



Technical Data

FI-FOIL® M-SHIELD®

FI-FOIL® M-Shield® is a **Single-Layer Paperless Reflective Wall Insulation** with a **10-Year Transferable Limited Warranty**. An ideal alternative to foam board in climate zones 1-2 and an easy addition to improve overall performance when used as part of a hybrid cavity assembly in other humid zones. M-Shield consists of an outer layer of synthetic polymers with zero cellulose and one inner layer of aluminum foil. Upon installation, internal expanders separate synthetic facing from the foil creating a reflective air space. An additional reflective air space is formed when M-Shield is installed facing a minimum 3/4" enclosed air space in the cavity. The paperless reflective wall insulation is **vapor permeable** designed to provide superior resistance to mold and mildew for improved wall system resilience in humid climates. Available in staple tab.

TECHNICAL DATA

VERSION	PERFORATED	
CAVITY WIDTH	16"	24"
THERMAL PERFORMANCE^{1,2,3}		
ASTM C1224 Thermal Resistance, R-Value 3/4" Cavity	4.2	4.2
ASTM C1224 Thermal Resistance, R-Value 7/8" Cavity	4.5	4.5
ASTM C1371 Thermal Emittance	≤0.1	≤0.1
FLAMMABILITY - CLASS A⁴		
ASTM E84 In accordance with E2599		
ASTM E84 Flame Spread	<25	<25
ASTM E84 Smoke Developed	<50	<50
STRENGTH & PERFORMANCE		
ASTM E96 Water Vapor Permeance (perms)	>10	>10
ASTM C1258 Delamination & Corrosion (%)	0.0	0.0
ASTM C1338 Fungi Resistance	PASS	PASS
ASTM C1224 Pliability	No Cracking	No Cracking
ASTM C1224 Bleeding & Delamination	No Bleeding, No Delamination	No Bleeding, No Delamination

1 Tested with Heat Flow Horizontal.

2 R-Values tested in accordance with ASTM C1363; R-values in (ft²·hr·°F/Btu).

3 R-Value may increase in applications with a deeper enclosed cavity air space; contact us for calculations.

4 Tested to ASTM E84; verified by Intertek Reports cited below.

COMPLIANCE & VERIFICATION

Testing to ASTM C1224 for sections cited, verified by **R&D Services, Inc.**
Reports: **RD251226** Dec 12, 2025

Testing to ASTM E84 verified by **Intertek**
Report: **T6419.01-121-24, T6419.02-121-24, T6419.03-121-24** Apr 15, 2026

Compliance with the following codes:

- 2024, 2021 International Building Code (IBC)
- 2024, 2021 International Residential Code (IRC)
- 2024, 2021 International Energy Conservation Code (IECC)
- 2023, 2020 Florida Building Code (FBC)
- 2023, 2020 Florida Residential Code (FRC)
- 2023, 2020 Florida Energy Conservation Code (FECC)



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FI-FOIL® M SHIELD® PRODUCTS

Item Number	Description	Width	Length	Coverage	Diameter	Weight
F-MSHIELD16500P	M-SHIELD Wall Insulation Roll - Perforated	16"	375'	500 SF	15 in	18 lb
F-MSHIELD24500P	M-SHIELD Wall Insulation Roll - Perforated	24"	250'	500 SF	10 in	18 lb

How Reflective Insulation Works

Unlike traditional thermal insulation, FI-FOIL® uses low-emissive (Low-e) radiant surfaces to **reflect heat rather than absorb it**. The Low-e surface(s) of reflective insulation is designed to face enclosed air cavities or air films across the building envelope to reduce transfer of heat energy across these air spaces, resulting in an overall greater performance of wall and ceiling systems. According to ASHRAE Handbook 26.14-15, reflective insulation can provide 2X the thermal performance of other mass insulation and materials. The reason is that reflective insulation technologies effectively **reduce all three (3) modes of heat transfer: conduction** (heat transfer between objects in direct contact), **convection** (the circular flow of heat through air and moisture) and **radiation** (the movement of heat in electromagnetic waves). In hybrid applications, ASTM studies have shown that when a radiant surface is installed facing a small air space in an enclosed cavity, the result is a reduction in convection in the cavity, which in turn reduces conductivity of the other mass insulating material(s) within the cavity. Using a reflective component not only improves performance of air spaces across the envelope when used alone--but also notably improves the thermal performance of other mass insulation when used together with it as a hybrid in these assemblies. This provides superior performance and energy efficiency for more comfortable, sustainable, and resilient buildings.

What You Should Know

READ THIS BEFORE YOU BUY: The R-values for Reflective Insulation are shown in literature and product visualizers across our pages at fifoil.com. 'R' means resistance to heat flow. The higher the R-value the greater the insulating power. Compare insulation R-values before you buy including other factors to consider. The amount of insulation needed depends mainly on the climate you live in. Your fuel savings from the insulation will depend upon the climate, the type and size of your building, the amount of insulation already in your building. Other factors include your fuel use patterns, and the number of people living or working in the building. If you buy too much insulation, it will cost you more than what you will save on fuel. To get the marked R-value, it is essential that the insulation be installed properly.

CAUTION: Do not install this insulation in an area where it will or could be exposed to exterior elements including, but not limited to, direct sunlight, water, moisture, and/or intense heat. Do not install this insulation in open-air buildings such as structures having no side walls or partial side walls. The building should have four sides. This insulation *can be* installed in buildings with operable garage doors, other doors, and windows provided that the building is otherwise enclosed. If you have any questions about the application, please contact your regional sales manager or call our corporate office at 800.448.3401.



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