

Why FiberTite® vs. Built-Up

The issue is ensuring long-term performance.

Built-Up Roofing Systems require the construction of multiple waterproofing membrane layers on the rooftop using roofing felt material and hot asphalt. Consequently, they are subject to a number of environmental and workmanship factors that, if not controlled, can lead to early crazing, splitting, blow off and even the percolation of water right through the waterproofing layers. Combine these factors with extremely poor resistance to ultraviolet light and it's easy to see why "pre-manufactured" single-ply roofing systems dominate the commercial roofing systems market.

FiberTite Roofing Systems are pre-engineered membrane systems, manufactured in a controlled environment with proven state-of-the-art fabric and coating technology. FiberTite membranes are widely recognized for durability and superior resistance to a broad array of environmental factors, including intense UV exposure. Additionally, the membranes are subjected to a gauntlet of quality control measures well before they're delivered to the rooftop. The result is a high performance pre-engineered roofing system.

	FiberTite	Built-Up
GENERAL	FiberTite Roofing Systems utilize durable, lightweight, pre-engineered membranes and are installed with and without fumes to provide a clean, easily maintained, highly reflective roof surface that is Energy Star compliant, environmentally friendly and energy wise.	Built-Up Roofing Systems are generally heavy, and may require enhanced structural support to accommodate the dead load. Aged roof systems are known to be prone to thermal shock and damage from structural movement. They are labor intense; labor sensitive and hot systems can produce noxious carcinogenic fumes during application. Their performance relies on periodic maintenance and requires special coatings to achieve Energy Star compliant reflectivity values. Initial installed costs often create a veiled value proposition, hiding and diverting consideration away from the long-term cost to maintain them.
CHEMISTRY	<p>FiberTite Roofing Systems are true thermoplastic roof systems. Long-term reliability at the molecular level anchors FiberTite's historical performance record. FiberTite was used as the benchmark membrane for the development of ASTM D6754-02 Standard Specification for KEE Based Sheet Roofing. The standard provides that properly compounded KEE coatings that utilize a minimum 50% KEE polymer content and are applied to high quality base fabrics can be good indicators for future performance.</p> <p>FiberTite's formula for success is rooted in a half-century of Seaman Corporation high performance coated fabric technology, and specifically derived from a combination of the selected attributes from Seaman's world renowned Shelter-Rite architectural fabrics, where the fabric is the roof, and XR-5 Geomembrane fabrics, the product of choice when protecting the environment from hazardous waste is at stake.</p>	Built-Up Roofing Systems are usually assembled using hot asphalt. Asphalt is known for its inherent waterproofing characteristics. Unfortunately, asphalt is inherently subject to a loss of ductility from UV and is a by-product of oil, which can subject it to geo-political pricing pressures. Hot asphalt systems require strict attention to the temperature of the molten asphalt from heating to its application point. Too hot and the bitumen burns away and/or the felts blister; too cold and proper application is impossible and/or adhesion is sacrificed.
UV RESISTANCE	Intense UV exposure draws the oils out of asphalt, reducing ductility, which promotes crazing and splitting. FiberTite's KEE membranes utilize a solid and permanent polymer in the coating process, ensuring long-term flexibility and resistance to harsh UV exposure.	UV exposure breaks down and extracts oils and bitumen from asphalt. Over time, this aging process crazes the surface and eventually it becomes brittle and cracks. An external surfacing is required to protect the waterproofing layers. Heavy aggregates, granular surfaces and coating have to be applied and maintained for the life of the roof system to protect it. Displacement of the surfacing(s) will lead to an eventual failure.

