide Products Co., Inc.
1195 Prince Hall Dr.
Beloit, WI 53511

Evaluation Report M31240.11.09-R3
FL10703-R4
Date of Issuance: 11/04/2009
Revision 3: 09/20/2012

SCOPE:

This Evaluation Report is issued under Rule 9N-3 and the applicable rules and regulations governing the use of construction materials in the State of Florida. The documentation submitted has been reviewed by Robert Nieminen, P.E. for use of the product under the Florida Building Code. The product described herein has been designed to comply with the 2010 Florida Building Code sections noted herein.

DESCRIPTION: Mule-Hide EPDM Single Ply Roof Systems

LABELING: Each unit shall bear labeling in accordance with the requirements the Accredited Quality Assurance Agency noted herein.

CONTINUED COMPLIANCE: This Evaluation Report is valid until such time as the named product(s) changes, the referenced Quality Assurance documentation changes, or provisions of the Code that relate to the product change. Acceptance of this Evaluation Report by the named client constitutes agreement to notify Robert Nieminen, P.E. if the product changes or the referenced Quality Assurance documentation changes. Trinity|ERD requires a complete review of this Evaluation Report relative to updated Code requirements with each Code Cycle.

ADVERTISEMENT: The Evaluation Report number preceded by the words "Trinity | ERD Evaluated" may be displayed in advertising literature. If any portion of the Evaluation Report is displayed, then it shall be done in its entirety.

INSPECTION: Upon request, a copy of this entire Evaluation Report shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This Evaluation Report consists of pages 1 through 4, plus an 12-page Appendix.

Prepared by:

Robert J.M. Nieminen, P.E.
Florida Registration No. 59166, Florida DCA ANE1983



The facsimile seal appearing was authorized by Robert Nieminen, P.E. on 09/20/2012. This does not serve as an electronically signed document. Signed, sealed hardcopies have been transmitted to the Product Approval Administrator and to the named client.

CERTIFICATION OF INDEPENDENCE:

1. Exterior Research & Design, LLC. d/b/a Trinity | ERD does not have, nor does it intend to acquire or will it acquire, a financial interest in any company manufacturing or distributing products it evaluates.
2. Exterior Research & Design, LLC. d/b/a Trinity | ERD is not owned, operated or controlled by any company manufacturing or distributing products it evaluates.
3. Robert Nieminen, P.E. does not have nor will acquire, a financial interest in any company manufacturing or distributing products for which the evaluation reports are being issued.
4. Robert Nieminen, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.

ROOFING SYSTEMS EVALUATION:
1. SCOPE:

Product Category: Roofing
Sub-Category: Single Ply Roof Systems
Compliance Statement: Mule-Hide EPDM Single Ply Roof Systems, as produced by Mule-Hide Product Co., have demonstrated compliance with the following sections of the Florida Building Code through testing in accordance with the following Standards. Compliance is subject to the Installation Requirements and Limitations / Conditions of Use set forth herein.

2. STANDARDS:

<u>Section</u>	<u>Property</u>	<u>Standard</u>	<u>Year</u>
1504.3.1	Wind	FM 4474	2004
1504.3.1	Wind	UL 1897	2004
1504.7	Impact	FM 4470	1992
1507.12.2	Physical Properties	ASTM D4637	2004

3. REFERENCES:

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
ERD (TST6049)	Physical Properties	C13920.10.09-1-R2	08/08/2011
ERD (TST6049)	Physical Properties	C13920.10.09-3-R1	11/10/2011
FM Approvals (TST1867)	FM 4470	3B5A1.AM	04/28/1997
FM Approvals (TST1867)	FM 4470	2Z2A8.AM	05/16/1997
FM Approvals (TST1867)	FM 4470	2B2A1.AM	05/29/1997
FM Approvals (TST1867)	FM 4470	3B8Q4.AM	06/04/1997
FM Approvals (TST1867)	FM 4470	4B2A1.AM	06/11/1997
FM Approvals (TST1867)	FM 4470	2Z3A9.AM	07/30/1997
FM Approvals (TST1867)	FM 4470	1B7A5.AM	02/23/1998
FM Approvals (TST1867)	FM 4470	4D9A6.AM	08/03/1998
FM Approvals (TST1867)	FM 4470	2D6A6.AM	10/07/1998
FM Approvals (TST1867)	FM 4470	3003326	04/12/1999
FM Approvals (TST1867)	FM 4470	3000348	04/19/1999
FM Approvals (TST1867)	FM 4470	1B7A4.AM	07/08/1999
FM Approvals (TST1867)	FM 4470	3009502	12/21/2000
FM Approvals (TST1867)	FM 4470	3012458	02/23/2002
FM Approvals (TST1867)	FM 4470	3013584	06/27/2003
FM Approvals (TST1867)	FM 4470	3014692	08/05/2003
FM Approvals (TST1867)	FM 4470	3016162	10/25/2003
FM Approvals (TST1867)	FM 4470	3020353	03/25/2004
FM Approvals (TST1867)	FM 4470/4474	3022181	09/01/2005
FM Approvals (TST1867)	FM 4470/4474	3022187	09/15/2005
FM Approvals (TST1867)	FM 4470/4474	3019897	10/07/2005
FM Approvals (TST1867)	FM 4470/4474	3024994	02/28/2006
FM Approvals (TST1867)	FM 4470/4474	797-04381-267	03/12/2009
FM Approvals (TST1867)	FM 4470/4474	3041535	06/08/2011
FM Approvals (TST1867)	FM 4470/4474	797-06713-267	09/01/2011
UL (TST1740)	UL 1897	03CA16620	12/05/2003
UL LLC (QUA9625)	Quality Control	ML R13850	09/27/2007
UL LLC (QUA9625)	Quality Control	Inspection Report	06/07/2012

4. PRODUCT DESCRIPTION:

The following roof covers are mechanically attached or fully adhered to Approved substrates using fasteners, stress plates and adhesives, as outlined in the Limitations / Conditions of Use herein.

