



**EXTERIOR RESEARCH & DESIGN, LLC.**

*Certificate of Authorization #9503*

353 Christian Street

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(203) 262-9245

**EVALUATION REPORT**

**Mule-Hide Products Co., Inc.**

1195 Prince Hall Drive

Beloit, WI 53511

**(608) 365-3111**

**Evaluation Report 10900.02.16-1-R2**

**FL19968-R2**

**Date of Issuance: 02/18/2016**

**Revision 2: 09/18/2017**

**SCOPE:**

This Evaluation Report is issued under **Rule 61G20-3** 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 evaluated for compliance with the **6<sup>th</sup> Edition (2017) Florida Building Code** sections noted herein.

**DESCRIPTION: Mule-Hide PVC and PVC/KEE Single Ply Roof Systems**

**LABELING:** Labeling shall be 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.

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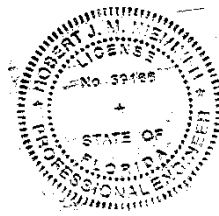
**INSPECTION:** Upon request, a copy of this entire Evaluation Report shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This Evaluation Report consists of pages 1 through 5, plus a 21-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 09/18/2017. This does not serve as an electronically signed document.

**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.
5. This is a building code evaluation. Neither Trinity|ERD nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.

**ROOFING SYSTEMS EVALUATION:**
**1. SCOPE:**
**Product Category:** Roofing

**Sub-Category:** Single Ply Roof Systems

**Compliance Statement:** Mule-Hide PVC and PVC/KEE Single Ply Roof Systems, as produced by Mule-Hide Products Co., Inc., have demonstrated compliance with the following sections of the 6<sup>th</sup> Edition (2017) 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	2011
1504.7	Impact	FM 4470	2012
1507.13.2	Physical Properties	ASTM D4434	2012
1523.6.2	Wind	TAS 114	2011

**3. REFERENCES:**

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
ACRC (TST4671)	TAS 114	07-052	08/30/2007
ACRC (TST4671)	TAS 114	10-008	04/23/2010
ACRC (TST4671)	TAS 114	11-037	06/29/2011
ATI (TST1558)	TAS 114	91340.01-111-47	05/06/2009
ATI (TST1558)	TAS 114	C1141.01-109-18	09/11/2012
CTL (TST 1577)	TAS 114	CTLA-105R	10/13/2008
CTL (TST 1577)	TAS 114	CTLA-105R-1	10/13/2008
CTL (TST 1577)	TAS 114	CTLA-105R-2	10/13/2008
CTL (TST 1577)	TAS 114	CTLA-106R	10/16/2008
CTL (TST 1577)	TAS 114	CTLA-106R-1	10/16/2008
CTL (TST 1577)	TAS 114	CTLA-106R-2	10/16/2008
CTL (TST 1577)	TAS 114	CTLA-106R-3	10/16/2008
CTL (TST 1577)	TAS 114	CTLA-106R-4	10/16/2008
CTL (TST 1577)	TAS 117	CTLA 111R	01/13/2009
ERD (TST 6049)	Physical Properties	F35940.12.11-R3	10/04/2012
ERD (TST 6049)	Physical Properties	CRL-SC7165.07.16-1-01	07/20/2016
ERD (TST 6049)	Physical Properties	CRL-SC7165.07.16-2-01	07/20/2016
ERD (TST 11294)	FM 4474	CTL13380.01.17	01/27/2017
ERD (TST 11294)	FM 4474	CTL16160.08.17-1 (CRL-S11)	08/28/2017
ERD (TST 11294)	FM 4474	CTL16160.08.17-2 (CRL-S10)	08/28/2017
ERD (TST 6049)	Physical Properties	CRL-SC12065.06.17-1-R1	08/28/2017
FM Approvals (TST1867)	FM 4470	3000066	06/23/1999
FM Approvals (TST1867)	FM 4470	3013584	06/27/2003
FM Approvals (TST1867)	FM 4470	3014692	08/05/2003
FM Approvals (TST1867)	FM 4470/FM 4474	3019897	10/07/2005
FM Approvals (TST1867)	FM 4470/FM 4474	3021764	01/11/2006
FM Approvals (TST1867)	FM 4470/FM 4474	3021941	03/20/2006
FM Approvals (TST1867)	FM 4470/FM 4474	3025919	03/20/2006
FM Approvals (TST1867)	FM 4470/FM 4474	3023458	07/18/2006
FM Approvals (TST1867)	FM 4470/FM 4474	3028478	01/05/2007
FM Approvals (TST1867)	FM 4470/FM 4474	3026964	07/25/2007
FM Approvals (TST1867)	FM 4470/FM 4474	3028438	08/22/2007
FM Approvals (TST 1867)	FM 4470/FM 4474	3031350	09/27/2007
FM Approvals (TST1867)	FM 4470/FM 4474	3028154	11/16/2007
FM Approvals (TST1867)	FM 4470/FM 4474	3026951	01/21/2008
FM Approvals (TST1867)	FM 4470/FM 4474	3031349	05/13/2008

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
FM Approvals (TST1867)	FM 4470/FM 4474	3034066	04/14/2009
FM Approvals (TST1867)	FM 4470/FM 4474	3037400	09/08/2009
FM Approvals (TST1867)	FM 4470/FM 4474	3039344	07/13/2010
FM Approvals (TST1867)	FM 4470/FM 4474	3039344	07/14/2010
FM Approvals (TST1867)	FM 4470/FM 4474	3040449	07/15/2010
FM Approvals (TST1867)	FM 4470/FM 4474	3038140	08/04/2010
FM Approvals (TST1867)	FM 4470/FM 4474	3040639	08/11/2010
FM Approvals (TST1867)	FM 4470/FM 4474	3040639	08/13/2010
FM Approvals (TST1867)	FM 4470/FM 4474	3040639	10/06/2010
FM Approvals (TST1867)	FM 4470/FM 4474	3040639	10/17/2010
FM Approvals (TST1867)	FM 4470/FM 4474	3039344	04/07/2011
FM Approvals (TST1867)	FM 4470/FM 4474	3043437	06/03/2011
FM Approvals (TST1867)	FM 4470/FM 4474	3041535	06/08/2011
FM Approvals (TST1867)	FM 4470/FM 4474	3043858	08/23/2011
FM Approvals (TST1867)	FM 4470/FM 4474	3043859	08/23/2011
FM Approvals (TST1867)	FM 4470/FM 4474	3043858	08/25/2011
FM Approvals (TST1867)	FM 4470/FM 4474	3041797	10/13/2011
FM Approvals (TST1867)	FM 4470/FM 4474	3039073	11/22/2011
FM Approvals (TST1867)	FM 4470/FM 4474	3043427	12/01/2011
FM Approvals (TST1867)	FM 4470/FM 4474	3043859	12/16/2011
FM Approvals (TST1867)	FM 4470/FM 4474	3040260	02/27/2012
FM Approvals (TST1867)	FM 4470/FM 4474	3043859	03/19/2012
FM Approvals (TST1867)	FM 4470/FM 4474	3039344	06/14/2012
FM Approvals (TST1867)	FM 4470/FM 4474	3047327	09/13/2012
FM Approvals (TST1867)	FM 4470/FM 4474	3040639	09/18/2012
FM Approvals (TST1867)	FM 4470/FM 4474	3040449	10/02/2012
FM Approvals (TST1867)	FM 4470/FM 4474	3042075	10/23/2012
FM Approvals (TST1867)	FM 4470/FM 4474	3047218	11/20/2012
FM Approvals (TST1867)	FM 4470/FM 4474	3048585	02/07/2013
FM Approvals (TST1867)	FM 4470/FM 4474	3047474	03/14/2013
FM Approvals (TST1867)	FM 4470/FM 4474	3051593	01/21/2014
FM Approvals (TST1867)	FM 4470/FM 4474	797-08172-267	02/25/2014
FM Approvals (TST1867)	FM 4470/FM 4474	3056207	02/09/2016
FM Approvals (TST1867)	FM 4470/FM 4474	RR209155	04/03/2017
UL, LLC (QUA9625)	Quality Control	MLA; R8103	05/07/2012
UL, LLC (QUA9625)	Quality Control	MLA; R13850	10/01/2014
UL, LLC (QUA9625)	Quality Control	MLA; R13850	09/15/2017
UL, LLC (QUA9625)	Quality Control	Inspection Report, R8103 (NJ)	08/09/2017
UL, LLC (QUA9625)	Quality Control	Inspection Report, R8103 (IL)	11/22/2016

#### 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.

- **Mule-Hide PVC Membranes** are nominal 50, 60 or 80-mil (1.3, 1.5 or 2.0-mm), PVC, polyester scrim reinforced, single-ply roof membranes.
- **Mule-Hide PVC KEE HP Membranes** are nominal 50, 60 or 80-mil (1.3, 1.5 or 2.0-mm), polyester scrim reinforced, modified PVC single-ply roof membranes.
- **Mule-Hide PVC FRS Fleece Back Membranes** are nominal 60 or 80-mil (1.5 or 2.0-mm), fiberglass reinforced, PVC single-ply roof membranes with a nonwoven polyester felt backing
- **Mule-Hide PVC KEE HP FRS Fleece Back Membranes** are nominal 50, 60 or 80-mil (1.3, 1.5 or 2.0-mm), fiberglass reinforced, KEE modified PVC single-ply roof membrane with a nonwoven polyester felt backing.

