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## AFM AND AFM-WM ANTI-FRACTURE MEMBRANES AND JIFFY SEAL 140/60 WATERPROOFING MEMBRANES

### CSI Division:

09 00 00—FINISHES

### CSI Section:

09 30 00—Tiling

## 1.0 SCOPE OF EVALUATION

### 1.1 Compliance to the following codes & regulations:

- 2012 and 2009 Uniform Plumbing Code® (UPC)
- 2012 and 2009 International Building Code® (IBC)
- 2012 and 2009 International Residential Code® (IRC)
- 2012 and 2009 International Plumbing Code® (IPC)
- 2010 Florida Building Code-Building
- 2010 Florida Building Code-Residential
- 2010 Florida Building Code-Plumbing
- 2010 California Building Code (CBC)
- 2010 California Residential Code (CRC), Part VII-plumbing
- 2010 California Plumbing Code (CPC), Title 24, Part 5

### 1.2 Evaluated in accordance with:

- ICC-ES AC115

### 1.3 Properties assessed:

- Waterproofing

## 2.0 PRODUCT USE

**2.1 AFM and AFM-WM Anti-fracture Membranes** are waterproofing membranes used in interior and exterior installations of ceramic tile and dimension stone on concrete, plywood and metal floor substrates in compliance with Sections 1210.2 and 2103 of the IBC.

**2.2 AFM and AFM-WM Anti-fracture Membranes** are waterproofing membranes used as nonmetallic shower linings complying with the additional requirements and testing of the completed shower liner installation as set forth with Section 408.7 of the UPC and Section 411.8 of the CPC, Title 24, Part 5.

**2.3 AFM and AFM-WM Anti-fracture Membranes** are waterproofing membranes used as shower linings in accordance with Section P2702.2 of the Florida Building Code-Residential or Section 417.5 of the Florida Building Code-Plumbing.

**2.4 AFM and AFM-WM Anti-fracture Membranes** are waterproofing membranes used as shower linings in accordance with Section 417.5 of the IPC.

## 3.0 PRODUCT DESCRIPTION

**3.1 Product information:** All AFM and AFM-WM Anti-fracture Membrane materials shall be stored indoors, out of direct sunlight in a dry location. When the membranes are stored at temperatures between 50°F and 90°F (10°C and 32°C), the materials have a shelf life of up to two years. The materials shall remain in the packaging until ready for use.

**3.2 Material information:** AFM Anti-fracture Membranes (AFM) are self-adhering, 40-mil-thick (1.016 mm), peel-and-stick waterproofing membranes. These membranes contain fabric reinforcement laminated to a SBS modified rubberized asphalt adhesive layer. A release film protects the adhesive surface, and shall be removed during installation. The product is available in 12-inch-wide-by-25-foot-long, 12-inch-wide by-75-foot-long and 36-inch-wide by-75-foot-long rolls (304 mm by 7.6 m, 394 mm by 22.8 m, and 914 mm by 22.8 m).

**3.3 AFM-WM Anti-fracture Membrane:** AFM-WM Anti-fracture Membranes are similar to AFM Anti-fracture Membranes described in Section 3.2 of this report with an added 2-inch (51 mm) peel-and-stick side-overlap strip that is used as the leading edge for membrane seams. The membrane is available in 36-inch-wide-by-75-foot-long rolls (914 mm by 22.8 m).

**3.4 Jiffy Seal 140/60 Membrane:** Jiffy Seal 140/60 membrane are a self-adhering, 60-mil-thick (1.524 mm), peel-and-stick waterproofing membranes. These membranes are manufactured from a layer of modified rubberized asphalt, reinforced with an inert reinforcement that is sandwiched between two layers of modified rubberized asphalt. The membrane is tacky on both sides, and has a release film on the top surface to prevent it from adhering to itself prior to application. The membrane has a 2-inch wide (51 mm) peel-and-stick side-overlap strip, and is available in 12-inch-wide-by-50-foot-long, 30-inch-wide-by-50-foot-long, and 60-inch-wide-by-50-foot-long rolls (304 mm by 15.24 m, 762 mm by 15.24 m and 1524 mm by 15.24 m).



**3.5 AFM500 Detail Tape:** AFM500 Detail Tape is a 40-mil-thick (1.16 mm), unreinforced tape used for detailing inside corners, drains, posts, protrusions and any other areas where it is difficult for the membrane to fit in, before membrane installation. The black, SBS modified rubberized asphalt tapes are packaged in either 6-inch-wide by 50-foot-long rolls or 12 inch-wide by 50-foot-long rolls (152 mm by 15.24 m or 304 mm by 15.24 m).