- 4.1 **MULE-HIDE STANDARD BLACK EPDM** are nominal 45-mil (1.1 mm) or 60-mil (1.5 mm) thick, non-reinforced Ethylene Propylene Diene Monomer based roof membranes.
- 4.2 **MULE-HIDE WHITE-ON-BLACK EPDM** is a nominal 60-mil (1.5 mm) thick non-reinforced, bi-laminate, white-on-black, Ethylene Propylene Diene Monomer based roof membrane.
- 4.3 **MULE-HIDE STANDARD REINFORCED EPDM** and **MULE-HIDE FR REINFORCED EPDM** are nominal 45-mil (1.1 mm) or 60-mil (1.5 mm) thick, internally-reinforced Ethylene Propylene Diene Monomer based roof membranes.

5. LIMITATIONS:

- 5.1 This Evaluation Report is not for use in HVHZ.
- 5.2 Refer to a current Roofing Materials Directory for fire ratings of this product.
- 5.3 For steel deck installations, foam plastic insulation shall be separated from the building interior in accordance with FBC 2603.4 unless the exceptions stated in FBC 2603.4.1 or 2603.6 apply.
- 5.4 Unless otherwise noted in Appendix 1, roof decking and its attachment shall be specified and installed to meet project design criteria to the satisfaction of the AHJ.
- 5.5 For recover installations, the existing roof shall be examined in accordance with FBC 1510.
- 5.6 For mechanically attached insulation or membrane or strip-bonded insulation, the maximum design pressure for the selected assembly shall meet or exceed the Zone 1 design pressure determined in accordance with FBC Chapter 16. Zones 2 and 3 shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria. Commonly used methods are RAS 117, RAS 137 and FM LPDS 1-29. Assemblies marked with an asterisk* carry the limitations set forth in Section 2.2.1.5.1(a) of FM LPDS 1-29 for Zone 2/3 enhancements.
- 5.7 For assemblies with all components fully bonded in place, the maximum design pressure for the selected assembly shall meet or exceed critical design pressure determined in accordance with FBC Chapter 16. No rational analysis is permitted for these systems.
- 5.8 For mechanically attached insulation or membrane over existing roof decks, fasteners shall be tested in the existing deck for withdrawal resistance. A qualified design professional shall review the data for comparison to the minimum requirements for the system. Testing and analysis shall be in accordance with TAS 105 or ANSI/SPRI FX-1.
- 5.9 For bonded insulation or membrane over existing substrates in a re-roof (tear off) or recover installation, the existing deck or existing roof surface shall be examined for compatibility with the adhesive to be installed. If any surface conditions exist that bring system performance into question, field uplift testing in accordance with ASTM E907, FM LPDS 1-52, ANSI/SPRI IA-1 or TAS 124 shall be conducted on mock-ups of the proposed new roof assembly.
- 5.10 For bonded insulation or membrane over existing substrates in a recover installation, the existing roof system shall be capable of resisting project design pressures on its own merit to the satisfaction of the AHJ, as documented through field uplift testing in accordance with ASTM E907, FM LPDS 1-52 or TAS 124.
- 5.11 Metal edge attachment (except gutters), shall be designed and installed for wind loads in accordance with FBC Chapter 16 and tested for resistance in accordance with ANSI/SPRI ES-1 or RAS 111, except the basic wind speed shall be determined from FBC Figure 1609.



5.12 All products in the roof assembly shall have quality assurance audit in accordance with the FBC and F.A.C. Rule 9N-3.

6. INSTALLATION:

- 6.1 Mule-Hide EPDM Single Ply Roof Systems shall be installed in accordance with Mule-Hide Products Co., Inc. published installation instructions, subject to the Limitations / Conditions of Use noted below.
- 6.2 System attachment requirements for wind load resistance are set forth in Appendix 1. "MDP" = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads. Refer to FBC 1609.1.5 for determination of design wind pressures.
- 6.3 For mechanically fastened membrane systems (Type D) over profiled steel deck, membrane shall be installed running perpendicular to steel deck flutes.

7. BUILDING PERMIT REQUIREMENTS:

As required by the Building Official or Authority Having Jurisdiction in order to properly evaluate the installation of this product.

8. MANUFACTURING PLANTS:

Contact the named QA entity for manufacturing facilities covered by F.A.C. Rule 9N-3 QA requirements.

9. QUALITY ASSURANCE ENTITY:

UL LLC – QUA9625; (847) 664-3281

- THE 12-PAGES THAT FOLLOW FORM PART OF THIS EVALUATION REPORT -

APPENDIX 1: ATTACHMENT REQUIREMENTS FOR WIND UPLIFT RESISTANCE

Table	Deck	Application	Type	Description	Page
1A	Wood	New, Reroof (Tear-Off), Recover	C	Mechanically Attached Insulation, Bonded Roof Cover	3
1B	Wood	New Construction	F	Non-Insulated, Bonded Roof Cover	3
2A	Steel or Conc.	New, Reroof (Tear-Off), Recover	C	Mechanically Attached Insulation, Bonded Roof Cover	4-6
2B-1	Steel or Conc.	New, Reroof (Tear-Off), Recover	D	Insulated, Mechanically Attached Roof Cover (Stress Plates)	7
2B-2	Steel or Conc.	New, Reroof (Tear-Off), Recover	D	Insulated, Mechanically Attached Roof Cover (Battens)	8
3A	Concrete	New, Reroof (Tear-Off)	A-1	Bonded Insulation, Bonded Roof Cover	9-10
3B	Concrete	New, Reroof (Tear-Off)	F	Non-Insulated, Bonded Roof Cover	10
4A	Various	Recover	A-1	Bonded Insulation, Bonded Roof Cover	11-12