## 5. LIMITATIONS:

- 5.1 This is a building code evaluation. Neither Trinity|ERD nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.
- 5.2 This Evaluation Report is not for use in HVHZ jurisdictions.
- 5.3 Refer to a current UL Roofing Materials Directory for fire ratings of this product.
- 5.4 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** and **2603.6** apply.
- 5.5 The roof system evaluation herein pertains to above-deck roof components. Roof decks and structural members shall be in accordance with FBC requirements to the satisfaction of the Authority Having Jurisdiction. Load resistance of the roof deck shall be documented through proper codified and/or FBC Approval documentation.
- 5.6 For recover installations, the existing roof shall be examined in accordance with **FBC 1511**.
- 5.7 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 **ANSI/SPRI WD1**, **FM Loss Prevention Data Sheet 1-29**, **Roofing Application Standard RAS 117** and **Roofing Application Standard RAS 137**. Assemblies marked with an asterisk\* carry the limitations set forth in **Section 2.2.10.1 of FM Loss Prevention Data Sheet 1-29 (January 2016)** for Zone 2/3 enhancements.
- 5.8 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.
- 5.9 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 **ANSI/SPRI FX-1** or **Testing Application Standard TAS 105**.
- 5.10 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 **ANSI/SPRI IA-1**, **ASTM E907**, **FM Loss Prevention Data Sheet 1-52** or **Testing Application Standard TAS 124** shall be conducted on mock-ups of the proposed new roof assembly.
- 5.11 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 Authority Having Jurisdiction, as documented through field uplift testing in accordance with **ASTM E907**, **FM Loss Prevention Data Sheet 1-52** or **Testing Application Standard TAS 124**.
- 5.12 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 **Roofing Application Standard RAS 111**, except the basic wind speed shall be determined from **FBC Figure 1609.3(1)**, **1609.3(2)** or **1609.3(3)**.
- 5.13 All products in the roof assembly shall have quality assurance audit in accordance with **F.A.C. Rule 61G20-3**.

**6. INSTALLATION:**

- 6.1 **Mule-Hide PVC and PVC/KEE 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 herein.
- 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, and reflects the ultimate passing pressure divided by 2 (the 2 to 1 margin of safety per **FBC 1504.9** has already been applied). Refer to **FBC 1609** for determination of design wind loads.
- 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 noted QA agency for information on product locations covered by QA procedures.

**9. QUALITY ASSURANCE ENTITY:**

UL, LLC. – QUA9625; (414) 248-6409; karen.buchmann@ul.com

**- THE 21-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	4
1B	Wood	New, Reroof (Tear-Off), Recover	D	Insulated, Mechanically Attached Roof Cover	4
2A	Steel or Structural concrete	New, Reroof (Tear-Off), Recover	B	Mech. Attached Base Insulation, Bonded Top Insulation, Bonded Roof Cover	5-7
2B	Steel or Structural concrete	New, Reroof (Tear-Off), Recover	C-1	Mechanically Attached Insulation, Bonded Roof Cover	8-9
2C	Steel	New, Reroof (Tear-Off), Recover	C-2	Plate-Bonded Roof Cover	10
2D	Steel	New, Reroof (Tear-Off), Recover	D-1	Insulated, Mechanically Attached Roof Cover	11
3A	Structural concrete	New, Reroof (Tear-Off)	A-1	Bonded Insulation, Bonded Roof Cover	12-16
3B	Structural concrete	New, Reroof (Tear-Off)	F	Non-Insulated, Bonded Roof Cover	16
4A-1	LWIC over Steel	New, Reroof (Tear-Off)	F	Non-Insulated, Bonded Roof Cover	17
4A-2	LWC over Structural concrete	New, Reroof (Tear-Off)	F	Non-Insulated, Bonded Roof Cover	18
5A	Gypsum	Reroof (Tear-Off)	F	None-Insulated, Bonded Roof Cover	18
6A	Various	Recover	A-1	Bonded Insulation, Bonded Roof Cover	19-20
6B	Steel	Recover	D-1	Insulated, Mechanically Attached Roof Cover	21
6C	Various	Recover	F	Non-Insulated, Bonded Roof Cover	21

**The following notes apply to the systems outlined herein:**

- The roof system evaluation herein pertains to above-deck roof components. Roof decks and structural members shall be in accordance with FBC requirements to the satisfaction of the Authority Having Jurisdiction. 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 Drill Point Fastener or Mule-Hide HDP Fastener with Mule-Hide 3 in. Insulation Plate. Minimum 1-inch wood penetration.
  - Steel Deck: Mule-Hide Drill Point Fastener or Mule-Hide HDP Fastener with Mule-Hide 3 in. Insulation Plate. Minimum ¾-inch steel penetration, engage the top flute of the steel deck.
  - Structural Concrete: Mule-Hide HDP Fastener or Mule-Hide Fluted Concrete Nail with Mule-Hide 3 in. Insulation Plate. 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, fiberboard, perlite, mineral wool, and/or gypsum-based insulation board that meets the QA requirements of F.A.C. Rule 61G20-3 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 C-2 (plate-bonded roof cover) or 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: Unless otherwise noted, refer to Section 2.2.10.1.3 of FM Loss Prevention Data Sheet 1-29 (January 2016).
- 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:
  - Mule-Hide Helix® Low-Rise Adhesive (HELIX): Continuous ¾ to 1-inch wide beads, 12-inch o.c.
  - FAST 100 or FAST 100LV (FULL): Full-coverage at 1 gal./square.
  - FAST 100 or FAST 100 LV (RIBBON): Continuous 0.75 to 1-inch wide ribbons, 12-inch o.c.
  - Flexible FAST (FULL): Full-coverage at 1 gal./square.
  - Flexible Fast (RIBBON): Continuous 0.75 to 1-inch wide ribbons, 12-inch o.c.
  - FAST Bag in a Box Adhesive (BIAB): Continuous 0.75 to 1-inch wide ribbons, 12-inch o.c. using OMG Bag-In-Box PaceCart 2.
  - OlyBond 500 (OB500): Continuous 0.75 to 1-inch wide ribbons, 12-inch o.c. using PaceCart or SpotShot. Note: OlyBond 500 Green may be used where OlyBond 500 is referenced.
  - Note: When multiple layers(s) of insulation and/or coverboard are installed in ribbon-applied adhesive, board joints shall be staggered.
  - 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. Unless otherwise noted, all insulations are flat stock or taper board of the minimum thickness noted. Tapered polyisocyanurate at the following thickness limitations may be substituted with the following Maximum Design Pressure (MDP) limitations:
  - FAST 100, FAST 100 LV or Flexible FAST: MDP -157.5 psf (Min. 0.5-inch thick)
  - OlyBond 500 (OB500): 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 ANSI/SPRI WD-1, FM Loss Prevention Data Sheet 1-29, Roofing Application Standard RAS 117 or Roofing Application Standard RAS 137. Assemblies marked with an asterisk\* carry the limitations set forth in Section 2.2.10.1 of FM Loss Prevention Data Sheet 1-29 (January 2016) for Zone 2/3 enhancements.
10. 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, 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 and analysis shall be in accordance with ANSI/SPRI FX-1 or Testing Application Standard TAS 105.
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 Authority Having Jurisdiction, as documented through field uplift testing in accordance with ANSI/SPRI IA-1, ASTM E907, FM Loss Prevention Data Sheet 1-52 or Testing Application Standard 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 Structural Concrete Deck or Recover Applications using System Type C-2 (Plate Bonded Roof Cover) or Type D (Mechanically Attached Roof Cover), the insulation is optional. Alternatively, min. 0.5-inch HP Recovery Board, Poly ISO 1-HD, H-Shield HD or SecurShield HD or min. 0.25-inch to 0.625-inch Dens Deck, Dens Deck Prime, SECUROCK Gypsum-Fiber Roof Board or SECUROCK Glass-Mat Roof Board or min. 3/8-inch Insulfoam R-Tech EPS or Fan-Fold may be used as a separator board, preliminarily attached prior to roof cover installation. The separator component shall be documented as meeting FBC 1505.1 and, for foam plastic, FBC Chapter 26, when installed with the roof cover in Recover applications.
15. Lightweight Insulating Concrete (LWC) shall be cast in accordance with FBC Section 1917 to the satisfaction of the Authority Having Jurisdiction. For systems where specific LWC is referenced, refer to current LWC Product Approval for specific deck construction and limitations. For systems where specific LWC is not referenced, the minimum design mix shall be 300 psi. In all cases, the minimum top-coat thickness is 2-inches. For LWC over structural concrete, reference is made to FBC Section 1917.4.1, Point 1.
16. For adhered membrane systems, side laps shall be minimum 2-inch wide sealed with min. 1.5-inch heat weld. Unless otherwise noted, membrane adhesive application rates are as follows:

Membrane	Adhesive	Method	Rate
Mule-Hide PVC, Mule-Hide PVC KEE HP	Mule-Hide PVC Bonding Adhesive (PVC BA)	Contact (both sides)	1.67 gal/square (½ applied to substrate and ½ applied to membrane)
Mule-Hide PVC, Mule-Hide PVC KEE HP	Mule-Hide Low VOC PVC Bonding Adhesive (Low VOC PVC BA)	Contact (both sides)	3.1 gal/square (½ applied to substrate and ½ applied to membrane)
Mule-Hide PVC	Aqua Base 120 Bonding Adhesive	Contact (both sides)	0.83 to 1 gal/square (½ applied to substrate and ½ applied to membrane)
Mule-Hide PVC	HydroBond Water-Based PVC Bonding Adhesive (HydroBond)	Wet lay (substrate)	0.75 to 1 gal/square
Mule-Hide PVC FRS Fleece Back or Mule-Hide PVC KEE HP FRS Fleece Back	FAST 100LV or Flexible FAST	Wet lay (substrate)	RIBBON spaced as noted herein or FULL = 1 gal/square or continuous ribbons, maximum 4-inch o.c.
Mule-Hide PVC FRS Fleece Back or Mule-Hide PVC KEE HP FRS Fleece Back	Mule-Hide Helix® Low-Rise Adhesive (HELIX)	Wet lay (substrate)	FULL = continuous ribbons, maximum 4-inch o.c.



17. Vapor barrier options for use over **structural concrete deck** followed by adhesive-applied insulation carry the following Maximum Design Pressure (MDP) limitations. The **lesser** of the MDP listings below vs. those in Table 3A applies.