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CHEMICAL RESISTANCE (ASTM ANIMAL FAT, COMPRESSOR OIL, JET FUEL A)	<p>Chemical discharge and environmental fall-out are detrimental to many roofing systems across the country. Exposure to contaminants accelerates the breakdown of asphalt membrane systems. KEE is not only flexible; it has inherent chemical resistant properties. Subsequently, FiberTite's KEE membranes provide superior resistance to a broad array of chemicals including grease and fatty acids. Chemical exposures listed on the Warranty Request Form are automatically included into the terms of coverage.</p>	<p>Numerous chemicals, greases, fats and environmental contaminants accelerate the breakdown of asphalt, reducing the roof system's lifecycle. Most Built-Up Roofing System manufacturers specifically exclude "exposure to chemicals" from their warranties.</p>
PUNCTURE RESISTANCE (ASTM 4833)	<p>Puncture generally applies to penetration by a blunt object. FiberTite maximizes puncture resistance by using the industry's heaviest fabrics to create an internal barrier to puncture within the membrane. FiberTite-XTreme has no rival in its resistance to overall impact and puncture. With an impact rating that exceeds 50 joules, not even a built-up roof can match its puncture performance.</p>	<p>Built-Up Roofing Systems are generally afforded good puncture resistance through their mass and heavy aggregate surfacing. However, BUR systems can hide latent disruption of the roofing felts from impact damage to have it surface later in its lifecycle.</p>
PONDING WATER DAMAGE RESISTANCE	<p>Although one of the fundamental purposes of a roof system is shedding water, sloping a roof to achieve 100% drainage is not always economically feasible. A structural evaluation should always be performed in cases where excessive ponding is anticipated. If ponding is unavoidable, the KEE backbone for the FiberTite compound resists attack from algae, biomass, and environmental contamination that can accumulate in ponding water. FiberTite Roofing System Warranties contain no exclusions for ponding water.</p>	<p>Ponding water can have a three-fold detrimental effect on conventional Built-Up Roofing Systems. Ponding water magnifies UV, promotes loosening of the aggregate and/or coating, intensifying its effects. The "water" is often a concentration of chemical discharge and environmental fall-out throughout the roof system. The concentration of these chemicals can accelerate breakdown of the bitumen. Eventually, algae and other biomass, including plants and trees, take root in the crazed asphalt surfaces. Root systems eventually penetrate, causing costly damage to the system. Most BUR manufacturers specifically exclude the effects of ponding water from their warranties.</p>
WIND DAMAGE RESISTANCE	<p>Wind is inevitable, and FiberTite Roofing Systems are engineered to stay in place. FiberTite's standard Roofing System warranty exclusions for wind do not begin with gale force, but rather hurricane force. Specially engineered systems are eligible for higher peak gust coverage up to 100 miles per hour.</p>	<p>Most BUR manufacturers begin their wind exclusions with "Gales." Wind speeds as low as 39 mph can be considered "Gale Force."</p>
EASE AND QUALITY OF REPAIR	<p>FiberTite Roofing Systems provide a clean monolithic membrane surface for easy visual inspection. Pre-molded flashing accessories easily extend the monolithic membrane system up and around roof top penetrations and walls. The completed roof system maintenance is typically limited to ensuring drainage flow and the clean-up of debris. Also, since the KEE backbone for the compound is naturally thermoplastic and permanent, FiberTite Roofing Systems retain their ability to be easily heat welded throughout the life of the membrane if a repair is needed.</p>	<p>Built-Up Roofing Systems are notoriously laborious and require critical attention to application temperatures. The application of coatings and or aggregates can cover imperfections, promoting latent problems that can no longer be visually discerned. Durable flashing seals around penetrations are often difficult and messy. Maintenance can be problematic. Ensuring the integrity of the protective surfacing gets costly over the years and the difficult process of identifying fractured felts through the surfacing is usually just the start of a lengthy repair cycle.</p>
COATING ADHESION (ASTM 751)	<p>If the coating separates from the reinforcement, the system fails. FiberTite Roofing Systems have achieved an inherent synergy between the industry's heaviest base fabrics and the industry's most durable coating. A proprietary process actually bonds the KEE coating to the polyester fabric.</p>	<p>Cold application temperatures, dirt and moisture can have a detrimental effect on inter-ply adhesion within the built-up layers. Multi-ply systems provide multiple opportunities for imparting inter-ply defects. Pressure on the hot felts can also displace the asphalt, leaving voids that allow water to percolate through the layers. Poor adhesion can leave the roof system blistered and vulnerable to wind uplift.</p>
FLAME RESISTANCE	<p>Underwriters Laboratories have a test method for evaluating a membrane's flame resistance in a stand-alone procedure. Unlike E108 flame spread, UL 214 measures a membrane's burning characteristics after the ignition source is removed. FiberTite is self-extinguishing.</p>	<p>Asphalt has poor fire resistance. Built-Up Roofing Systems require aggregates and fire retardant coatings to provide UL Class A fire rated assemblies.</p>

For more information, go to www.fibertite.com.