The following notes apply to the systems outlined herein:

- Roof decks shall be in accordance with FBC requirements to the satisfaction of the AHJ. Wind load resistance of the roof deck shall be documented through proper codified and/or FBC Approval documentation.
- Unless otherwise noted, fasteners and stress plates for insulation attachment shall be as follows. Fasteners shall be of sufficient length for the following engagements:
 - Wood Deck: Mule-Hide HDP Fastener with Mule-Hide 3 in. Insulation Plate, OMG #12 or #14 Roofgrip with Flat Bottom Plate, OMG #12 Standard or #14 HD with OMG Standard metal plate, Dekfast #12 or #14 with Hex Plate, Tru-Fast DP or HD with MP-3 Plates. Minimum 3/4-inch plywood penetration, or 1-inch wood plank embedment
 - Steel Deck: Mule-Hide HDP Fastener with Mule-Hide 3 in. Insulation Plate, OMG #12 or #14 Roofgrip with Flat Bottom Plate, OMG #12 Standard or #14 HD with OMG Standard metal plate, Dekfast #12 or #14 with Hex Plate, Tru-Fast DP or HD with MP-3 Plates. Minimum 3/4-inch steel penetration, engage the top flute of the steel deck.
 - Concrete Deck: Mule-Hide HDP Fastener or Mule-Hide CF with Mule-Hide 3 in. Insulation Plate, OMG #14 Roofgrip with Flat Bottom Plate, OMG #14 HD or CD-10 with OMG Standard metal plate, Dekfast #14 or Dekspike with Hex Plate, Tru-Fast HD or CF with MP-3 Plates. Minimum 1-inch embedment. Fasteners installed with a pilot hole in accordance with the fastener manufacturer’s published installation instructions.
- Unless otherwise noted, insulation may be any one layer or combination of polyisocyanurate, polystyrene, wood fiberboard, perlite, DensDeck, DensDeck Prime, DensDeck DuraGuard, SECUROCK Gypsum-Fiber Roof Board or SECUROCK Glass-Mat Roof Board that meets the QA requirements of F.A.C. Rule 9N-3 and is documented as meeting FBC 1505.1 and, for foam plastic, FBC 2603.4.1 or 2603.6, when installed with the roof cover.
- Minimum 200 psi, minimum 2-inch thick lightweight insulating concrete may be substituted for rigid insulation board for System Type D (mechanically attached membrane), whereby the membrane fasteners are installed through the LWIC to engage the structural steel or concrete deck. The structural deck shall be of equal or greater configuration to the steel and concrete deck listings.
- Preliminary insulation attachment for System Type D = Minimum four fasteners per 4 x 8 ft board or minimum two fasteners per 4 x 4 ft board.

6. Unless otherwise noted, insulation adhesive application rates are as follows. Ribbon or bead width is at the time of application; the ribbons/beads shall expand as noted in the manufacturer's published instructions:
 - Hot Asphalt: Applied at a rate of 20-40 lbs./sq.
 - OlyBond 500: Continuous ¾ to 1-inch wide ribbons, 12-inch o.c. using PaceCart or SpotShot application devices.
 - **Note: When multiple layers(s) of insulation and/or coverboard are installed in ribbon-applied adhesive, adhesive ribbons shall be staggered from layer-to-layer a distance of one-half the ribbon spacing.**
 - **Note: The maximum edge distance from the adhesive ribbon to the edge of the insulation board shall be not less than one-half the specified ribbons spacing**
7. Tapered polyisocyanurate may be substituted for the flat stock board with the following Maximum Design Pressure (MDP) limitations:
 - OlyBond 500: MDP -187.5 psf (Min. 0.5-inch thick)
8. Bonded polyisocyanurate insulation boards shall be maximum 4 x 4 ft.
9. For mechanically attached components or partially bonded insulation, the maximum design pressure for the selected assembly shall meet or exceed the Zone 1 design pressure determined in accordance with FBC Chapter 16, and Zones 2 and 3 shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria. Commonly used methods are RAS 117, FM LPDS 1-29 and ANSI/SPRI WD1. Assemblies marked with an asterisk* carry the limitations set forth in Section 2.2.1.5.1(a) of FM LPDS 1-29 for Zone 2/3 enhancements.
10. For fully bonded assemblies, the maximum design pressure for the selected assembly shall meet or exceed critical design pressure determined in accordance with FBC Chapter 16, and no rational analysis is permitted.
11. For mechanically attached components over existing decks, fasteners shall be tested in the existing deck for withdrawal resistance. A qualified design professional shall review the data for comparison to the minimum requirements for the system. Testing shall be in accordance with TAS 105 or ANSI/SPRI FX-1.
12. For existing substrates in a bonded recover or re-roof installation, the existing roof surface or existing roof deck shall be examined for compatibility and bond performance with the selected adhesive, and the existing roof system (for recover) shall be capable of resisting project design pressures on its own merit to the satisfaction of the AHJ, as documented through field uplift testing in accordance with ASTM E907, FM LPDS 1-52, ANSI/SPRI IA-1 or TAS 124.
13. For System Type D, steel deck applications, the roof membrane shall be run with its length perpendicular to the steel deck flutes.
14. For Recover Applications using System Type D, the insulation is optional. Alternatively, min. 0.25-inch to 0.625-inch DensDeck, DensDeck Prime, SECUROCK Gypsum-Fiber Roof Board or SECUROCK Glass-Mat Roof Board may be used as a separator board, preliminarily attached prior to roof cover installation. The existing roof system shall be suitable for a recover application.
15. For membrane attachment using batten-strips, end laps shall be spliced with sufficient dimension to allow for minimum 2-fasteners at each batten-strip lap.
16. Side laps shall be sealed in accordance with Mule-Hide requirements:
 - Primed with Mule-Hide Tape Primer and adhered with Mule-Hide In-Seam Tape
 - Cleaned with Mule-Hide Splice Cleaner and adhered with Mule-Hide Black or White Splice Adhesive.
17. Membrane adhesive application rates are as follows:
 - Mule-Hide Bonding Adhesive in a contact application at combined rate of 60 ft²/gal.
 - WBBA 2000 in a contact application at a combined rate of 50 to 60 ft²/gal.
 - Mule-Hide Acrylic Water Base Bonding Adhesive in a substrate application at rate of 100 ft²/gal.
18. **"MDP" = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads. Refer to FBC 1609.1.5 for determination of design wind loads.**