VAPOR BARRIER OPTIONS; STRUCTURAL CONCRETE DECK; FOLLOWED BY ADHESIVE-APPLIED INSULATION PER TABLE 3A:					
Option #	Primer	Vapor Barrier		Insulation Adhesive	MDP (psf)
		Type	Application		
VB-1.	Carlisle 702 Primer	F5™ Air & Vapor Barrier or Carlisle VapAir Seal 725TR	Self-adhering	FAST 100 LV, FULL-coverage at 1 gal/square.	-67.5
VB-2.	Carlisle 702 Primer	F5™ Air & Vapor Barrier or Carlisle VapAir Seal 725TR	Self-adhering	FAST 100 LV (RIBBON, 12-inch o.c.)	-67.5
VB-3.	Carlisle CAV-GRIP Primer	F5™ Air & Vapor Barrier or Carlisle VapAir Seal 725TR	Self-adhering	HELIX (RIBBON, 12-inch o.c.)	-97.5
VB-4.	ASTM D41	Carlisle SureMB 90TG Base or SureMB 120 TG Poly Base	Torch-applied	HELIX (RIBBON, 12-inch o.c.)	-97.5
VB-5.	ASTM D41	Carlisle SureMB 90 Base or SureMB 120 Poly Base	Hot-asphalt	HELIX (RIBBON, 12-inch o.c.)	-97.5
VB-6.	Carlisle 702 LV Primer	F5™ Air & Vapor Barrier or Carlisle VapAir Seal 725TR	Self-adhering	FAST 100 LV, FULL-coverage at 1 gal/square.	-97.5
VB-7.	Carlisle 702 LV Primer	F5™ Air & Vapor Barrier or Carlisle VapAir Seal 725TR	Self-adhering	FAST 100 LV (RIBBON, 12-inch o.c.)	-97.5
VB-8.	Carlisle CAV-GRIP Primer	F5™ Air & Vapor Barrier or Carlisle VapAir Seal 725TR	Self-adhering	FAST 100 LV, FULL-coverage at 1 gal/square.	-127.5
VB-9.	Carlisle CAV-GRIP Primer	F5™ Air & Vapor Barrier or Carlisle VapAir Seal 725TR	Self-adhering	FAST 100 LV (RIBBON, 12-inch o.c.)	-127.5
VB-10.	ASTM D41	Carlisle SureMB 90TG Base	Torch-applied	FAST 100 LV (RIBBON, 12-inch o.c.)	-165.0
VB-11.	ASTM D41	Carlisle SureMB 90 Base	Hot-asphalt	Hot asphalt at 25 lbs/square	-172.5
VB-12.	ASTM D41	Carlisle SureMB 90TG Base	Torch-applied	Hot asphalt at 25 lbs/square	-180.0

18. "MDP" = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads. Refer to FBC 1609 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 (Note 1)	Base Insulation Layer	Top Insulation Layer			Roof Cover (Note 16)	MDP (psf)
			Type	Fasteners	Attach		
W-1	Min. 23/32-inch plywood	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.5-inch HP Recovery Board	Note 2	1 per 1.6 ft <sup>2</sup>	Mule-Hide PVC / Aqua Base 120 BA	-37.5*
W-2	Min. 23/32-inch plywood	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.25-inch Dens Deck Prime	Note 2	1 per 1.6 ft <sup>2</sup>	Mule-Hide PVC / Aqua Base 120 BA	-45.0*
W-3	Min. 23/32-inch plywood	(Optional) One or more layers	Min. 1-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Note 2	1 per 1.6 ft <sup>2</sup>	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
W-4	Min. 23/32-inch plywood	(Optional) One or more layers	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Note 2	1 per 2 ft <sup>2</sup>	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
W-5	Min. 23/32-inch plywood	Min. 1.0-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.5-inch HP Recovery Board	Note 2	1 per 2 ft <sup>2</sup>	Mule-Hide PVC or PVC KEE HP / PVC BA or Low VOC PVC BA	-45.0*
W-6	Min. 23/32-inch plywood	Min. 1.0-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.25-inch Dens Deck Prime	Note 2	1 per 2 ft <sup>2</sup>	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*

**TABLE 1B: WOOD DECKS – NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE D: INSULATED, MECHANICALLY ATTACHED ROOF COVER**

System No.	Deck (Note 1)	Insulation Layer (Note 14)		Roof Cover						MDP (psf)
		Type	Attach	Membrane	Fasteners	Fastener Spacing (inch)	Lap Width (inch)	Lap Spacing (inch)	Seam Weld (inch)	
W-7	Min. 23/32-inch plywood or wood plank at max. 24-inch spans attached using Trufast Spax 8x1-½, Spax 8x2, Spax 10x1½, Spax 10x2 fasteners or OMG Fasten-Master GuardDog 1-5/8 in. or 2 in. screws spaced 6-inch o.c. in the field and spaced 3-inch o.c. at the panel ends.	One or more layers, any combination	Prelim. attached	Mule-Hide PVC or PVC KEE HP	Mule-Hide EHD Fasteners and Mule-Hide 2.4 in. Seam Plates	6	5.5	75.5	1.5	-52.5
W-8	Min. 19/32-inch plywood or wood plank at max. 24-inch spans attached using 8d ring shank nails spaced 6-inch o.c. in the field and #10 ring shank nails spaced 4-inch o.c. at the perimeter	One or more layers, any combination	Prelim. attached	Mule-Hide PVC or PVC KEE HP	Mule-Hide EHD Fasteners and Mule-Hide 2.4 in. Seam Plates	6	5.5	75.5	1.5	-60.0

**TABLE 2A: STEEL OR STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE B: MECHANICALLY ATTACHED BASE INSULATION, BONDED TOP INSULATION, BONDED ROOF COVER**

System No.	Deck (Note 1)	Base Insulation Layer			Top Insulation Layer		Roof Cover (Note 16)	MDP (psf)
		Type	Fastener	Attach	Type	Attach		
<b>MULE-HIDE PVC OR PVC KEE HP APPLICATIONS:</b>								
SC-1	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Poly ISO 1, H-Shield, Polyiso HP-H	Note 2	1 per 3.2 ft <sup>2</sup>	Min. 1.0-inch base insulation and/or Min. 0.25-inch Dens Deck Prime	HELIX	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
SC-2	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 2-inch Poly ISO 1, H-Shield, Polyiso HP-H	Note 2	1 per 4.0 ft <sup>2</sup>	Min. 1.0-inch base insulation and/or Min. 0.25-inch Dens Deck Prime	HELIX	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
SC-3	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 0.5-inch Dens Deck followed by min. 2.0-inch Insulfoam VIII	Note 2	1 per 2.7 ft <sup>2</sup>	Min. 1.5-inch Insulam (OSB)	Flexible FAST (RIBBON, 6-inch o.c.)	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-37.5*
SC-4	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H or Poly ISO 1, H-Shield	Note 2	1 per 3.2 ft <sup>2</sup>	Min. 1.0-inch base insulation	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
SC-5	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 2.0-inch Polyiso HP-H or Poly ISO 1, H-Shield	Note 2	1 per 4.0 ft <sup>2</sup>	Min. 1.0-inch base insulation	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
SC-6	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H or Poly ISO 1, H-Shield	Note 2	1 per 3.2 ft <sup>2</sup>	Min. 0.25-inch Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
SC-7	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 2.0-inch Polyiso HP-H or Poly ISO 1, H-Shield	Note 2	1 per 4.0 ft <sup>2</sup>	Min. 0.25-inch Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
SC-8	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 0.5-inch Dens Deck followed by min. 2.0-inch Insulfoam VIII	Note 2	1 per 2.0 ft <sup>2</sup>	Min. 2.0-inch Insulfoam HD Composite	Flexible FAST (RIBBON, 6-inch o.c.)	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
SC-9	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H or Poly ISO 1, H-Shield	Note 2	1 per 1.6 ft <sup>2</sup>	Min. 1.0-inch base insulation	FAST 100, FAST 100 LV, Flexible FAST (RIBBON, 6-inch o.c.)	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-67.5
SC-10	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 0.5-inch Dens Deck followed by min. 3.0-inch Insulfoam VIII	Note 2	1 per 2.0 ft <sup>2</sup>	Min. 1.5-inch Insulam (OSB)	FAST 100 LV (RIBBON, 6-inch o.c.)	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-67.5
SC-11	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACfoam II	Note 2	1 per 2.0 ft <sup>2</sup>	Min. 0.5-inch HP Recovery Board	OB500	Mule-Hide PVC or PVC KEE HP / PVC BA or Low VOC PVC BA	-45.0*

**TABLE 2A: STEEL OR STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE B: MECHANICALLY ATTACHED BASE INSULATION, BONDED TOP INSULATION, BONDED ROOF COVER**

