

MULE-HIDE FR DECK PANEL

PRODUCT DESCRIPTION

Mule-Hide's FR Deck Panel is an exceptionally durable fire resistant structural building panel. Fire resistance is provided by a tough, thin layer of inert, inorganic material that will not degrade the strength of wood even in harsh environments. The FR Deck Panel utilizes a proprietary, fire resistant treatment that is factory applied to a minimum 7/16" thick OSB panel or a minimum 15/32" thick plywood panel. The FR Deck Panel is available with two thicknesses of treatment to obtain either a Class "C" or Class "A" assembly. Under normal construction and application conditions, the treatment will not flake, crack or peel. The fire resistant treatment does not reduce the strength of the panel. The fire resistant treatment will not promote corrosion of nails, staples or screws and will not promote rot by trapping moisture in the wood. The proprietary treatment contains inorganic material that helps to inhibit the growth of fungus and molds. The treatment is a clean and safe inorganic compound. It is not hazardous or toxic and does not contain or use harmful or environmentally unsound chemicals in its manufacture.

Mule-Hide also makes available FR Deck Panel-Z. This is an OSB panel that has been treated for termite protection. Contact Mule-Hide for additional information.

BASIC USES

Mule-Hide's FR Deck Panel is designed for primary use as roof deck sheathing. It may be used in place of installations where a combination of a wood deck and gypsum cover board are used to obtain a fire rated roof assembly when used in conjunction with Mule-Hide's Acrylic Water Base Bonding Adhesive and EPDM membranes or Mule-Hide's WBBA 2000 water based adhesive and TPO membranes.

NOTE: The FR Deck Panel must be installed with the treated (coated) side up. The panel can be cut to size, drilled, screwed, nailed or stapled in the same manner as standard plywood or OSB sheathing. Simply design and build to the structural requirements dictated by the appropriate building codes. Fastener types and attachment frequency are determined by the appropriate code requirements. For fire and wind uplift classifications the FR Deck Panel (plywood based) may be substituted with the FR Deck Panel (OSB based) provided the OSB panel is equal in thickness to the plywood panel. This applies only when fully adhering EPDM or TPO membranes directly to the FR Deck Panel and the OSB panel is installed in the same manner as the plywood panel.

HANDLING

Mule-Hide's FR Deck Panel is shipped in units typical to plywood or OSB sheathing. Procedures for handling these units are the same as those for standard plywood or OSB. The units will contain 3 metal straps with plastic edge protectors and blocking for convenient storage. Face plates will be on each unit and the printed signage will include the Mule-Hide logo, specific product identification and lot number. Each panel will be marked with the appropriate UL product classification. The panels should be stored, under cover, in their original packaging until ready for use. Broken units should be covered to prevent dirt and moisture contact. The Mule-Hide FR Deck Panel should be moved and placed using the same methods as regular sheathing. Please refer to the American Plywood Association's Design/Construction Guide (Form No. E301L, page 15) for storage and handling requirements. When storing the Mule-Hide FR Deck Panel outside, the units should be stacked on a level platform and covered with plastic sheets or tarps.

APPLICATION

Mule-Hide FR Deck Panel may be cut to size using common carpentry tools. Cutting of the panels should be done in a well-ventilated area. An approved dust respirator is recommended when cutting. The panel will release wood dust and possibly amorphous silica (crystalline quartz). As with all construction products, follow all appropriate OSHA recommendations for use of proper protective clothing.

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APPLICATION (continued)

The Mule-Hide FR Deck Panel should be installed in accordance with local Building Official's requirements for low-slope deck attachment. In no event shall fastener spacing be greater than the following:

1. Space fasteners a maximum of 12" on center along intermediate framing members.
2. Space fasteners a maximum of 6" on center along supported panel ends. Fasteners shall be located 3/8" in from the panel edge.

It is the responsibility of the Modular Manufacturer's design Professional to determine appropriate fastener type, length and spacing requirements to assure compliance with code, construction, and performance requirements.

Additional information regarding the attachment of plywood and OSB may be found at www.apawood.org.

TYPICAL PHYSICAL PROPERTIES

All structural sheathing products purchased to manufacture this product utilize APA or TECO as their independent verification agency for span rating and labeling for conformance to recognized industry performance standards: PS 1-95 (Plywood) or PS 2-92 (OSB). Each sheet is stamped with a label identifying the span rating, third party agency, and panel standard to which the panel was manufactured.