TABLE 1A: WOOD DECKS - NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER							
SYSTEM TYPE C: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER							
System No.	Deck (See Note 1)	Base Insulation Layer	Top Insulation Layer			Roof Cover / Adhesive	MDP (psf)
			Type	Fasteners	Attach		
W-1	Min. 19/32" plywood or wood plank at max. 24" spans attached using 8d ring shank nails spaced 6" o.c.	(Optional) One or more layers, any combination, loose laid	Min. 0.5-inch thick HP Recovery Board, Fiber Base HD1, GP High Density Roof Fiberboard, min. 0.25-inch thick DensDeck, DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board, min. 1.5-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, H-Shield CG, ENRGY 3, PSI-25, Multi-Max FA-3	See Note 2	1 per 2 ft ²	Mule-Hide White-on-Black EPDM / Mule-Hide Bonding Adhesive	-45.0*
W-2	Min. 19/32" plywood or wood plank at max. 24" spans attached using 8d ring shank nails spaced 6" o.c.	(Optional) One or more layers, any combination, loose laid	Min. 1.5-inch Poly ISO 2 WF, ACFoam Composite/FB, Polyiso HP-H Composite, H-Shield-WF, ENRGY 3 Plus	See Note 2	1 per 3 ft ²	Mule-Hide White-on-Black EPDM / Mule-Hide Bonding Adhesive	-45.0*
W-3	Min. 19/32" plywood or wood plank at max. 24" spans attached using 8d ring shank nails spaced 6" o.c.	(Optional) One or more layers, any combination, loose laid	Min. 2.0-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, H-Shield CG, ENRGY 3, PSI-25, Multi-Max FA-3	See Note 2	1 per 4 ft ²	Mule-Hide White-on-Black EPDM / Mule-Hide Bonding Adhesive	-45.0*

TABLE 1B: WOOD DECKS - NEW CONSTRUCTION				
SYSTEM TYPE F: NON-INSULATED, BONDED ROOF COVER				
System No.	Roof Deck	Roof Cover		MDP (psf)
		Membrane	Application	
W-4	Min. 7/16" thick, UL Classified Mule-Hide FR Deck Panel A or FR Deck Panel C attached to wood supports spaced max. 24" o.c. using No. 8 x 2½-inch long course thread screws spaced 6" o.c. at all supports.	Mule-Hide Standard EPDM, FR EPDM or White-on-Black EPDM	Mule-Hide Acrylic Water Base Bonding Adhesive at 1 gal/100 ft ²	-120.0

**TABLE 2A: STEEL or CONCRETE DECKS - NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE C: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER**

System No.	Deck (See Note 1)	Base Insulation Layer	Top Insulation Layer			Roof Cover / Adhesive	MDP (psf)
			Type	Fasteners	Attach		
MEMBRANE APPLIED IN MULE-HIDE BONDING ADHESIVE:							
SC-1	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	(Optional) One or more layers, any combination, loose laid	Min. 0.5-inch thick HP Recovery Board, Fiber Base HD1, GP High Density Roof Fiberboard, min. 0.25-inch thick DensDeck, DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board, min. 1.5-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, H-Shield CG, ENRGY 3, PSI-25, Multi-Max FA-3	See Note 2	1 per 2 ft ²	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM / Mule-Hide Bonding Adhesive	-45.0*
SC-2	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	(Optional) One or more layers, any combination, loose laid	Min. 1.5-inch Poly ISO 2 WF, ACFoam Composite/FB, Polyiso HP-H Composite, H-Shield-WF, ENRGY 3 Plus	See Note 2	1 per 3 ft ²	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM / Mule-Hide Bonding Adhesive	-45.0*
SC-3	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	(Optional) One or more layers, any combination, loose laid	Min. 2.0-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, H-Shield CG, ENRGY 3, PSI-25, Multi-Max FA-3	See Note 2	1 per 4 ft ²	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM / Mule-Hide Bonding Adhesive	-45.0*
SC-4	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	Min. 0.5-inch DensDeck, DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board, followed by min. 1.5-inch STYROFOAM DECKMATE Plus FA	Min. 0.5-inch DensDeck, DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board	Mule-Hide HDP Fastener or Mule-Hide CF (<i>concrete only</i>) with Mule-Hide 3 in. Insulation Plate	1 per 1.3 ft ²	Mule-Hide Standard Reinforced EPDM or FR Reinforced EPDM / Mule-Hide Bonding Adhesive	-67.5
SC-5	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	Min. 1.5-inch Approved polyisocyanurate	Min. 0.5-inch DensDeck, DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board	Mule-Hide HDP Fastener or Mule-Hide CF (<i>concrete only</i>) with Mule-Hide 3 in. Insulation Plate	1 per 1.3 ft ²	Mule-Hide Standard Reinforced EPDM or FR Reinforced EPDM / Mule-Hide Bonding Adhesive	-67.5

**TABLE 2A: STEEL or CONCRETE DECKS - NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE C: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER**