System No.	Deck (Note 1)	Base Insulation Layer			Top Insulation Layer		Roof Cover (Note 16)	MDP (psf)
		Type	Fastener	Attach	Type	Attach		
SC-12	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Note 2	1 per 2.0 ft <sup>2</sup>	Min. 0.25-inch Dens Deck Prime	OB500	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
<b>MULE-HIDE PVC FRS FLEECE BACK OR PVC KEE HP FRS FLEECE BACK APPLICATIONS:</b>								
SC-13	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Poly ISO 1, H-Shield, Polyiso HP-H	Note 2	1 per 3.2 ft <sup>2</sup>	Min. 1.0-inch base insulation and/or Min. 0.25-inch Dens Deck Prime or SECUROCK Gypsum-Fiber Roof Board	HELIX	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / HELIX (FULL)	-45.0*
SC-14	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 2-inch Poly ISO 1, H-Shield, Polyiso HP-H	Note 2	1 per 4.0 ft <sup>2</sup>	Min. 1.0-inch base insulation and/or Min. 0.25-inch Dens Deck Prime SECUROCK Gypsum-Fiber Roof Board	HELIX	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / HELIX (FULL)	-45.0*
SC-15	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 2-inch Poly ISO 1, H-Shield, Polyiso HP-H	Note 2	1 per 1.6 ft <sup>2</sup>	Min 0.25-inch SECUROCK Gypsum-Fiber Roof Board	HELIX	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / HELIX (FULL)	-60.0
SC-16	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	One or more layers Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, or AC Foam II	Note 2	1 per 2.0 ft <sup>2</sup>	Min. 0.25-inch Dens Deck, Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (RIBBON, 12-inch o.c.)	-37.5*
SC-17	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 0.5-inch Dens Deck or Dens Deck Prime	Note 2	1 per 2.0 ft <sup>2</sup>	Min. 1.5-inch Pactiv GreenGuard Extruded Polystyrene followed by min. 0.25-inch Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (RIBBON, 12-inch o.c.)	-37.5*
SC-18	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 0.5-inch Dens Deck followed by min. 2.0-inch Insulfoam VIII	Note 2	1 per 2.7 ft <sup>2</sup>	Min. 1.5-inch Insulam (OSB)	Flexible FAST (RIBBON, 6-inch o.c.)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-37.5*
SC-19	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	One or more layers Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, or AC Foam II	Note 2	1 per 2.0 ft <sup>2</sup>	Additional layers of base insulation	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-45.0*
SC-20	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H or Poly ISO 1, H-Shield	Note 2	1 per 3.2 ft <sup>2</sup>	Min. 1.0-inch base insulation	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-45.0*

**TABLE 2A: STEEL OR STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE B: MECHANICALLY ATTACHED BASE INSULATION, BONDED TOP INSULATION, BONDED ROOF COVER**

System No.	Deck (Note 1)	Base Insulation Layer			Top Insulation Layer		Roof Cover (Note 16)	MDP (psf)
		Type	Fastener	Attach	Type	Attach		
SC-21	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H or Poly ISO 1, H-Shield	Note 2	1 per 3.2 ft <sup>2</sup>	Min. 0.25-inch Dens Deck or Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-45.0*
SC-22	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 2.0-inch Polyiso HP-H or Poly ISO 1, H-Shield	Note 2	1 per 4.0 ft <sup>2</sup>	Min. 1.0-inch base insulation	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-45.0*
SC-23	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 2.0-inch Polyiso HP-H or Poly ISO 1, H-Shield	Note 2	1 per 4.0 ft <sup>2</sup>	Min. Dens Deck or 0.25-inch Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-45.0*
SC-24	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 0.5-inch Dens Deck followed by min. 2.0-inch Insulfoam VIII	Note 2	1 per 2.0 ft <sup>2</sup>	Min. 2.0-inch Insulfoam HD Composite	Flexible FAST (RIBBON, 6-inch o.c.)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-45.0*
SC-25	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H or Poly ISO 1, H-Shield	Note 2	1 per 1.6 ft <sup>2</sup>	Min. 1.0-inch base insulation	FAST 100, FAST 100 LV, Flexible FAST (RIBBON, 6-inch o.c.)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-67.5
SC-26	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 0.5-inch Dens Deck followed by min. 3.0-inch Insulfoam VIII	Note 2	1 per 2.0 ft <sup>2</sup>	Min. 1.5-inch Insulam (OSB)	FAST 100 LV (RIBBON, 6-inch o.c.)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-75.0
SC-27	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 2-inch Polyiso HP-H, Poly ISO 1, H-Shield	Note 2	1 per 4.0 ft <sup>2</sup>	Min 0.25-inch SECUROCK Gypsum-Fiber Roof Board	OB500	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-37.5*
SC-28	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 2-inch Polyiso HP-H, Poly ISO 1, H-Shield	Note 2	1 per 2.67 ft <sup>2</sup>	Min 0.25-inch SECUROCK Gypsum-Fiber Roof Board	OB500	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-45.0*
SC-29	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 2-inch Polyiso HP-H, Poly ISO 1, H-Shield	Note 2	1 per 1.6 ft <sup>2</sup>	Min 0.25-inch SECUROCK Gypsum-Fiber Roof Board	OB500	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-60.0

**TABLE 2B: STEEL OR STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE C-1: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER**

System No.	Deck (Note 1)	Base Insulation Layer	Top Insulation Layer			Roof Cover (Note 16)	MDP (psf)
			Type	Fasteners	Attach		
<b>MULE-HIDE PVC OR PVC KEE HP APPLICATIONS:</b>							
SC-30	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.5-inch HP Recovery Board	Note 2	1 per 1.6 ft <sup>2</sup>	Mule-Hide PVC / Aqua Base 120 BA	-37.5*
SC-31	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.25-inch Dens Deck Prime	Note 2	1 per 1.6 ft <sup>2</sup>	Mule-Hide PVC / Aqua Base 120 BA	-45.0*
SC-32	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	(Optional) One or more layers	Min. 1-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Note 2	1 per 1.6 ft <sup>2</sup>	Mule-Hide PVC / PVC BA, Low VOC PVC BA, HydroBond	-45.0*
SC-33	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	(Optional) One or more layers	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Note 2	1 per 2 ft <sup>2</sup>	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
SC-34	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.0-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.5-inch HP Recovery Board	Note 2	1 per 2 ft <sup>2</sup>	Mule-Hide PVC or PVC KEE HP / PVC BA or Low VOC PVC BA	-45.0*
SC-35	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.0-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.25-inch Dens Deck Prime	Note 2	1 per 2 ft <sup>2</sup>	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
SC-36	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.5-inch Poly ISO 1-HD, SecurShield HD Plus	Note 2	1 per 4 ft <sup>2</sup>	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
SC-37	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch thick, one or more layers, any combination, loose laid	Min 0.25-inch SECUROCK Gypsum-Fiber Roof Board	Note 2	1 per 2.0 ft <sup>2</sup>	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-45.0*
SC-38	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.5-inch Poly ISO 1-HD, SecurShield HD Plus	Note 2	1 per 1.78 ft <sup>2</sup>	Mule-Hide PVC in PVC BA, Low VOC PVC BA or HydroBond or Mule-Hide PVC KEE HP in PVC BA or Low VOC PVC BA	-60.0
SC-39	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	(Optional) One or more layers	Min. 7/16-inch APA rated OSB	Note 2	1 per 1.9 ft <sup>2</sup>	Mule-Hide PVC / HydroBond	-60.0
SC-40	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	(Optional) One or more layers	Min. 2.0-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Note 2	1 per 1.6 ft <sup>2</sup>	Mule-Hide PVC / HydroBond	-60.0
SC-41	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.5-inch SECUROCK Gypsum-Fiber Roof Board	Note 2	1 per 1.6 ft <sup>2</sup>	Mule-Hide PVC / HydroBond	-60.0

**TABLE 2B: STEEL OR STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE C-1: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER**

System No.	Deck (Note 1)	Base Insulation Layer	Top Insulation Layer			Roof Cover (Note 16)	MDP (psf)
			Type	Fasteners	Attach		
SC-42	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	(Optional) One or more layers	Min. 7/16-inch APA rated OSB	Note 2	1 per 1.9 ft <sup>2</sup>	Mule-Hide PVC or PVC KEE HP / PVC BA or Low VOC PVC BA	-67.5
SC-43	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	(Optional) One or more layers	Min. 2.0-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Note 2	1 per 1.6 ft <sup>2</sup>	Mule-Hide PVC or PVC KEE HP / PVC BA or Low VOC PVC BA	-67.5
SC-44	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.5-inch SECUROCK Gypsum-Fiber Roof Board	Note 2	1 per 1.6 ft <sup>2</sup>	Mule-Hide PVC or PVC KEE HP / Low VOC PVC BA	-82.5
SC-45	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.5-inch Poly ISO 1-HD, SecurShield HD Plus	Note 2	1 per 1.33 ft <sup>2</sup>	Mule-Hide PVC or PVC KEE HP / PVC BA	-112.5
SC-46	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	(Optional) Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 2-inch SecurShield	Note 2	1 per 1 ft <sup>2</sup>	Mule-Hide PVC or PVC KEE HP / Low VOC PVC BA	-112.5
SC-47	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, AC Foam II	Min. 0.5-inch SECUROCK Gypsum-Fiber Roof Board	Note 2	1 per 1 ft <sup>2</sup>	Mule-Hide PVC or PVC KEE HP / Low VOC PVC BA	-112.5
<b>MULE-HIDE PVC FRS FLEECE BACK OR PVC KEE HP FRS FLEECE BACK APPLICATIONS:</b>							
SC-48	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch thick, one or more layers, any combination, loose laid	Min 0.25-inch SECUROCK Gypsum-Fiber Roof Board	Note 2	1 per 2.67 ft <sup>2</sup>	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-37.5*
SC-49	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch thick, one or more layers, any combination, loose laid	Min 0.5-inch Dens Deck Prime	Note 2	1 per 2.0 ft <sup>2</sup>	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (RIBBON, 12-inch o.c.)	-45.0*
SC-50	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch thick, one or more layers, any combination, loose laid	Min 0.25-inch SECUROCK Gypsum-Fiber Roof Board	Note 2	1 per 2.0 ft <sup>2</sup>	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-45.0*
SC-51	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch thick, one or more layers, any combination, loose laid	Min 7/16-inch APA or TECO rated OSB	Note 2	1 per 1.9 ft <sup>2</sup>	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-75.0
SC-52	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	Min. 1.5-inch thick, one or more layers, any combination, loose laid	Min 7/16-inch APA or TECO rated OSB	Note 2	1 per 1 ft <sup>2</sup>	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV or Flexible FAST (FULL)	-135.0
SC-53	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structural concrete	(Optional) One or more layers, any combination, loose laid	Min. 2.0-inch SecurShield HD Composite, Poly ISO 1-HD Composite, H-Shield HD Composite	Note 2	1 per 1 ft <sup>2</sup>	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back / FAST 100 LV (FULL)	-150.0