**3.6 #6000 Primer:** The #6000 Primer is a water-based primer for indoor membrane installations. The primer is mixed before and during application in its full, concentrated strength. Packaged in 16 ounce or one gallon (0.47 or 3.7 L) containers, the primer shall be stored at a 40°F (4°C) minimum. Maximum shelf life is 12 months in unopened containers.

**3.7 Universal Water Based Primer:** The Universal Water Based Primer is a water-based primer for indoor and outdoor, horizontal and vertical membrane applications. The primer is mixed before and during application in its full, concentrated strength. Packaged in one gallon or five gallon containers (3.7 or 18.93 L), the primer shall be stored at a 40°F (4°C) minimum. Maximum shelf life is 12 months in unopened containers.

**3.8 #80 Primer:** The #80 Primer is an exterior-grade primer for exterior membrane installations. The primer contains asphalt SBS solvents and is used in its full, concentrated strength. Packaged in one gallon, five gallon, or 55 gallon (3.78, 18.93, or 208 L) containers, the primer shall be stored at room temperature. Maximum shelf life is 12 months in unopened containers.

**3.9 JS 160H Mastic:** JS160H Mastic is a rubberized, adhesive, liquid membrane containing bituminous and synthetic resins used for sealing membrane terminations and at end laps, for seam sealing and for membrane repairs. The JS160H Mastic shall not be used as a floor-leveling compound beneath membranes. Packaged in one, 10.5 ounce, one gallon, or five gallon (0.31, 3.78, or 18.93 L) containers, the primer shall be stored at room temperature. Maximum shelf life is 12 months in unopened containers.

## 4.0 DESIGN AND INSTALLATION

**4.1 General:** The installation of the AFM and AFM WM Anti-fracture membranes shall comply with Section 4.0 of this report and the manufacturer's instructions. Where conflicts occur, the more restrictive shall govern.

### 4.2 Installation

#### 4.2.1 AFM Anti-fracture Membrane

**4.2.1.1 Installation over Concrete Substrate:** Concrete surfaces shall be clean and free of all oils, greases and other

contaminants. Surfaces that are dry or dusty shall be dampened and swept off. All voids, cracks, joints, holes and excessively rough areas in the substrate shall be filled with a smooth cementitious material to achieve a smooth, uniform surface. Membranes shall be installed over concrete surfaces that have cured for at least seven days. Concrete under hydrostatic head or where moisture vapor transmission is expected shall be avoided. Ambient and substrate temperatures shall be between 45°F and 120°F (7°C and 49°C) during application of membranes.

The #6000 water-based primer for interior applications, Universal Water Based Primer for interior and exterior applications, or the #80 primer for exterior applications is applied to the concrete surface using a brush or roller at an application rate of 200 square feet per gallon (4.91 m<sup>2</sup>/L) and shall be allowed to dry fully before installation of the membrane. When fully cured, the primer will be tacky to the touch and not come off the surface.

After preparation of the substrate, the membrane shall be rolled out and cut to the desired length, and the release paper carefully removed from half of the membrane. The membrane shall then be aligned and pressed onto the substrate in its intended location. Remaining release paper shall be removed at one time, exposing the bottom adhesive, while the membrane is smoothed onto the primed surface. Continuous smoothing of the membrane as it meets the primer is required to ensure adhesion and to mitigate the trapping of air under the membrane. If the membrane is misaligned, the rolls shall be cut and restarted. The membrane shall be installed using a minimum overlap of 2 inches (50.8 mm) at the sides and 6 inches (152 mm) at the ends.

Installed membranes shall be inspected immediately after application and all identified defects repaired as follows. If the membrane is damaged or requires repair, the area shall be cleaned and lightly primed with #6000 Primer, Universal Water Based primer, or #80 Primer to 6 inches (152 mm) beyond the damaged area. A membrane patch shall be cut and rolled on firmly to fully contact the surface. A bead of JS160H Mastic shall be troweled on the edges of the patch. Should air become trapped beneath the membrane, the bubble shall be punctured with a sharp instrument and the sheet shall be pressed flat. Full membrane contact is required with the primed substrate.

Flashing around protrusions or metal lip edges shall be installed under the membrane to mitigate water intrusion. All primed surfaces shall be covered with the membrane on the same day that the primer is applied, or they shall be primed again.

At pipes, conduits and any other protrusions through the subfloor, the surfaces shall be primed and taped with a 6-



inch (152 mm) piece of AFM 500 Detail Tape. The detail tape shall be formed to fit tightly to the protrusions and to the subfloor. At drain openings, a light coat of #6000 Primer, Universal Water Based Primer, or #80 Primer shall be applied and allowed to dry. All drains shall be covered to at least 6 inches (152 mm) beyond the edges with AFM 500 Detail Tape. Typical installation details are depicted in Figure 1 of this report.