System No.	Deck (See Note 1)	Base Insulation Layer	Top Insulation Layer			Roof Cover / Adhesive	MDP (psf)
			Type	Fasteners	Attach		
SC-6	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	(Optional) One or more layers, any combination, loose laid	Min. 2.0-inch Poly ISO 2, ACFoam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield or ENRGY 3.	Mule-Hide HDP Fastener or Mule-Hide CF (<i>concrete only</i>) with Mule-Hide 3 in. Insulation Plate	1 per 1.6 ft ²	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM / Mule-Hide Bonding Adhesive	-75.0
SC-7	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	Min. 1.5-inch Approved polyisocyanurate	Min. 0.5-inch SECUROCK Gypsum-Fiber Roof Board	Mule-Hide HDP Fastener or Mule-Hide CF (<i>concrete only</i>) with Mule-Hide 3 in. Insulation Plate	1 per 1.6 ft ²	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM / Mule-Hide Bonding Adhesive	-75.0
SC-8	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	Min. 0.5-inch DensDeck, DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board, followed by min. 1.5-inch STYROFOAM DECKMATE Plus FA	Min. 0.5-inch DensDeck, DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board	Mule-Hide HDP Fastener or Mule-Hide CF (<i>concrete only</i>) with Mule-Hide 3 in. Insulation Plate	1 per 1 ft ²	Mule-Hide Standard Reinforced EPDM or FR Reinforced EPDM / Mule-Hide Bonding Adhesive	-97.5
SC-9	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	Min. 1.5-inch Approved polyisocyanurate	Min. 0.5-inch DensDeck, DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board	Mule-Hide HDP Fastener or Mule-Hide CF (<i>concrete only</i>) with Mule-Hide 3 in. Insulation Plate	1 per 1 ft ²	Mule-Hide Standard Reinforced EPDM or FR Reinforced EPDM / Mule-Hide Bonding Adhesive	-97.5
MEMBRANE APPLIED IN WBBA 2000 ADHESIVE:							
SC-10	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	(Optional) One or more layers, any combination, loose laid	Min. 0.5-inch HP Recovery Board or min. 0.25-inch DensDeck Prime	Mule-Hide HDP Fastener or Mule-Hide CF (<i>concrete only</i>) with Mule-Hide 3 in. Insulation Plate	1 per 4 ft ²	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM / WBBA 2000	-30.0*
SC-11	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	None	Min. 0.5-inch HP Recovery Board	Mule-Hide HDP Fastener or Mule-Hide CF (<i>concrete only</i>) with Mule-Hide 3 in. Insulation Plate	1 per 2 ft ²	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM / WBBA 2000	-37.5*
SC-12	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	Min. 1.5-inch Poly ISO 2, ACFoam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3	Min. 0.5-inch HP Recovery Board	Mule-Hide HDP Fastener or Mule-Hide CF (<i>concrete only</i>) with Mule-Hide 3 in. Insulation Plate	1 per 2 ft ²	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM / WBBA 2000	-45.0*

**TABLE 2A: STEEL or CONCRETE DECKS - NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE C: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER**

System No.	Deck (See Note 1)	Base Insulation Layer	Top Insulation Layer			Roof Cover / Adhesive	MDP (psf)
			Type	Fasteners	Attach		
SC-13	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	(Optional) One or more layers, any combination, loose laid	Min. 1.5-inch Poly ISO 2, ACFoam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3, min. 7/16" APA Rated oriented strand board or min. 0.25-inch DensDeck Prime	Mule-Hide HDP Fastener or Mule-Hide CF (<i>concrete only</i>) with Mule-Hide 3 in. Insulation Plate	1 per 2 ft ²	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM / WBBA 2000	-45.0*
MEMBRANE APPLIED IN MULE-HIDE ACRYLIC WATER BASE BONDING ADHESIVE:							
SC-14	Min. 22 ga., type B, Grade 33 steel at max. 6 ft spans attached 6-inch o.c. with two(2) Traxx/5 screws and 3/4-inch washers at each attachment point or min. 2,500 psi conc.	Min. 0.25-inch DensDeck or SECUROCK Gypsum-Fiber Roof Board or Min. 1.5-inch Poly ISO 1 or H-Shield, loose laid.	Min. 7/16-inch APA rated OSB	Mule-Hide HD Fasteners and Mule-Hide 3 in. Insulation Plates or Tru-Fast HD Fasteners and MP-3 plates	1 per 1.33 ft ²	Mule-Hide Standard Black EPDM / Mule-Hide Acrylic Water Base Bonding Adhesive	-105.0
SC-15	Min. 22 ga., type B, Grade 33 steel at max. 6 ft spans attached 6-inch o.c. with two(2) Traxx/5 screws and 3/4-inch washers at each attachment point or min. 2,500 psi conc.	(Optional) Min. 0.25-inch DensDeck or SECUROCK Gypsum-Fiber Roof Board or Min. 1.5-inch Poly ISO 1 or H-Shield, loose laid.	Min. 2-inch Poly ISO 1-NB or H-Shield NB or Min. 3-inch Poly ISO 1 Cool-Vent or Cool-Vent	Mule-Hide HD Fasteners and Mule-Hide 3 in. Insulation Plates or Tru-Fast HD Fasteners and MP-3 plates	1 per 1.33 ft ²	Mule-Hide Standard Black EPDM / Mule-Hide Acrylic Water Base Bonding Adhesive	-105.0
SC-16	Min. 22 ga., type B, Grade 33 steel at max. 6 ft spans attached 6-inch o.c. with two(2) Traxx/5 screws and 3/4-inch washers at each attachment point or min. 2,500 psi conc.	Min. 0.25-inch DensDeck or SECUROCK Gypsum-Fiber Roof Board or Min. 1.5-inch Poly ISO 1 or H-Shield, loose laid.	Min. 7/16-inch APA rated OSB	Mule-Hide HD Fasteners and Mule-Hide 3 in. Insulation Plates or Tru-Fast HD Fasteners and MP-3 plates	1 per 1 ft ²	Mule-Hide Standard Black EPDM / Mule-Hide Acrylic Water Base Bonding Adhesive	-150.0
SC-17	Min. 22 ga., type B, Grade 33 steel at max. 6 ft spans attached 6-inch o.c. with two(2) Traxx/5 screws and 3/4-inch washers at each attachment point or min. 2,500 psi conc.	(Optional) Min. 0.25-inch DensDeck or SECUROCK Gypsum-Fiber Roof Board or Min. 1.5-inch Poly ISO 1 or H-Shield, loose laid.	Min. 2-inch Poly ISO 1-NB or H-Shield NB or Min. 3-inch Poly ISO 1 Cool-Vent or Cool-Vent	Mule-Hide HD Fasteners and Mule-Hide 3 in. Insulation Plates or Tru-Fast HD Fasteners and MP-3 plates	1 per 1 ft ²	Mule-Hide Standard Black EPDM / Mule-Hide Acrylic Water Base Bonding Adhesive	-150.0