**TABLE 2C: STEEL DECKS - NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE C-2: PLATE-BONDED ROOF COVER**

System No.	Deck (Note 1)	Insulation Layer	Attachment		Roof Cover	MDP (psf)
			Fasteners	Density / Pattern		
SC-54	Min. 22 ga., type B, Grade 33 steel	Min. 1-inch thick, one or more layers, any combination. Note A.	Mule-Hide EHD Fastener and Rhinobond Plates (PVC)	1 per 5.33 ft <sup>2</sup> (6 per 4 x 8 ft board) Per FM LPDS 1-29; Note B	Mule-Hide PVC or PVC KEE HP bonded to Rhinobond Plates (PVC) with Rhinobond bonding tool.	-45.0
SC-55	Min. 22 ga., type B, Grade 33 steel	Min. 1-inch thick, one or more layers, any combination. Note A.	Mule-Hide EHD Fastener and Rhinobond Plates (PVC)	1 per 4 ft <sup>2</sup> (8 per 4 x 8 ft board) Per FM LPDS 1-29; Note B	Mule-Hide PVC or PVC KEE HP bonded to Rhinobond Plates (PVC) with Rhinobond bonding tool.	-52.5
SC-56	Min. 22 ga., type B, Grade 40 steel; 6 ft spans; 5/8" puddle welds 6" o.c.	Min. 1-inch thick, one or more layers, any combination. Note A.	Mule-Hide EHD Fastener and Rhinobond Plates (PVC)	1 per 4 ft <sup>2</sup> (2 x 2 ft grid pattern)	Mule-Hide PVC or PVC KEE HP bonded to Rhinobond Plates (PVC) with Rhinobond bonding tool.	-52.5
SC-57	Min. 22 ga., type B, Grade 80 steel	Min. 1-inch thick, one or more layers, any combination. Note A.	Mule-Hide EHD Fastener and Rhinobond Plates (PVC)	1 per 4 ft <sup>2</sup> (8 per 4 x 8 ft board) Per FM LPDS 1-29; Note B	Mule-Hide PVC or PVC KEE HP bonded to Rhinobond Plates (PVC) with Rhinobond bonding tool.	-60.0
SC-58	Min. 22 ga., type B, Grade 33 steel	Min. 1.5-inch thick, one or more layers, any combination. Note A.	Mule-Hide EHD Plus Fastener and Rhinobond Plates (PVC)	1 per 4 ft <sup>2</sup> (2 x 2 ft grid pattern)	Mule-Hide PVC or PVC KEE HP bonded to Rhinobond Plates (PVC) with Rhinobond bonding tool.	-67.5
SC-59	Min. 22 ga., type B, Grade 80 steel	Min. 1.5-inch thick, one or more layers, any combination, preliminarily attached	Mule-Hide EHD Fastener and Rhinobond Plates (PVC)	Max. 12-inch o.c. in rows max. 120-inch o.c.	Mule-Hide PVC or PVC KEE HP bonded to Rhinobond Plates (PVC) with Rhinobond bonding tool.	-30.0
SC-60	Min. 22 ga., type B, Grade 80 steel	Min. 1.5-inch thick, one or more layers, any combination, preliminarily attached	Mule-Hide EHD Fastener and Rhinobond Plates (PVC)	Max. 18-inch o.c. in rows max. 60-inch o.c.	Mule-Hide PVC or PVC KEE HP bonded to Rhinobond Plates (PVC) with Rhinobond bonding tool.	-37.5
SC-61	Min. 22 ga., type B, Grade 80 steel	Min. 1.5-inch thick, one or more layers, any combination, preliminarily attached	Mule-Hide EHD Fastener and Rhinobond Plates (PVC)	Max. 12-inch o.c. in rows max. 60-inch o.c.	Mule-Hide PVC or PVC KEE HP bonded to Rhinobond Plates (PVC) with Rhinobond bonding tool.	-52.5
SC-62	Min. 22 ga., type B, Grade 80 steel	Min. 1.5-inch thick, one or more layers, any combination, preliminarily attached	Mule-Hide EHD Fastener and Rhinobond Plates (PVC)	Max. 6-inch o.c. in rows max. 120-inch o.c.	Mule-Hide PVC or PVC KEE HP bonded to Rhinobond Plates (PVC) with Rhinobond bonding tool.	-60.0
SC-63	Min. 22 ga., type B, Grade 80 steel	Min. 1.5-inch thick, one or more layers, any combination, preliminarily attached	Mule-Hide EHD Fastener and Rhinobond Plates (PVC)	Max. 6-inch o.c. in rows max. 60-inch o.c.	Mule-Hide PVC or PVC KEE HP bonded to Rhinobond Plates (PVC) with Rhinobond bonding tool.	-90.0

- Notes: A. For these assemblies, the 8 ft insulation board length is placed perpendicular to the steel deck ribs  
 B. The plate/fastener combination is offset 12 inch from adjacent rows.



**TABLE 2D: STEEL DECKS – NEW CONSTRUCTION, REROOF (TEAR-OFF) OR RECOVER  
SYSTEM TYPE D-1: INSULATED, MECHANICALLY ATTACHED ROOF COVER**

System No.	Deck (Note 1)	Insulation Layer (Note 14)		Roof Cover						MDP (psf)
		Type	Attach	Membrane	Fasteners	Fastener Spacing (inch)	Lap Width (inch)	Lap Spacing (inch)	Seam Weld (inch)	
SC-64	Min. 22 ga., type B, Grade 80 steel	Min. 1.5-inch, one or more layers, any combination	Prelim. attach	Mule-Hide PVC	Mule-Hide EHD Fastener and Mule-Hide 2.4 in. Seam Plate	18	5.5	75.5	1.5	-30.0
SC-65	Min. 22 ga., type B, Grade 33 steel	Min. 1.5-inch, one or more layers, any combination	Prelim. attach	Mule-Hide PVC	Mule-Hide EHD Plus Fastener and Mule-Hide 2.4" Plus Seam Plate	18	5.5	75.5	1.5	-30.0
SC-66	Min. 22 ga., type B, Grade 33 steel	Min. 1.5-inch, one or more layers, any combination	Prelim. attach	Mule-Hide PVC KEE HP	Mule-Hide EHD Plus Fastener and Mule-Hide 2.4" Plus Seam Plate	12	5	115	1.5	-30.0
SC-67	Min. 22 ga., type B, Grade 33 steel	Min. 1.5-inch, one or more layers, any combination	Prelim. attach	Mule-Hide PVC	Mule-Hide EHD Fastener and Mule-Hide 2.4 in. Seam Plate	12	5.5	75.5	1.5	-37.5
SC-68	Min. 22 ga., type B, Grade 33 steel	Min. 1.5-inch, one or more layers, any combination	Prelim. attach	Mule-Hide PVC or PVC KEE HP	Mule-Hide EHD Fastener and Mule-Hide 2.4 in. Seam Plate	6	5	115	1.5	-37.5
SC-69	Min. 22 ga., type B, Grade 80 steel	Min. 1.5-inch, one or more layers, any combination	Prelim. attach	Mule-Hide PVC	Mule-Hide EHD Fastener and Mule-Hide 2.4 in. Seam Plate	12	5.5	75.5	1.5	-45.0
SC-70	Min. 22 ga., type B, Grade 33 steel	Min. 1.5-inch, one or more layers, any combination	Prelim. attach	Mule-Hide PVC or PVC KEE HP	Mule-Hide EHD Plus Fastener and Mule-Hide 2.4" Plus Seam Plate	12	5.5	75.5	1.5	-45.0
SC-71	Min. 22 ga., type B, Grade 33 steel	Min. 1.5-inch, one or more layers, any combination	Prelim. attach	Mule-Hide PVC KEE HP	Mule-Hide EHD Fastener and Dekfast 1-1/2" x 2-3/4" Oval Barbed Plates	6	6	114	1.5	-45.0
SC-72	Min. 22 ga., type B, Grade 33 steel	Min. 1.5-inch, one or more layers, any combination (optional for recover) followed by 3/8-inch Insulfoam R-Tech EPS or Fan-Fold	Loose laid	Mule-Hide PVC or PVC KEE HP	Mule-Hide EHD Fastener and Mule-Hide 2.4 in. Seam Plate	6	5.5	75.5	1.5	-52.5
SC-73	Min. 22 ga., type B, Grade 33 steel	Min. 1.5-inch, one or more layers, any combination	Prelim. attach	Mule-Hide PVC	Mule-Hide EHD Fastener and Mule-Hide 2.4 in. Seam Plate	12	5	35.5	1.5	-52.5
SC-74	Min. 22 ga., type B, Grade 33 steel	Min. 1.5-inch, one or more layers, any combination	Prelim. attach	Mule-Hide PVC	Mule-Hide EHD Fastener and Mule-Hide 2.4 in. Seam Plate	12	5.5	35	1.5	-60.0
SC-75	Min. 22 ga., type B, Grade 33 steel	Min. 1.5-inch, one or more layers, any combination	Prelim. attach	Mule-Hide PVC	Mule-Hide EHD Fastener and Mule-Hide 2.4 in. Seam Plate	6	5.5	75.5	1.5	-60.0
SC-76	Min. 22 ga., type B, Grade 40 steel; 6 ft spans; 5/8" puddle welds 6" o.c.	Min. 1.5-inch, one or more layers, any combination	Prelim. attach	Min. 60-mil Mule-Hide PVC or min. 50-mil Mule-Hide PVC KEE HP	Mule-Hide EHD Fastener and Mule-Hide 2.4 in. Seam Plate	6	5.5	114.5	1.5	-60.0
SC-77	Min. 22 ga., type B, Grade 33 steel	Min. 1.5-inch, one or more layers, any combination	Prelim. attach	Mule-Hide PVC or PVC KEE HP	Mule-Hide EHD Fastener and Mule-Hide 2.4 in. Seam Plate	6	5.5	35	1.5	-82.5