Ceramic tiles, complying with ANSI A137.1, or dimension stone complying with ASTM C1364 shall then be installed over AFM membranes using latex-modified thinset mortars complying with ANSI A118.10. JS160H Mastic shall cure for 24 hours minimum before tile installation.

**4.2.1.2 Application over Plywood and Metal Substrates:** AFM membrane is limited to exterior applications only over plywood and No. 20 gage [0.036-inch (0.91 mm)] galvanized sheet metal substrates. The substrates shall be clean and free of all oils, greases and other contaminants. Substrate surfaces that are dry or dusty shall be dampened and swept off. The ambient and substrate temperatures shall be between 45°F and 120°F (7°C and 49°C).

The Universal Water Based Primer or #80 primer is applied using a brush or roller to the substrate at an application rate of 200 square feet per gallon (4.91 m<sup>2</sup>/L). The primer shall be allowed to fully dry before the membrane is installed. When fully cured, the primer will be tacky to the touch and will not come off the surface.

The balance of the installation shall comply with Section 4.2.1.1 of this report.

**4.2.2 AFM-WM Anti-fracture Membrane and Jiffy Seal 140/60 Membrane:** AFM-WM and Jiffy Seal 140/60 membranes shall be applied over concrete, plywood and No. 20 gage [0.036 inch (0.91 mm)] galvanized sheet metal substrates similar to those for AFM membranes in Section 4.2.1 of this report, with the exception that the 2-inch (51 mm) peel-and-stick strip (zip-strip), side overlap guide shall be removed prior to application of membrane layers.

## 5.0 LIMITATIONS

AFM, AFM-WM Anti-fracture membranes and Jiffy Seal 140/60 Membranes as noted in this report comply with, or are acceptable alternatives to what is specified in, the codes listed in Section 1.0 of this report, subject to the following limitations:

**5.1** AFM, AFM-WM Anti-fracture membranes and Jiffy Seal 140/60 Membrane installations shall comply with the requirements of this report and Protecto Wrap Company installation instructions. Where conflicts occur, the more

restrictive shall govern.

**5.2** AFM, AFM-WM Anti-fracture membrane and Jiffy Seal 140/60 Membrane installations are only allowed to be installed in ceramic tile and dimension stone installations over concrete, plywood and No. 20 gage [0.036 inch (0.91mm)] galvanized sheet metal floor substrates.

**5.3** AFM, AFM-WM Anti-fracture membrane and Jiffy Seal 140/60 Membrane installations shall not bridge substrate expansion joints or cracks wider than 3/8 inch (9.5 mm).

**5.4** In jurisdictions that have adopted the 2012 and 2009 UPC, IRC and IPC, completed shower liner installations using AFM-WM Anti-fracture membranes or Jiffy Seal 140/60 Membrane, shall be tested in accordance with Section 408.7.1 of the 2012 and 2009 UPC, Section P2503.6 of the 2012 and 2009 IRC and Section 312.9 of the 2012 and 2009 IPC.

**5.5** AFM and AFM-WM Anti-Fracture Membranes and Jiffy Seal 140/60 Membrane have not been evaluated for compliance with the High-Velocity Hurricane Zone provisions of the 2010 Florida Building Code-Building, Florida Building Code-Residential and Florida Building Code-Plumbing, and is outside the scope of this report.

**5.6** For products falling under Section (5)(d) of Florida Rule 61G20-3.008, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission (or the building official when the report holder does not possess an approval by the Commission), to provide oversight and determine that the products are being manufactured as described in this evaluation report to establish continual product performance.

## 6.0 SUBSTANTIATING DATA

Supporting data was submitted in accordance with ICC-ES AC115, Acceptance Criteria for Waterproof Membranes for Flooring and Shower Liners, dated June 2003 (editorially revised November 2016).

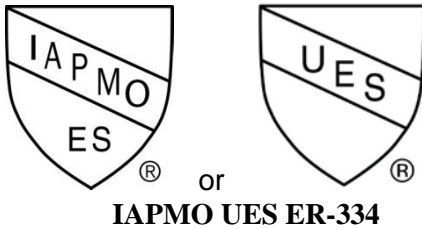


## 7.0 IDENTIFICATION

Rolls of AFM, AFM-WM Anti-fracture Membrane and Jiffy Seal 140/60 Membrane materials shall bear labels indicating the Protecto Wrap Company name and address, the product name, the date of manufacture, the IAPMO UES Uniform Evaluation Service mark of conformity, and the evaluation report number (ER-334).