**TABLE 2B-1: STEEL or CONCRETE DECKS - NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE D: INSULATED, MECHANICALLY ATTACHED ROOF COVER (STRESS PLATES)**

System No.	Deck	Insulation		Roof Cover			MDP (psf)
		Type	Attachment	Membrane	Fasteners	Attachment	
SC-18	Min. 22 ga, type B, Grade 33 steel or structural concrete	Min. 1.5" thick, one or more layers, any combination	Preliminarily attached	Mule-Hide Standard Reinforced or FR Reinforced EPDM	Mule-Hide HD Fasteners or Mule-Hide CF (concrete only) with Mule-Hide Polymer Seam Plates	6-inch o.c. within 6-inch wide laps spaced 114-inch o.c.	-37.5
SC-19	Min. 22 ga, type B, Grade 33 steel or structural concrete	Min. 1.5" thick, one or more layers, any combination	Preliminarily attached	Mule-Hide Standard Reinforced or FR Reinforced EPDM	Mule-Hide HD Fasteners or Mule-Hide CF (concrete only) with Mule-Hide Polymer Seam Plates	6-inch o.c. within 6-inch wide laps spaced 78-inch o.c.	-52.5
SC-20	Min. 22 ga, type B, Grade 40 steel or structural concrete	Min. 1.5" thick, one or more layers, any combination	Preliminarily attached	Mule-Hide Standard Reinforced or FR Reinforced EPDM (0.070" thick)	Mule-Hide HD Fasteners or Mule-Hide CF (concrete only) with Mule-Hide Polymer Seam Plates	6-inch o.c. within 6-inch wide laps spaced 114-inch o.c.	-52.5
SC-21	Min. 22 ga, type B, Grade 80 steel or structural concrete	Min. 1.5" thick, one or more layers, any combination	Preliminarily attached	Mule-Hide Standard Reinforced or FR Reinforced EPDM	Mule-Hide HD Fasteners or Mule-Hide CF (concrete only) with Mule-Hide Polymer Seam Plates	6-inch o.c. within 6-inch wide laps spaced 114-inch o.c.	-52.5

**TABLE 2B-2: STEEL or CONCRETE DECKS - NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE D: INSULATED, MECHANICALLY ATTACHED ROOF COVER (BATTENS)**

System No.	Deck	Insulation		Roof Cover			MDP (psf)
		Type	Attachment	Membrane	Fasteners	Attachment	
SC-22	Min. 22 ga, type B, Grade 40 steel or structural concrete	Min. 1.5" thick, one or more layers, any combination	Preliminarily attached	Mule-Hide Standard Reinforced or FR Reinforced EPDM	Mule-Hide EHD Fasteners (steel only) or Mule-Hide CF (concrete only) with Sure-Seal Metal Fastening Bars or Sure-Tite Fasteners with ST Membrane Fastening Bars	Fasteners 12-inch o.c. through batten within 6-inch wide laps spaced 114-inch o.c.	-30.0
SC-23	Min. 22 ga, type B, Grade 80 steel or structural concrete	Min. 1.5" thick, one or more layers, any combination	Preliminarily attached	Mule-Hide Standard Reinforced or FR Reinforced EPDM	Mule-Hide EHD Fasteners (steel only) or Mule-Hide CF (concrete only) with Sure-Seal Metal Fastening Bars or Sure-Tite Fasteners with ST Membrane Fastening Bars	Fasteners 12-inch o.c. through batten within 6-inch wide laps spaced 114-inch o.c.	-37.5
SC-24	Min. 22 ga, type B, Grade 40 steel or structural concrete	Min. 1.5" thick, one or more layers, any combination	Preliminarily attached	Mule-Hide Standard Reinforced or FR Reinforced EPDM	Mule-Hide EHD Fasteners (steel only) or Mule-Hide CF (concrete only) with Sure-Seal Metal Fastening Bars or Sure-Tite Fasteners with ST Membrane Fastening Bars	Fasteners 12-inch o.c. through batten within 6-inch wide laps spaced 78-inch o.c.	-45.0
SC-25	Min. 22 ga, type B, Grade 80 steel or structural concrete	Min. 1.5" thick, one or more layers, any combination	Preliminarily attached	Mule-Hide Standard Reinforced or FR Reinforced EPDM	Sure-Tite Fasteners with ST Membrane Fastening Bars	Fasteners 12-inch o.c. through batten within 6-inch wide laps spaced 114-inch o.c.	-45.0
SC-26	Min. 22 ga, type B, Grade 40 steel or structural concrete	Min. 1.5" thick, one or more layers, any combination	Preliminarily attached	Mule-Hide Standard Reinforced or FR Reinforced EPDM	Mule-Hide EHD Fasteners (steel only) or Mule-Hide CF (concrete only) with Sure-Seal Metal Fastening Bars or Sure-Tite Fasteners with ST Membrane Fastening Bars	Fasteners 6-inch o.c. through batten within 6-inch wide laps spaced 114-inch o.c.	-52.5
SC-27	Min. 22 ga, type B, Grade 80 steel or structural concrete	Min. 1.5" thick, one or more layers, any combination	Preliminarily attached	Mule-Hide Standard Reinforced or FR Reinforced EPDM	Mule-Hide EHD Fasteners (steel only) or Mule-Hide CF (concrete only) with Sure-Seal Metal Fastening Bars or Sure-Tite Fasteners with ST Membrane Fastening Bars	Fasteners 6-inch o.c. through batten within 6-inch wide laps spaced 114-inch o.c.	-60.0
SC-28	Min. 22 ga, type B, Grade 40 steel or structural concrete	Min. 1.5" thick, one or more layers, any combination	Preliminarily attached	Mule-Hide Standard Reinforced or FR Reinforced EPDM	Mule-Hide EHD Fasteners (steel only) or Mule-Hide CF (concrete only) with Sure-Seal Metal Fastening Bars or Sure-Tite Fasteners with ST Membrane Fastening Bars	Fasteners 6-inch o.c. through batten within 6-inch wide laps spaced 78-inch o.c.	-67.5
SC-29	Min. 22 ga, type B, Grade 80 steel or structural concrete	Min. 1.5" thick, one or more layers, any combination	Preliminarily attached	Mule-Hide Standard Reinforced or FR Reinforced EPDM	Mule-Hide EHD Fasteners (steel only) or Mule-Hide CF (concrete only) with Sure-Seal Metal Fastening Bars or Sure-Tite Fasteners with ST Membrane Fastening Bars	Fasteners 6-inch o.c. through batten within 6-inch wide laps spaced 78-inch o.c.	-75.0