**TABLE 3A: STRUCTURAL CONCRETE DECKS – NEW CONSTRUCTION OR REROOF (TEAR-OFF)**  
**SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**  
 REFER TO NOTE 17 FOR VAPOR BARRIER OPTIONS

System No.	Deck (Note 1)	Base Insulation Layer		Top Insulation Layer		Roof Cover (Note 16)		MDP (psf)
		Type	Attach	Type	Attach	Membrane	Application	
<b>MULE-HIDE PVC OR PVC KEE HP APPLICATIONS:</b>								
C-1.	Min. 2,500 psi structural concrete	Min. 1.5-inch Poly ISO 1, H-Shield, Polyiso HP-H, Poly ISO 2, ACFoam II, H-Shield CG, SecurShield	HELIX	(Optional) Additional layers of base insulation and/or Min. 0.25-inch Dens Deck Prime	HELIX	Mule-Hide PVC	HydroBond	-60.0
C-2.	Min. 2,500 psi structural concrete	(Optional) Min. 1.5-inch Poly ISO 1, H-Shield, Polyiso HP-H, Poly ISO 2, ACFoam II, H-Shield CG, SecurShield	HELIX	Min. 0.25-inch Dens Deck Prime, SECUROCK Gypsum-Fiber Roof Board	HELIX	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-195.0
C-3.	Min. 2,500 psi structural concrete	Min. 1.5-inch Poly ISO 1, H-Shield, Polyiso HP-H, Poly ISO 2, ACFoam II, H-Shield CG, SecurShield	HELIX	(Optional) Additional layers of base insulation	HELIX	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-225.0
C-4.	Min. 2,500 psi structural concrete	(Optional) Min. 1.5-inch Poly ISO 1, H-Shield, Polyiso HP-H	HELIX	Min. 1.5-inch SecurShield	HELIX	Mule-Hide PVC KEE HP	PVC BA or Low VOC PVC BA	-255.0
C-5.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	(Optional) Additional layers of base insulation	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC	HydroBond	-60.0
C-6.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Min. 0.25-inch Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC	HydroBond	-60.0
C-7.	Min. 2,500 psi structural concrete	(Optional) Min. 1.5-inch Polyiso HP-H or Poly ISO 1, H-Shield	Flexible FAST, BIAB (RIBBON)	Min. 1.5-inch SecureShield	Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC	HydroBond	-60.0
C-8.	Min. 2,500 psi structural concrete	(Optional) Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II	BIAB	Min. 0.5-inch HP Recovery Board	BIAB	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-157.5
C-9.	Min. 2,500 psi structural concrete	(Optional) Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II	FAST 100, FAST 100 LV, Flexible FAST (RIBBON)	Min. 0.5-inch HP Recovery Board	FAST 100, FAST 100 LV, Flexible FAST (RIBBON)	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-180.0
C-10.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II or SecureShield	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	(Optional) Additional layers of base insulation	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-225.0
C-11.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Min. 0.25-inch Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-240.0
C-12.	Min. 2,500 psi structural concrete	(Optional) Min. 1.5-inch Polyiso HP-H or Poly ISO 1, H-Shield	BIAB	Min. 1.5-inch SecureShield	BIAB	Mule-Hide PVC KEE HP	PVC BA or Low VOC PVC BA	-240.0

**TABLE 3A: STRUCTURAL CONCRETE DECKS – NEW CONSTRUCTION OR REROOF (TEAR-OFF)**  
**SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**  
 REFER TO NOTE 17 FOR VAPOR BARRIER OPTIONS

System No.	Deck (Note 1)	Base Insulation Layer		Top Insulation Layer		Roof Cover (Note 16)		MDP (psf)
		Type	Attach	Type	Attach	Membrane	Application	
C-13.	Min. 2,500 psi structural concrete	(Optional) Min. 1.5-inch Polyiso HP-H or Poly ISO 1, H-Shield	Flexible FAST (RIBBON)	Min. 1.5-inch SecureShield	Flexible FAST (RIBBON)	Mule-Hide PVC KEE HP	PVC BA or Low VOC PVC BA	-255.0
C-14.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II	FAST 100, FAST 100 LV, Flexible FAST (FULL)	(Optional) Additional layers of base insulation	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC	HydroBond	-60.0
C-15.	Min. 2,500 psi structural concrete	(Optional) Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Min. 0.25-inch Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC	HydroBond	-60.0
C-16.	Min. 2,500 psi structural concrete	Min. 1.5-inch Insulam (GYP), Insulam (OSB) or Insulfoam HD Composite	Flexible FAST (FULL)	None	N/A	Mule-Hide PVC	HydroBond	-60.0
C-17.	Min. 2,500 psi structural concrete	Min. 1.5-inch Insulam (GYP) or Insulam (OSB)	Flexible FAST (FULL)	None	N/A	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-67.5
C-18.	Min. 2,500 psi structural concrete	Min. 1.5-inch Insulam (GYP)	Flexible FAST (FULL)	None	N/A	Mule-Hide PVC or PVC KEE HP	Low VOC PVC BA	-112.5
C-19.	Min. 2,500 psi structural concrete	(Optional) Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Min. 2.0-inch Polyiso HP-H Composite, Poly ISO 1-WF, H-Shield-WF	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-180.0
C-20.	Min. 2,500 psi structural concrete	(Optional) Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II, Poly ISO 2, ACFoam II	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Min. 0.5-inch HP Recovery Board	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-180.0
C-21.	Min. 2,500 psi structural concrete	Min. 1.5-inch Insulam (WF)	Flexible FAST (FULL)	None	N/A	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-180.0
C-22.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II or SecureShield	FAST 100, FAST 100 LV, Flexible FAST (FULL)	(Optional) Additional layers of base insulation	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-225.0
C-23.	Min. 2,500 psi structural concrete	Min. 1.5-inch Insulfoam HD Composite	Flexible FAST (FULL)	None	N/A	Mule-Hide PVC	PVC BA or Low VOC PVC BA	-225.0
C-24.	Min. 2,500 psi structural concrete	(Optional) Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Min. 0.25-inch Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC	PVC BA or Low VOC PVC BA	-315.0

**TABLE 3A: STRUCTURAL CONCRETE DECKS – NEW CONSTRUCTION OR REROOF (TEAR-OFF)**  
**SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**  
 REFER TO NOTE 17 FOR VAPOR BARRIER OPTIONS

System No.	Deck (Note 1)	Base Insulation Layer		Top Insulation Layer		Roof Cover (Note 16)		MDP (psf)
		Type	Attach	Type	Attach	Membrane	Application	
C-25.	Min. 2,500 psi structural concrete	Min. 1.5-inch Insulam (GYP)	Flexible FAST (FULL)	None	N/A	Mule-Hide PVC or PVC KEE HP	PVC BA	-247.5
C-26.	Min. 2,500 psi structural concrete	Min. 1.5-inch Insulfoam HD Composite	Flexible FAST (FULL)	None	N/A	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-247.5
C-27.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II	OB500	(Optional) Additional layers of base insulation	OB500	Mule-Hide PVC	HydroBond	-60.0
C-28.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II	OB500	Min. 0.25-inch Dens Deck Prime or SECUROCK Gypsum-Fiber Roof Board	OB500	Mule-Hide PVC	HydroBond	-60.0
C-29.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H or HP-W, Poly ISO 1, H-Shield, Poly ISO 2, ACFoam II	OB500	Min. 0.25-inch SECUROCK Gypsum-Fiber Roof Board	OB500	Mule-Hide PVC or PVC KEE HP	LOW VOC PVC BA	-112.5
C-30.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-N or ENRGY 3	OB500	(Optional) Additional layers of base insulation	OB500	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-127.5
C-31.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H or HP-W, Poly ISO 1, H-Shield, Poly ISO 2, ACFoam II	OB500	(Optional) Additional layers of base insulation	OB500	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-150.0
C-32.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-N or ENRGY 3	OB500	Min. 0.25-inch Dens Deck Prime	OB500	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-127.5
C-33.	Min. 2,500 psi structural concrete	(Optional) Min. 1.5-inch Polyiso HP-H or HP-W, Poly ISO 1, H-Shield, Poly ISO 2, ACFoam II	OB500	Min. 0.25-inch Dens Deck Prime	OB500	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-150.0
C-34.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H or HP-W, Poly ISO 1, H-Shield, Poly ISO 2, ACFoam II	OB500	Min. 0.25-inch SECUROCK Gypsum-Fiber Roof Board	OB500	Mule-Hide PVC or PVC KEE HP	PVC BA	-247.5
<b>MULE-HIDE PVC FRS FLEECE BACK OR PVC KEE HP FRS FLEECE BACK APPLICATIONS:</b>								
C-35.	Min. 2,500 psi structural concrete	Min. 1.5-inch Poly ISO 1, H-Shield, Polyiso HP-H, Poly ISO 2, ACFoam II, H-Shield CG, SecurShield	HELIX	Min. 0.5-inch Poly ISO 1-HD, H-Shield HD, SecurShield HD Plus	HELIX	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	HELIX (FULL)	-165.0

**TABLE 3A: STRUCTURAL CONCRETE DECKS – NEW CONSTRUCTION OR REROOF (TEAR-OFF)**  
**SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**  
 REFER TO NOTE 17 FOR VAPOR BARRIER OPTIONS

