



**LISTING & TESTING DIVISION**

**PRODUCT:** *MH-15 AND AQUABAR 15-MHI ROOF UNDERLAYMENT*  
**MANUFACTURER:** FORTIFIBER CORPORATION  
300 Industrial Drive  
Fernley, NV 89408  
**PLANT LOCATION:** 300 Industrial Drive  
Fernley, NV 89408  
**CATEGORY:** ROOF UNDERLAYMENT  
**APPLICATION:** MANUFACTURED HOME - ROOF UNDERLAYMENT - FACTORY BUILT STRUCTURES

Issued: July 1981  
Revised: April 2011  
Renewed: April 2011  
Renewed July 2012

**1. SCOPE**

RADCO has evaluated the products listed above for compliance with the relevant sections of the following codes:

- 2006, 2009, 2012 International Building Code<sup>®</sup> (IBC)
- 2006, 2009, 2012 International Residential Code<sup>®</sup> (IRC)
- Federal Manufactured Home Construction and Safety Standards, 24 CFR §3280

RADCO is limited to evaluation of the following properties of the above products:

- Roof underlayment performance in accordance with the ICC-ES AC188.

**2. USES**

MH-15 and Aquabar 15-MHI underlayments are suitable replacements for Type 15 asphalt saturated felt. (ASTM D226, Type I and ASTM D4869, Type I.) The MH-15 and Aquabar 15-MHI products are intended to be used as suitable material for roof underlayment in conjunction with asphalt shingles in factory built structures only.

**2. DESCRIPTION**

The Aquabar 15-MHI underlayment consists of two plies of 30 lb. Kraft paper laminated with hot asphalt and longitudinal-directional fiberglass reinforcing on 1" spacing. The final product is 7.4 mils thick, and is available in widths up to 183".

Fortifiber MH-15 roof underlayment is a 26 lb./msf kraft linerboard saturated with specific amounts of saturating asphalt. The final product is 8.0 to 9.0 mils thick, and is available in widths up to 96".

The Aquabar 15-MHI and the MH-15 products are manufactured in the Fernley, NV facility.

**3. INSTALLATION**

Underlayment installation shall be fabricated, identified and installed in accordance with this report, the manufacturer's published installation instructions, and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, this report shall govern. The installation instructions shall be available at the point of installation.

Underlayment must be installed over solid sheathing. Minimum roof slope is 2:12 (17% slope). Roof slopes from 2:12 (17%) up to 4:12 (33%), where the roof is covered with asphalt shingles, double underlayment application is required.

**EXCEPTION:** Double underlayment application is not required on manufactured housing construction complying with 24 CFR §3280.

In high wind areas, underlayment shall be applied with corrosion-resistant fasteners applied along the overlap, no more than 36 inches on center.

Prior to application, the deck surface shall be free of dust, dirt, loose nails, and other protrusions. Damaged sheathing shall be replaced. The underlayment is laid horizontally (parallel to eave) and may be installed with either side facing upward. For roof slopes from 2:12 (17%) up to 4:12 (33%), underlayment shall be applied in two layers with successive sheets overlapping a minimum of 19-inches. For roof slopes 4:12 (33%), or greater, underlayment shall be applied in one layer with successive sheets lapped a minimum of 2-inches. Overlaps shall run with the flow of water in a shingling fashion. The underlayment shall be fastened only as necessary to hold it in place.

For roofs required to have an ice barrier under the IBC or IRC, a self-adhering polymer modified bitumen sheet, complying with ASTM D1970 or the ICC-ES Acceptance Criteria for Self-adhered Roof Underlayments for Use as Ice Barriers (AC48), shall be applied. The ice barrier shall be applied over the solid substrate in sufficient courses equal to the distance inside the exterior wall line of the building that is specified in the appropriate section of the applicable code. The roof underlayment shall overlap the ice barrier.

Installation of the roof covering can proceed immediately following the underlayment application. The underlayment is intended for installation on factory built structures and the product must be covered by a roof covering or otherwise protected from the elements prior to leaving the production facility. Direct exposure to sunlight, wind, and/or rain shall be avoided during storage and prior to covering the underlayment with a roof covering. All factory installed underlayment exposed to the elements after installation must be covered by plastic or similar protection until roof covering is applied on-site.

**4. CODE COMPLIANCE**

Aquabar 15-MHI has been subjected to the tests listed in Table 1 below.

The Aquabar 15-MHI underlayment may also be used in certain codes specified fire retardant roofing systems (i.e. double layer of Class C mineral surfaced asphalt shingles, asbestos cement shingles or sheets, slate shingles, clay or concrete roof tile only on solid sheathing.)