Containers of AFM 500 Detail Tape, #80 Primer, and #6000 Primer and Universal Water Based Primer shall bear labels indicating the Protecto Wrap Company name and address, the product name and the date of manufacture.

Either Mark of Conformity may be used as shown below:



or  
**IAPMO UES ER-334**

**Brian Gerber, P.E., S.E.**  
Vice President, Technical Operations  
Uniform Evaluation Service

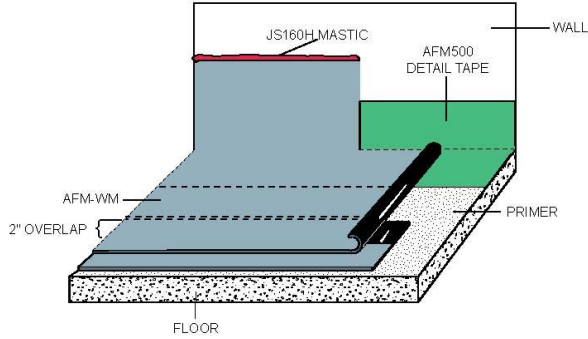
**Richard Beck, PE, CBO, MCP**  
Vice President, Uniform Evaluation Service

**GP Russ Chaney**  
CEO, The IAPMO Group

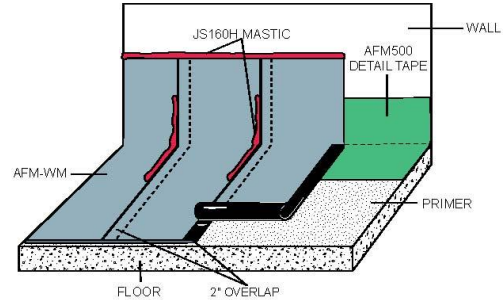
For additional information about this evaluation report please visit  
[www.uniform-es.org](http://www.uniform-es.org) or email at [info@uniform-es.org](mailto:info@uniform-es.org)



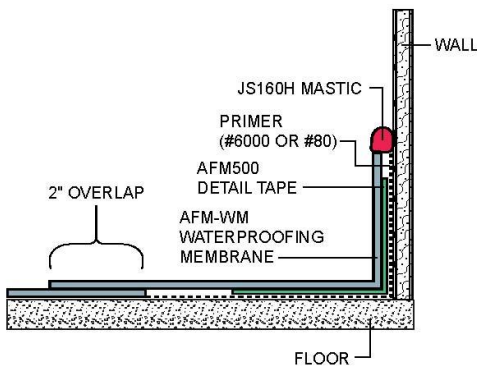
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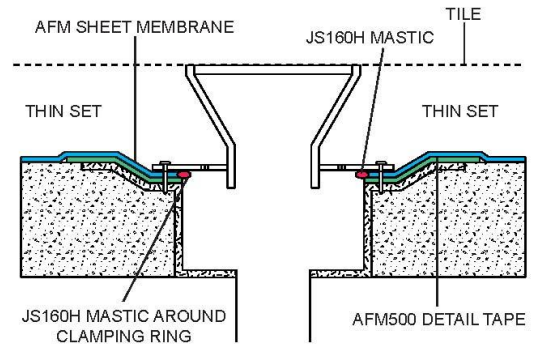
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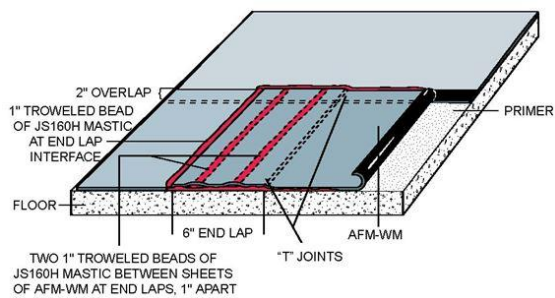
### INSIDE CORNER (SIDE VIEW)



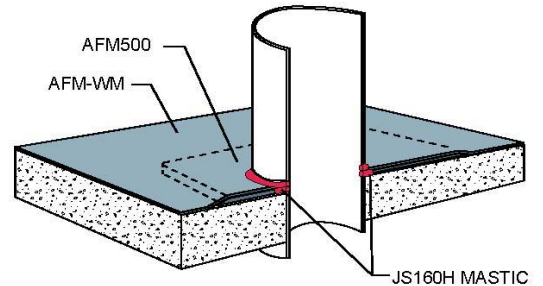
### DRAIN DETAIL



### END LAP/T-JOINT



### POST & PROTRUSION



## FIGURE 1 – TYPICAL INSTALLATION DETAILS