| Test Specifications | Property | Results* |
|---------------------------------------|--|--|
| ASTM E 84 (extended to 30 minutes) | Flame Spread | FSI=5, SDI=40, Maximum Progressive Advance (30 min) +7.5 ft for DFPW |
| APA F 4 | Adhesion Shield | Pass |
| MIL-L 19140E | Corrosion | No contribution to metal corrosion, 0.069-0.138 mils/yr. for Brass 0.00 mils/yr for both steel and aluminum |
| ASTM g 53 | Weathering (1000 hrs) | No deterioration |
| ASTM D 2247 | Weathering (500 hrs) | No deterioration |
| ASTM D 1037 | Accelerated Aging- | No deterioration of strength after 56 days in 170°F, 65% RH Chamber. MOR: (psi x 1000) FR Deck Panel/DFPW = 4,240 OSB = 4,960 |
| ASTM D 2794 | Impact Resistance | Pass – slight indent @ 160 lbs. |
| ASTM D 790 | Bending Strength | MOR (psi x 1000): Pyrotite (MD) = 6.97, Pyrotite (XD)= 5.98 |
| Special Protocol | Nail Penetration | No wood exposed |
| Special Protocol | Microbial/fungal growth | Pyrotite appears to be more resistant to microbial/fungal attack than untreated wood products. |
| Combustion Toxicity Test | Pittsburgh Smoke Toxic Potency | The toxic potency is equal to or less than untreated plywood, LC50= 17.7 & 67.3 grams |
| ASTM D 2898 | Weathering Exterior | After D 2898 procedure, ASTM E 84 extended for 30 minutes resulted in FSI=5, SDI=20 |
| Freeze/Thaw | Soak 48 hrs., frozen at -40°F for 8 hours then subject to ASTM D 1037 impact test | No brittleness effect at cold temperatures or failure due to freezing |
| Outdoor Storage of FR Deck Panel | Warp and Swell over 90 days | Incremental warp < 3/8", no swell compared to non-laminated controls |
| ASTM D 2898 Modified | Accelerated weathering of FR Deck Panel on trusses | No measurable warping of FR Deck Panel after 96 hrs of rain followed by drying (one cycle) for 12 cycles (2304 hrs). |
| ASTM E-96 | Permeability | Passes vapor, >3 perms |
| ASTM E 119 | Two hour fire resistance Assembly (structural) | Listed assembly using MH fire-rated structural sheathing |
| ASTM E119/UBC 17-3 | 15 minute thermal | Listed as a thermal barrier. Fr-deck panel substrate = 7/16" OSB |

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* Results based on FR Deck Panel A

UPLIFT PRESSURE TESTS RESULTS

The Mule-Hide EPDM membrane fully adhered to the Mule-Hide FR Deck Panel utilizing the Mule-Hide Acrylic Water Base Bonding Adhesive was tested in accordance with ANSI/UL 1897, "Uplift Tests for Roof Covering Systems". The fully adhered EPDM membrane attained a 240 PSF uplift rating.

The Mule-Hide TPO membrane fully adhered to the Mule-Hide FR Deck Panel utilizing the Mule-Hide WBBA 2000 adhesive was tested in accordance with FM Standard 4470, Appendix K and FBC TAS 114, Appendix J.

The fully adhered TPO membrane achieved a 90 psf. uplift rating over 15/32" thick FR Deck Panel and 105 psf. uplift rating over 19/32" FR Deck Panel.

FIRE TESTS RESULTS

Following are results for UL testing:

System 1 - Class C

- Deck:** 7/16" thick Mule-Hide FR Deck Panel "C" **Incline:** 1/2" maximum
- Membranes:** a. Minimum .045" thick Mule-Hide Standard EPDM membrane fully adhered with Mule-Hide Acrylic Water Base Bonding Adhesive at 1 gal/100 sf.
- Additional Membranes:** Mule-Hide White-on-Black EPDM
Mule-Hide Standard Reinforced EPDM
Mule-Hide FR Reinforced EPDM
- b. Minimum .045" thick Mule-Hide TPO membrane fully adhered with Mule-Hide WBBA 2000 adhesive at 1 gal/ 100-120 sf.

System 2 - Class A

- Deck:** 7/16" thick Mule-Hide FR Deck Panel "A"* **Incline:** 1/2" maximum
- Membranes:** a. Minimum .045" thick Mule-Hide Standard EPDM membrane fully adhered with Mule-Hide Acrylic Water Base Bonding Adhesive at 1 gal/100 sf.
- Additional Membranes:** Mule-Hide White-on-Black EPDM
Mule-Hide Standard Reinforced EPDM
Mule-Hide FR Reinforced EPDM
- b. Minimum .045" thick Mule-Hide TPO membrane fully adhered with Mule-Hide WBBA 2000 adhesive at 1 gal/ 100-120 sf.

* - All deck joints blocked with 2 x 4 lumber. Gaps in Mule-Hide FR Deck Panel are caulked with W.R. Grace & Co. "FlameSafe FS900+" caulk.

Class A and C fire tests were conducted on the above systems. These tests were conducted in accordance with the Test Standard ANSI/UL 790, "Tests for Fire Resistance of Roof Covering Materials", (ASTM E-108 and NFPA 256).

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PROTECTION & SAFETY

Mule-Hide maintains Material Safety Data Sheets on all of its products. Material Safety Data Sheets contain health and safety information for your development of appropriate product handling procedures to protect your employees and customers. Mule-Hide's Material Safety Data Sheets should be read and understood by all of your supervisory personnel and employees before using Mule-Hide products in your facilities.

ADDITIONAL INFORMATION

The information given on this PDS is subject to change without notice. Always check the Mule-Hide website at www.mulehide.com for the latest information, changes and updates or contact Mule-Hide Products Company at 800-786-1492.

DISCLAIMER

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