# FE 348

## Spray-Applied Polyurethane Foam Roofing Systems

## Presenting you with a sustainable, high-performance and affordable solution to all your roofing needs. Improve your building's durability and energy efficiency at one of the lowest lifecycle costs available.

### About FE 348.

The FE 348 spray-applied polyurethane foam (SPF) roofing system offers sustainability and high-performance with little to no maintenance. Because the system is self-adhering, it can be applied directly to the existing substrate in 95 percent of retrofit cases[1], eliminating the cost of tear-off, reducing the amount of waste going to landfill, and limiting interior exposure and downtime. FE 348 SPF is also seamless, self-flashing and requires no fasteners so it eliminates thermal bridging and provides superior insulation properties; it has one of the highest insulation R-values available on the market at 6.0 per inch.

### Covering all the angles.

The FE 348 roofing system is a high-performance product with clear benefits. With SPF technology, you improve your energy efficiency and indoor environment, so you are more comfortable and you save money. FE 348 also provides you with a durable and severe weather resistant roof, which means a long life span. In addition, SPF roofing systems are renewable. When they reach the end of their service life, FE 348 SPF roofs can simply be re-coated and renewed for many more years of service.

The FE 348 SPF roofing system offers these advantages over the traditional built-up or single-ply roofing systems:

- Seamless and fully self adhering
- Requires no fasteners or adhesives – eliminates thermal bridging
- Conforms to irregular shapes and expands to fill cracks, gaps, holes and seams for monolithic air leakage control and improved insulation performance
- Excellent wind uplift resistance, exceeding the capacity of equipment during laboratory testing

BASF
The Chemical Company

BASF Polyurethane
Foam Enterprises LLC

## Extend the life of your roof.

According to Oak Ridge National Laboratory, sustainable low-slope roofing is defined as "a roofing system that addresses the issues of energy efficiency, use of materials with a lower environmental impact and embodied energy, durability with less maintenance, and reduced waste generation throughout the lifecycle from design, through construction and re-roofing, to reuse and final disposal."

FE 348 roofing systems meet and exceed this definition of sustainable roofing.

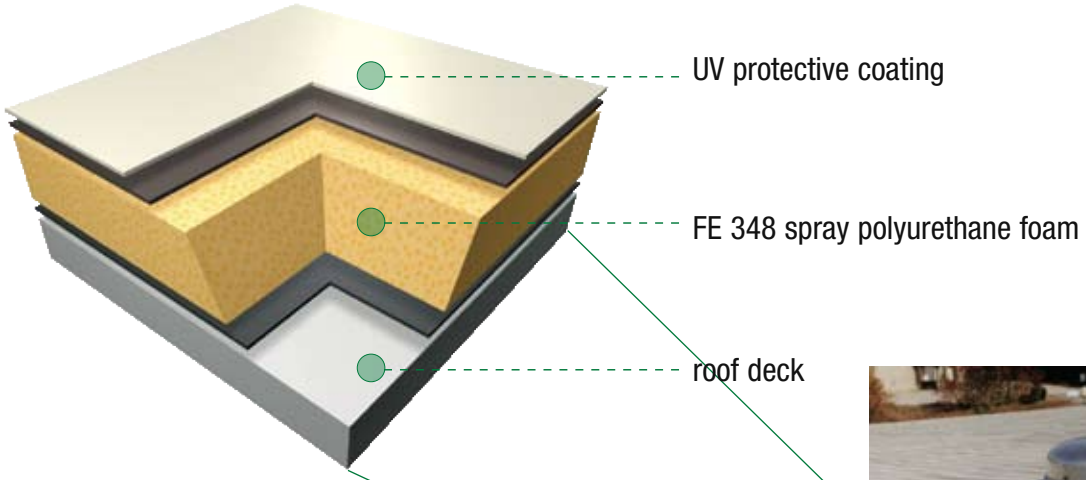
Our SPF roofs are durable, renewable, and generate little waste; moreover, they improve building energy efficiency, occupant comfort, health and safety. FE 348 SPF roofing systems feature ZONE3® zero ozone-depleting blowing agent technologies. When stacked up against traditional insulation materials in BASF's Eco-Efficiency Analysis, SPF technology outperformed the competition. The analysis assesses the total cost and ecological impact over the product lifecycle.

A recent lifecycle cost analysis study[2] shows that SPF roofing systems offer a cost advantage of 13 to 56 percent over membrane roofing systems.