MH-15 has been subjected to the tests listed in Table 1 below.

**5. EVIDENCE SUBMITTED**

- 5.1. TESTS - The tests outlined in Table I were conducted on MH-15, and Aquabar 15-MHI underlayment samples taken from production material and the average results are listed. Testing conducted under the full test requirements for AC188, is accepted into this listing.
- 5.2. QUALITY CONTROL - The quality and process control system used in the manufacture of the product has been submitted to RADCO. An Adequate method of traceability is maintained by the manufacturer. An audit program is maintained by RADCO.
- 5.3. MARKINGS - The material is shipped in rolls. Each roll carries a label as illustrated in Figures 1 and 2. The product names are Fortifiber MH-15 and Aquabar 15-MHI. The label indicates the RADCO listing number.

**6. CONDITIONS OF USE**

The roof underlayment described in this report complies with the codes listed in Section 1.0, subject to the following conditions:

- 6.1 Underlayment shall be fabricated, identified and installed in accordance with this listing, the manufacturer's published installation instructions, and the applicable code(s). In the event of a conflict between the manufacturer's published installation instructions and this listing, this listing shall govern. The installation instructions shall be available at the point of installation.
- 6.2 Underlayment must be fabricated in the facility listed in this report and under a quality control program by RADCO.
- 6.3 In the state of Florida factory built units must be approved, inspected, and built under Rule 9N-3 of the FBC.
- 6.4 Installation in manufactured housing complying with 24 CFR §3280 is subject to DAPIA review and approval prior to use.
- 6.5 Underlayment shall not be used in areas classified as High Velocity Hurricane Zones (HVHZ) (Broward and Dade Counties) as indicated in the FLBC.
- 6.6 In the State of Florida this product shall only be used with other roof components, such as asphalt shingles, that are approved for use under Rule 9N-3 of the FBC, as applicable.
- 6.7 Installation is not permitted in classified roof assemblies where the classified assembly relies on the resistance of the underlayment for obtaining the assembly classification.
- 6.8 Installation is limited to roofing systems that do not involve hot asphalt or coal-tar pitch.
- 6.9 Underlayment is limited to use on roofs with a slope of 2:12 (16.67%) or greater.
- 6.10 Underlayment use is limited to roofs with ventilated attic spaces.

- 6.11 The underlayment is not to be exposed to more than incidental Ultraviolet Rays.
- 6.12 The underlayment is not to be used on substrates other than solid sheathing.
- 6.13 The underlayment must be mechanically fastened to the sheathing or rafters.
- 6.14 All rolls of approved material carry labels that provide the following information:
  - a) the RADCO listing mark.
  - b) RADCO's listing number: # 1109
  - c) name and address of manufacturer
  - d) product name and/or model number
  - e) nominal thickness
  - f) nominal width and length
  - g) lot or batch number

**7. APPROVAL**

This listing is subject to an approval on an annual basis by RADCO. Updating of data and further information will be included and/or resubmitted as necessary.

RADCO is an independent third-party testing, listing, and inspection agency that operates on a national basis from headquarters in Southern California. The firm is approved by the International Accreditation Service (IAS) as a Quality Assurance Agency (AA-650) and as a Testing Laboratory (TL-209); IAS is a subsidiary of the International Code Council (ICC). RADCO's IAS recognition as a testing laboratory and quality control agency demonstrates compliance with ISO/IEC 17025 and ISO/IEC 17020. In addition, RADCO is approved as a testing laboratory by the City of Los Angeles as a structural and mechanical laboratory, Dade County, Florida Department of Community Affairs, and many other jurisdictions.

Table I

TESTS	AQUABAR 15-MHI	MH-15
Water Resistance, ASTM D779	8 hours (Grade C)	10 Minutes (Grade D)
Tensile Strength, ASTM D412 MD CD	20 lb.f/in.-width 20 lb.f/in.-width	20 lb. f/in.-width 20 lb. f/in.-width
Liquid Water Transmission, ASTM D4869	Pass	Pass
Ultraviolet exposure (AC48, Section 4.8)	210 hours	210 hours
Accelerated aging (AC48, Section 4.7)	Pass 25 cycles	Pass 25 cycles
Physical requirement - ability to unroll without cracking or sticking to cause tearing, at temperatures between 50 °F and 140 °F per AC188, Section 3.2	Pass both conditions	Pass both conditions
Pliability, AC188, No failure when bent 90 degrees over 1/2" mandrel at 77 °F.	Pass	Pass



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FORTIFIBER

**AQUABAR**

**ROOF UNDERLAYMENT**

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LISTING # 1109