System No.	Deck (Note 1)	Base Insulation Layer		Top Insulation Layer		Roof Cover (Note 16)		MDP (psf)
		Type	Attach	Type	Attach	Membrane	Application	
C-36.	Min. 2,500 psi structural concrete	Min. 1.5-inch Poly ISO 1, H-Shield, Polyiso HP-H, Poly ISO 2, ACFoam II, H-Shield CG, SecurShield	HELIX	Min. 0.25-inch Dens Deck Prime, DEXcell FA Glass Mat Roof Board, SECUROCK Gypsum-Fiber Roof Board or min. 7/16-inch DEXcell Cement Roof Board	HELIX	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	HELIX (FULL)	-195.0
C-37.	Min. 2,500 psi structural concrete	Min. 1.5-inch Poly ISO 1, H-Shield, Polyiso HP-H, Poly ISO 2, ACFoam II, H-Shield CG, SecurShield	HELIX	(Optional) Additional layers of base insulation	HELIX	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	HELIX (FULL)	-322.5
C-38.	Min. 2,500 psi structural concrete	Min. 1-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, AC Foam II or min. 1.5-inch Pactiv GreenGuard Extruded Polystyrene	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Min. 0.25-inch Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (RIBBON, 12-inch o.c.)	-37.5
C-39.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II, Pactiv GreenGuard or Foamular 150 or Min. 1.0-inch Dow Styrofoam	BIAB	Min. 0.5-inch HP Recovery Board	BIAB	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-157.5
C-40.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II, Pactiv GreenGuard or Foamular 150 or Min. 1.0-inch Dow Styrofoam	FAST 100, FAST 100 LV, Flexible FAST (RIBBON)	Min. 1.5-inch SecurShield HD Composite, Poly ISO 1-HD Composite, H-Shield HD Composite	FAST 100, FAST 100 LV, Flexible FAST (RIBBON)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-285.0
C-41.	Min. 2,500 psi structural concrete	Min. 1.5-inch Polyiso HP-H, HP-N, HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II, Pactiv GreenGuard or Foamular 150 or Min. 1.0-inch Dow Styrofoam	FAST 100, FAST 100 LV, Flexible FAST (RIBBON)	Min. 0.5-inch HP Recovery Board	FAST 100, FAST 100 LV, Flexible FAST (RIBBON)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-330.0
C-42.	Min. 2,500 psi structural concrete	(Optional) Polyiso HP-H, HP-N, or HP-W, ENRGY 3, Poly ISO 1, H-Shield, or AC Foam II	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Polyiso HP-HNB, Poly ISO 1-NB, H-Shield NB	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-187.5
C-43.	Min. 2,500 psi structural concrete	Min. 1-inch Insulfoam SP	FAST 100 LV (FULL)	None	N/A	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV (FULL)	-272.5
C-44.	Min. 2,500 psi structural concrete	One or more layers, min. 1-inch FM Approved EPS (BASF, NOVA, or Huntsman beads)	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Min. 0.5-inch FM approved fiberboard	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-322.5

**TABLE 3A: STRUCTURAL CONCRETE DECKS – NEW CONSTRUCTION OR REROOF (TEAR-OFF)**  
**SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**  
 REFER TO NOTE 17 FOR VAPOR BARRIER OPTIONS

System No.	Deck (Note 1)	Base Insulation Layer		Top Insulation Layer		Roof Cover (Note 16)		MDP (psf)
		Type	Attach	Type	Attach	Membrane	Application	
C-45.	Min. 2,500 psi structural concrete	Min. 1-inch Insulfoam SP	Flexible FAST (FULL)	None	N/A	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	Flexible FAST (FULL)	-335.0
C-46.	Min. 2,500 psi structural concrete	Min. 1.5-inch SecurShield HD Composite, Poly ISO 1-HD Composite, H-Shield HD Composite	FAST 100, FAST 100 LV, Flexible FAST (FULL)	None	N/A	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV (FULL)	-427.5
C-47.	Min. 2,500 psi structural concrete	Min. 7/16-inch APA rated OSB, 0.25-inch Dens Deck or thick Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST (FULL)	(Optional) One or more layers min. 7/16-inch APA rated OSB, 0.25-inch Dens Deck or thick Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-457.5
C-48.	Min. 2,500 psi structural concrete	Polyiso HP-H, HP-N, or HP-W, ENRGY 3, Poly ISO 1, H-Shield, or AC Foam II	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Min. 7/16-inch APA rated OSB, 0.25-inch Dens Deck or thick Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-457.5
C-49.	Min. 2,500 psi structural concrete	Min. 2-inch Polyiso HP-H, Poly ISO 1, H-Shield	OB500	Min. 0.25-inch SECUROCK Gypsum-Fiber Roof Board	OB500	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-247.5

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

System No.	Deck (Note 1)	Primer	Roof Cover (Note 16)		MDP (psf)
			Type	Attach	
C-50.	Min. 2,500 psi structural concrete	None	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-495.0

**TABLE 4A-1: LIGHTWEIGHT CONCRETE OVER STEEL DECK - NEW CONSTRUCTION OR REROOF (TEAR-OFF)  
SYSTEM TYPE F: NON-INSULATED, BONDED ROOF COVER**

System No.	Deck (Note 1)	Lightweight Concrete (Note 15)				Roof Cover (Note 16)		MDP (psf)
		Type	Surface Treatment	Supplemental Attachment		Type	Attach	
				Fasteners	Density			
LWC-1	Min. 22 ga., Type B, Grade 33 vented steel at max. 6 ft spans attached with ½-inch dia. puddle welds with weld-washers spaced 6-inch o.c.	Min. 36 pcf wet cast density, min. 200 psi, min. 2-inch thick Celcore MF Cellular Concrete (cast with or without min. 1-inch EPS holey board). <i>Note A.</i>	None	None	N/A	Mule-Hide PVC	PVC BA	-60.0
LWC-2	Min. 22 ga., Type B, Grade 33 vented steel at max. 6 ft spans attached with ½-inch dia. puddle welds with weld-washers spaced 6-inch o.c.	Min. 36 pcf wet cast density, min. 200 psi, min. 2-inch thick Celcore MF Cellular Concrete (cast with or without min. 1-inch EPS holey board). <i>Note A.</i>	None	None	N/A	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-60.0
LWC-3	Min. 22 ga., Type B, Grade 33 vented steel at max. 6 ft spans attached with ½-inch dia. puddle welds with weld-washers spaced 6-inch o.c.	Min. 36 pcf wet cast density, min. 200 psi, min. 2-inch thick Celcore MF Cellular Concrete (cast with or without min. 1-inch EPS holey board). <i>Note A.</i>	None	Mule-Hide HDP Fastener with 3 in. Insulation Plate	1 per 9 ft <sup>2</sup>	Mule-Hide PVC	PVC BA	-67.5
LWC-4	Min. 22 ga., Type B, Grade 33 vented steel at max. 6 ft spans attached with ½-inch dia. puddle welds with weld-washers spaced 6-inch o.c.	Min. 36 pcf wet cast density, min. 200 psi, min. 2-inch thick Celcore MF Cellular Concrete (cast with or without min. 1-inch EPS holey board). <i>Note A.</i>	None	Mule-Hide HDP Fastener with 3 in. Insulation Plate	1 per 9 ft <sup>2</sup>	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-67.5
LWC-5	Min. 22 ga., Type B, Grade 33 vented steel at max. 4 ft spans attached with puddle welds with 3/8-inch weld-washers spaced 6-inch o.c.	Min. 38 pcf wet cast density, min. 200 psi, min. 2-inch thick Celcore MF Cellular Concrete (cast with or without min. 1-inch EPS holey board). <i>Note A.</i>	Celcore PVA	None	N/A	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-67.5
LWC-6	Min. 22 ga., Type B, Grade 33 vented steel at max. 6 ft spans attached with ½-inch dia. puddle welds with weld-washers spaced 6-inch o.c.	Min. 36 pcf wet cast density, min. 200 psi, min. 2-inch thick Celcore MF Cellular Concrete (cast with or without min. 1-inch EPS holey board). <i>Note A.</i>	None	Mule-Hide HDP Fastener with 3 in. Insulation Plate	1 per 1 ft <sup>2</sup>	Mule-Hide PVC	PVC BA	-120.0
LWC-7	Min. 22 ga., Type B, Grade 33 vented steel at max. 6 ft spans attached with ½-inch dia. puddle welds with weld-washers spaced 6-inch o.c.	Min. 36 pcf wet cast density, min. 200 psi, min. 2-inch thick Celcore MF Cellular Concrete (cast with or without min. 1-inch EPS holey board). <i>Note A.</i>	None	Mule-Hide HDP Fastener with 3 in. Insulation Plate	1 per 1 ft <sup>2</sup>	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-120.0

Note A.) If the LWC to be used on the project is not Celcore MF, or if the LWC is existing in a re-roof (tear-off) condition, compressive strength and fastener withdrawal resistance testing shall be conducted. Compressive strength testing shall be in accordance with ASTM C495 (for new pour) or ASTM C109 (for existing) and shall yield a minimum 200 psi result. Field withdrawal resistance testing in accordance with TAS 105 or ANSI/SPRI FX-1 and shall yield an average withdrawal performance not less than 55 lbf with a Trufast FM-90 Base Sheet Fastener. If question exists as to the adhesion to the LWC surface, field testing in accordance with ASTM E907 or FM LPDS 1-29 is recommended. All testing shall be performed by an accredited testing agency acceptable to the Authority Having Jurisdiction.



**TABLE 4A-2: LIGHTWEIGHT CONCRETE OVER STRUCTURAL CONCRETE – NEW CONSTRUCTION OR REROOF (TEAR-OFF)  
SYSTEM TYPE F: NON-INSULATED, BONDED ROOF COVER**

System No.	Deck (Note 1)	Lightweight Concrete (Note 15)	Roof Cover		MDP (psf)
			Membrane	Application	
LWC-8	Min. 2,500 psi concrete	Min. 36 pcf wet cast density, min. 200 psi, min. 2-inch thick Celcore MF Cellular Concrete (cast with or without min. 1-inch EPS holey board). <i>Note A.</i>	Mule-Hide PVC	PVC BA	-220.0
LWC-9	Min. 2,500 psi concrete	Min. 36 pcf wet cast density, min. 200 psi, min. 2-inch thick Celcore MF Cellular Concrete (cast with or without min. 1-inch EPS holey board). <i>Note A.</i>	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (FULL)	-232.5

Note A.) If the LWC to be used on the project is not Celcore MF, or if the LWC is existing in a re-roof (tear-off) condition, compressive strength and fastener withdrawal resistance testing shall be conducted. Compressive strength testing shall be in accordance with ASTM C495 (for new pour) or ASTM C109 (for existing) and shall yield a minimum 200 psi result. Field withdrawal resistance testing in accordance with TAS 105 or ANSI/SPRI FX-1 and shall yield an average withdrawal performance not less than 55 lbf with a Trufast FM-90 Base Sheet Fastener. If question exists as to the adhesion to the LWC surface, field testing in accordance with ASTM E907 or FM LPDS 1-29 is recommended. All testing shall be performed by an accredited testing agency acceptable to the Authority Having Jurisdiction.