## Improve your building's efficiency.

Consider this: dark-surfaced roofs absorb heat from the sun's rays and can measure as high as 190˚F on a 90˚F day. If the interior of the building is maintained at 78˚F, the HVAC system has to work hard to make up the resulting difference. These high rooftop temperatures also contribute to urban heat islands and poor indoor air quality.

Now consider that the protective coating on our roofing system has a reflective surface that works with SPF's superior insulation performance to reduce building energy consumption, as well as reducing urban heat island effect.

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FE 348 SPF is among the most efficient of all roofing insulation materials. In fact, when combined with appropriate coatings, some BASF Polyurethane Foam Enterprises FE 348 systems are ENERGY STAR® approved.

A 1985 study by Gerald Scott P.E. of Texas A&M University showed significant energy savings on 27 different buildings on the campus that had received an SPF roof from 1980 to 1984. The University was able to recoup the complete cost of the roof application through energy savings in an average of 4.5 years.

The FE 348 system offers a 20 to 30 year lifespan with minimal proper maintenance. It is also a renewable system. While BUR and single-ply membrane systems must be removed and replaced after their usable service (an average of 10-15 years), FE 348 SPF can be recoated and renewed for many more years of service.

If minor maintenance repairs are required, a tube of silicone or urethane caulk is usually sufficient, depending on the type of coating used in the original installation.

### Putting your safety first.

FE 348 SPF roofing systems have been approved for fire, wind uplift and hail resistance. They are UL classified Class “A” (over noncombustible decks, up to unlimited slope) and FM Global FM 4470 Class I approved, including I-90 up to 1-180 wind uplift ratings and severe hail resistance test approvals. Over structural concrete, FM ratings are as high as Class 1-990. *Note: Factory Mutual wind uplift ratings vary according to substrate tested*. (See FM Approval Guide or www.basf-pfe.com).

The FE 348 SPF system also meets the standards of the Southern Building Code Congress International (SBCCI), Building Officials and Code Administrators International (BOCA) and International Conference of Building Officials (ICBO). For information on specific approvals and ratings, contact your BASF Polyurethane Foam Enterprises roofing program representative.

## Compare the BASF Roof with alternative systems

| Criteria | FE 348 | BUILT-UP | SINGLE-PLY |
|---|---|---|---|
| Weather Protection | ■ Water cannot migrate through closed-cell foam<br>■ Improved slope-to-drain<br>■ High wind uplift resistance<br>■ No deck penetration<br>■ 30 years experience<br>■ No seams | ■ Joints and seams allow water migration<br>■ Loose aggregate can become projectiles<br>■ Extensive deck penetrations<br>■ Becomes brittle then cracks | ■ Ponding frequent<br>■ Leaks hard to locate<br>■ Extensive deck penetrations<br>■ Newer systems (lack of long-term field experience)<br>■ Lots of seams |
| Energy and Comfort | ■ Lower heating and cooling costs<br>■ No thermal bridging<br>■ Highest R-value insulation<br>■ Lower roof temperatures, reducing thermal stress<br>■ Reflects solar radiation<br>■ Improved occupant comfort | ■ Temperature build-up on roof and below<br>■ Indoor environment more difficult to condition<br>■ Dark color raises rooftop temperatures | ■ Temperature build-up on roof<br>■ Indoor environment more difficult to condition |
| Installation | ■ Usually no costly tear-off<br>■ Fast installation<br>■ Fully adheres to almost any substrate<br>■ No fasteners, no welding, no gluing<br>■ Lower labor cost<br>■ Conforms to irregular shapes, can be custom sloped | ■ Major construction<br>■ Tear-off and waste disposal required<br>■ Irregular shapes difficult<br>■ Joints unreliable<br>■ Expensive labor<br>■ Offensive odor | ■ Irregular shapes difficult<br>■ Numerous fasteners add expense<br>■ Potential leakage points<br>■ Flashings difficult<br>■ Seams difficult |
| Maintenance & Repair | ■ Minimal maintenance<br>■ Renewable with simple recoats<br>■ Simplified flashing and details | ■ Major reconstruction needed<br>■ Costly and frequent<br>■ Difficult to inspect and repair<br>■ Leaks hard to locate | ■ Non-renewable<br>■ Must be torn off at end of lifecycle<br>■ Difficult to inspect and repair |

For specifications, quotes, project information and Approved Applicators, contact BASF Polyurethane Foam Enterprises.

[1] SPF installs directly on top of existing substrate in 95% of BASF re-roofing projects.
[2] Michelsen Technologies LLC conducted the study according to ASTM E 917-02 Standard Practice for Measuring Lifecycle Costs of Building and Building Systems.

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