**TABLE 3A: CONCRETE DECKS – NEW CONSTRUCTION or REROOF (Tear-Off)
SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**

System No.	Roof Deck	Base Insulation Layer		Top Insulation Layer		Roof Cover		MDP (psf)
		Type	Attach	Type	Attach	Membrane	Application	
MEMBRANE APPLIED IN MULE-HIDE BONDING ADHESIVE:								
C-1.	Min. 2,500 psi concrete (primed)	Min. 1.5-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, ENRGY 3	Hot Asphalt	(Optional) Additional layers of base insulation	Hot Asphalt	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-330.0
C-2.	Min. 2,500 psi concrete (primed)	Min. 1.5-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, ENRGY 3	Hot Asphalt	Min 0.5-inch HP Recover Board, GP High Density Roof Fiberboard or Temple Fiber Base HD1 or HD6	Hot Asphalt	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-330.0
C-3.	Min. 2,500 psi concrete (primed)	Min. 1.5-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, ENRGY 3	Hot Asphalt	Min. 0.25-inch DensDeck, DensDeck Prime	Hot Asphalt	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-352.5
C-4.	Min. 2,500 psi concrete	Min. 1.5-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, ENRGY 3	OlyBond 500	(Optional) Additional layers of base insulation	OlyBond 500	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-150.0
C-5.	Min. 2,500 psi concrete	Min. 1.5-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, ENRGY 3	OlyBond 500	Min 0.5-inch HP Recover Board, GP High Density Roof Fiberboard or Temple Fiber Base HD1 or HD6	OlyBond 500	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-120.0
C-6.	Min. 2,500 psi concrete	Min. 1.5-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, ENRGY 3	OlyBond 500	Min. 0.25-inch DensDeck, DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board	OlyBond 500	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-150.0
C-7.	Min. 2,500 psi concrete	Min. 1.0-inch Foamular 250	OlyBond 500	Min 0.5-inch HP Recover Board, GP High Density Roof Fiberboard or Temple Fiber Base HD1 or HD6	OlyBond 500	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-120.0
C-8.	Min. 2,500 psi concrete	Min. 2.0-inch, min. 1.0 pcf, FM Approved ASTM C578 expanded polystyrene	OlyBond 500	Min. 0.25-inch DensDeck or DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board	OlyBond 500	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-120.0
C-9.	Min. 2,500 psi concrete	Min. 1.0-inch STYROFOAM DECKMATE Plus FA	OlyBond 500	Min. 0.25-inch DensDeck, DensDeck Prime	OlyBond 500	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-232.5
C-10.	Min. 2,500 psi concrete	Min. 1.0-inch Foamular 250	OlyBond 500	Min. 0.25-inch DensDeck or DensDeck Prime	OlyBond 500	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-277.5

**TABLE 3A: CONCRETE DECKS – NEW CONSTRUCTION or REROOF (Tear-Off)
SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**