**TABLE 5A: GYPSUM DECKS – REROOF (TEAR-OFF)  
SYSTEM TYPE F: NON-INSULATED, BONDED ROOF COVER**

System No.	Deck (Notes 1 & 12)	Primer	Roof Cover		MDP (psf)
			Type	Attach	
G-1.	Existing poured gypsum or gypsum plank	None	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST, (FULL)	-295.0

**TABLE 6A: RECOVER APPLICATIONS**  
**SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**

System No.	Substrate (Notes 1 & 12)	Base Insulation Layer		Top Insulation Layer		Roof Cover (Note 16)		MDP (psf)
		Type	Attach	Type	Attach	Type	Application	
<b>MULE-HIDE PVC OR PVC KEE HP APPLICATIONS:</b>								
R-1	Existing asphaltic BUR or mineral surface cap sheet	(Optional) Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACfoam II	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Min. 0.5-inch HP Recovery Board	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-45.0
R-2	Existing asphaltic BUR or mineral surface cap sheet	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACfoam II	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	(Optional) Additional layers of base insulation	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC	PVC BA, Low VOC PVC BA, HydroBond	-45.0
R-3	Existing asphaltic BUR or mineral surface cap sheet	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACfoam II	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Min. 0.25-inch Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC	PVC BA, Low VOC PVC BA, HydroBond	-45.0
R-4	Existing asphaltic BUR or mineral surface cap sheet	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACfoam II	FAST 100, FAST 100 LV, Flexible FAST (FULL)	(Optional) Additional layers of base insulation	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC	HydroBond	-60.0
R-5	Existing asphaltic BUR or mineral surface cap sheet	(Optional) Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACfoam II	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Min. 0.25-inch Dens Deck Prime or SECUROCK Gypsum-Fiber Roof Board	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC	HydroBond	-60.0
R-6	Existing asphaltic BUR or mineral surface cap sheet	(Optional) Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACfoam II	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Min. 2.0-inch Polyiso HP-H Composite, Poly ISO 1-WF, H-Shield-WF	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-180.0
R-7	Existing asphaltic BUR or mineral surface cap sheet	(Optional) Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACfoam II	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Min. 0.5-inch HP Recovery Board	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-180.0
R-8	Existing asphaltic BUR or mineral surface cap sheet	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACfoam II	FAST 100, FAST 100 LV, Flexible FAST (FULL)	(Optional) Additional layers of base insulation	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-225.0
R-9	Existing asphaltic BUR or mineral surface cap sheet	(Optional) Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACfoam II	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Min. 0.25-inch Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-232.5
R-10	Existing asphaltic BUR or mineral surface cap sheet	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACfoam II	OB500	(Optional) Additional layers of base insulation	OB500	Mule-Hide PVC	HydroBond	-60.0
R-11	Existing asphaltic BUR or mineral surface cap sheet	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACfoam II	OB500	Min. 0.25-inch Dens Deck Prime or SECUROCK Gypsum-Fiber Roof Board	OB500	Mule-Hide PVC	HydroBond	-60.0
R-12	Existing asphaltic BUR or mineral surface cap sheet	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACfoam II	OB500	(Optional) Additional layers of base insulation	OB500	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-120.0

**TABLE 6A: RECOVER APPLICATIONS**  
**SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**

System No.	Substrate (Notes 1 & 12)	Base Insulation Layer		Top Insulation Layer		Roof Cover (Note 16)		MDP (psf)
		Type	Attach	Type	Attach	Type	Application	
R-13	Existing asphaltic BUR or mineral surface cap sheet	Min. 1.5-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, Poly ISO 2, ACFoam II	OB500	Min. 0.25-inch Dens Deck Prime	OB500	Mule-Hide PVC or PVC KEE HP	PVC BA or Low VOC PVC BA	-120.0
<b>MULE-HIDE PVC FRS FLEECE BACK OR PVC KEE HP FRS FLEECE BACK APPLICATIONS:</b>								
R-14	Existing asphaltic BUR or mineral surface cap sheet	Min. 1-inch Polyiso HP-H, HP-N or HP-W, Poly ISO 1, H-Shield, ENRGY 3, AC Foam II or min. 1.5-inch Pactiv GreenGuard Extruded Polystyrene	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Min. 0.25-inch Dens Deck Prime	FAST 100, FAST 100 LV, Flexible FAST, BIAB (RIBBON)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (RIBBON, 12-inch o.c.)	-37.5
R-15	Existing gravel-surfaced asphaltic BUR	Min. 1-inch Insulfoam SP	Flexible FAST (FULL)	None	N/A	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	Flexible FAST (FULL)	-294.1
R-16	Existing asphaltic BUR or mineral surface cap sheet	Min. 1.0-inch Polyiso HP-H, Poly ISO 1, H-Shield	FAST 100, FAST 100 LV, Flexible FAST (FULL)	(Optional) Additional layers of base insulation	FAST 100, FAST 100 LV, Flexible FAST (FULL)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST, (FULL)	-300.0
R-17	Existing gravel-surfaced asphaltic BUR	Min. 1-inch Insulfoam SP	FAST 100 LV (FULL)	None	N/A	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV (FULL)	-475.0

**TABLE 6B: STEEL - RECOVER**

**SYSTEM TYPE D-1: INSTALLED, MECHANICALLY ATTACHED ROOF COVER**

*All areas where the existing metal panels do not lay flush on the underlying purlin shall have a 0.25-inch diameter pilot hole pre-drilled into the panel prior to driving the Purlin Fastener into the purlin.*

System No.	Substrate (Note 1)	Insulation		Roof Cover			MDP (psf)
		Type	Attach	Membrane	Fasteners	Attachment	
R-18	Existing standing seam or lap seam metal roof covers having min. 3/16-inch to max. ¼-inch thick steel purlins spaced <b>max. 75.5-inch o.c.</b>	One or more layers, any combination	Prelim. attached	Mule-Hide PVC	Mule-Hide Purlin Fastener and Mule-Hide 2.4 in. Seam Plate	18-inch o.c. within 5.5-inch wide laps spaced max. 75.5-inch o.c. to engage steel purlin. Laps sealed with 1.5-inch heat weld.	-30.0
R-19	Existing standing seam or lap seam metal roof covers having min. 3/16-inch to max. ¼-inch thick steel purlins spaced <b>max. 75.5-inch o.c.</b>	One or more layers, any combination	Prelim. attached	Mule-Hide PVC	Mule-Hide Purlin Fastener and Mule-Hide 2.4 in. Seam Plate	12-inch o.c. within 5.5-inch wide laps spaced max. 75.5-inch o.c. to engage steel purlin. Laps sealed with 1.5-inch heat weld.	-45.0
R-20	Existing standing seam or lap seam metal roof covers having min. 3/16-inch to max. ¼-inch thick steel purlins spaced <b>max. 75.5-inch o.c.</b>	One or more layers, any combination	Prelim. attached	Mule-Hide PVC or PVC KEE HP	Mule-Hide Purlin Fastener and Mule-Hide 2.4 in. Seam Plate	6-inch o.c. within 5.5-inch wide laps spaced max. 75.5-inch o.c. to engage steel purlin. Laps sealed with 1.5-inch heat weld.	-52.5
R-21	Existing standing seam or lap seam metal roof covers having min. 3/16-inch to max. ¼-inch thick steel purlins spaced <b>max. 35.5-inch o.c.</b>	One or more layers, any combination	Prelim. attached	Mule-Hide PVC	Mule-Hide Purlin Fastener and Mule-Hide 2.4 in. Seam Plate	12-inch o.c. within 5-inch wide laps spaced max. 35.5-inch o.c. to engage steel purlin. Laps sealed with 1.5-inch heat weld.	-52.5
R-22	Existing standing seam or lap seam metal roof covers having min. 3/16-inch to max. ¼-inch thick steel purlins spaced <b>max. 35-inch o.c.</b>	One or more layers, any combination	Prelim. attached	Mule-Hide PVC	Mule-Hide Purlin Fastener and Mule-Hide 2.4 in. Seam Plate	12-inch o.c. within 5.5-inch wide laps spaced max. 35-inch o.c. to engage steel purlin. Laps sealed with 1.5-inch heat weld.	-60.0
R-23	Existing standing seam or lap seam metal roof covers having min. 3/16-inch to max. ¼-inch thick steel purlins spaced <b>max. 35.5-inch o.c.</b>	One or more layers, any combination	Prelim. attached	Mule-Hide PVC or PVC KEE HP	Mule-Hide Purlin Fastener and Mule-Hide 2.4 in. Seam Plate	6-inch o.c. within 5.5-inch wide laps spaced max. 35-inch o.c. to engage steel purlin. Laps sealed with 1.5-inch heat weld.	-82.5

**TABLE 6C: RECOVER APPLICATIONS**

**SYSTEM TYPE F: NON-INSULATED, BONDED ROOF COVER**

System No.	Substrate (Notes 1 & 12)	Roof Cover		MDP (psf)
		Type	Attach	
R-24	Existing asphaltic BUR or mineral surface cap sheet (Note 12)	Mule-Hide PVC FRS Fleece Back or PVC KEE HP FRS Fleece Back	FAST 100 LV or Flexible FAST (RIBBON, 6-inch o.c. or FULL)	-75.0