System No.	Roof Deck	Base Insulation Layer		Top Insulation Layer		Roof Cover		MDP (psf)
		Type	Attach	Type	Attach	Membrane	Application	
MEMBRANE APPLIED IN WBBA 2000 ADHESIVE:								
C-11.	Min. 2,500 psi concrete	Min. 1.5-inch Poly ISO 2, ACFoam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3	Hot Asphalt	(Optional) Additional layers of base insulation	Hot Asphalt	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	WBBA 2000	-105.0
C-12.	Min. 2,500 psi concrete	(Optional) Min. 1.5-inch Poly ISO 2, ACFoam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3	Hot Asphalt	Min. 0.5-inch HP Recovery Board	Hot Asphalt	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	WBBA 2000	-90.0
C-13.	Min. 2,500 psi concrete	(Optional) Min. 1.5-inch Poly ISO 2, ACFoam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3	Hot Asphalt	Min. 0.25-inch DensDeck Prime	Hot Asphalt	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	WBBA 2000	-165.0
C-14.	Min. 2,500 psi concrete	Min. 1.5-inch Poly ISO 2, ACFoam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3	OlyBond 500	(Optional) Additional layers of base insulation	OlyBond 500	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	WBBA 2000	-105.0
C-15.	Min. 2,500 psi concrete	(Optional) Min. 1.5-inch Poly ISO 2, ACFoam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3	OlyBond 500	Min. 0.5-inch HP Recovery Board	OlyBond 500	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	WBBA 2000	-90.0
C-16.	Min. 2,500 psi concrete	(Optional) Min. 1.5-inch Poly ISO 2, ACFoam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3	OlyBond 500	Min. 0.25-inch DensDeck Prime	OlyBond 500	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	WBBA 2000	-150.0

**TABLE 3B: CONCRETE DECKS – NEW CONSTRUCTION or REROOF (Tear-Off)
SYSTEM TYPE F: NON-INSULATED, BONDED ROOF COVER**

System No.	Roof Deck	Roof Cover		MDP (psf)
		Membrane	Application	
C-17.	Min. 2,500 psi concrete	Mule-Hide White-on-Black EPDM	Mule-Hide Bonding Adhesive	-240.0

**TABLE 4A: RECOVER APPLICATIONS
SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**

System No.	Substrate (See Note 12)	Base Insulation Layer		Top Insulation Layer		Roof Cover		MDP (psf)
		Type	Attach	Type	Attach	Membrane	Application	
MEMBRANE APPLIED IN MULE-HIDE BONDING ADHESIVE:								
R-1	Existing asphaltic BUR	Min. 1.5-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, ENRGY 3	Hot Asphalt	(Optional) Additional layers of base insulation	Hot Asphalt	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-330.0
R-2	Existing asphaltic BUR	Min. 1.5-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, ENRGY 3	Hot Asphalt	Min 0.5-inch HP Recover Board, GP High Density Roof Fiberboard or Temple Fiber Base HD1 or HD6	Hot Asphalt	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-330.0
R-3	Existing asphaltic BUR	Min. 1.5-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, ENRGY 3	Hot Asphalt	Min. 0.25-inch DensDeck, DensDeck Prime	Hot Asphalt	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-352.5
R-4	Existing asphaltic BUR or mineral surface cap	Min. 1.5-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, ENRGY 3	OlyBond 500	(Optional) Additional layers of base insulation	OlyBond 500	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-120.0
R-5	Existing asphaltic BUR or mineral surface cap	Min. 1.5-inch Poly ISO 2, ACFoam II, ACFoam III, Polyiso HP-H, HP-N, HP-W, ENRGY 3	OlyBond 500	Min 0.5-inch HP Recover Board, GP High Density Roof Fiberboard or Temple Fiber Base HD1 or HD6 or min. 0.25-inch DensDeck or DensDeck Prime	OlyBond 500	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-120.0
R-6	Existing asphaltic BUR or mineral surface cap	Min. 1.0-inch Foamular 250 or STYROFOAM DECKMATE Plus FA or min. 2.0-inch, min. 1.0 pcf, FM Approved ASTM C578 expanded polystyrene	OlyBond 500	Min 0.5-inch HP Recover Board, GP High Density Roof Fiberboard or Temple Fiber Base HD1 or HD6 or min. 0.25-inch DensDeck or DensDeck Prime	OlyBond 500	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-120.0
R-7	Existing asphaltic BUR or mineral surface cap	Min. 1.0-inch Foamular 250	OlyBond 500	Min. 0.25-inch DensDeck or DensDeck Prime	OlyBond 500	Mule-Hide Standard Black EPDM, White-on-Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	Mule-Hide Bonding Adhesive	-120.0

**TABLE 4A: RECOVER APPLICATIONS
SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**

System No.	Substrate (See Note 12)	Base Insulation Layer		Top Insulation Layer		Roof Cover		MDP (psf)
		Type	Attach	Type	Attach	Membrane	Application	
MEMBRANE APPLIED IN WBBA 2000 ADHESIVE:								
R-8	Existing asphaltic BUR	Min. 1.5-inch Poly ISO 2, AC Foam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3	Hot Asphalt	(Optional) Additional layers of base insulation	Hot Asphalt	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	WBBA 2000	-105.0
R-9	Existing asphaltic BUR	(Optional) Min. 1.5-inch Poly ISO 2, AC Foam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3	Hot Asphalt	Min. 0.5-inch HP Recovery Board	Hot Asphalt	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	WBBA 2000	-90.0
R-10	Existing asphaltic BUR	(Optional) Min. 1.5-inch Poly ISO 2, AC Foam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3	Hot Asphalt	Min. 0.25-inch DensDeck Prime	Hot Asphalt	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	WBBA 2000	-165.0
R-11	Existing asphaltic BUR or mineral surface cap	Min. 1.5-inch Poly ISO 2, AC Foam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3	OlyBond 500	(Optional) Additional layers of base insulation	OlyBond 500	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	WBBA 2000	-105.0
R-12	Existing asphaltic BUR or mineral surface cap	(Optional) Min. 1.5-inch Poly ISO 2, AC Foam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3	OlyBond 500	Min. 0.5-inch HP Recovery Board	OlyBond 500	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	WBBA 2000	-90.0
R-13	Existing asphaltic BUR or mineral surface cap	(Optional) Min. 1.5-inch Poly ISO 2, AC Foam II, Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3	OlyBond 500	Min. 0.25-inch DensDeck Prime	OlyBond 500	Mule-Hide Standard Black EPDM, Standard Reinforced EPDM or FR Reinforced EPDM	WBBA 2000	-150.0