

Why FiberTite® vs. Modified Bitumen

Proven Performance vs. Veiled Sense of Security

Polymer Modified Bitumen (PMB) Roofing Systems are constructed using non-woven polyester or fiberglass felts, coated with a "rubberized" modified asphalt coating. Pre-assembled composite membranes offer an alternative to conventional multi-ply built in place asphalt systems but often require at least two layers to be assembled in place using adhesives or torches to melt the layers together. Since PMB roof systems are rubber and asphalt blends, they have an inherent sensitivity toward installation and rooftop environmental factors known to have detrimental effects on BUR and EPDM roof systems. These "pre-assembled" waterproofing membranes, like all asphalt roofing systems, require protection from ultraviolet light using either factory applied granules or field applied coatings. Seaming is accomplished using either adhesives, torches and in some cases, hot air. Contamination from granules as well as dirt and moisture can complicate and heighten concern regarding the long-term reliability of field seams similar to the concerns associated with EPDM field seams.

FiberTite Roofing Systems are pre-engineered membrane systems manufactured in a controlled environment with proven state of the art fabric and KEE coating technology. FiberTite membranes are widely recognized for durability and superior resistance to a broad array of environmental factors including intense UV exposure. FiberTite Roofing Systems offer a clean and efficient installation process culminating in the bonding of the field seams at the molecular level. The completed installation results in a high performance pre-engineered monolithic roofing system.

	FiberTite (Elvaloy-based formula)	Modified Bitumen (PMB)
GENERAL	FiberTite Roofing Systems utilize durable, lightweight, pre-engineered membranes and are installed without fumes or flames to provide a clean, easily maintained, highly reflective roof surface that is Energy Star compliant, environmentally friendly and energy wise.	PMB Roofing Systems are generally heavy composites manufactured to reduce labor factors associated with multi-ply BUR systems. They still rely on redundancy and although this offers a sense of security, it also offers additional opportunity for installation error. The polymers blended with the asphalt do improve flexibility, but over time they succumb to thermal shock and damage from structural movement, chemical attack and hidden installation errors. They are labor intense; labor sensitive and hot systems can produce noxious carcinogenic fumes during application. Their performance relies on maintaining a protective surface to shield the "blend" from UV. Special coatings are required to achieve and "maintain" Energy Star compliant reflectivity values.
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 yield high performance roofing systems.</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 where protecting the environment from hazardous waste is at stake.</p>	Mod Bit is the slang reference for polymer modified bitumen (PMB) roofing systems. Asphalt is blended with pellets or powders of atactic-polypropylene (APP), styrene-butadiene-styrene (SBS), styrene-ethylene-butadiene-styrene (SEBS) or for self-adhering systems, styrene-ethylene-propylene-styrene (SEPS). The polymers disperse within the asphalt to form particles of polymer in a continuous asphalt matrix. A "phase inversion" reverses the blend to form a polymer matrix with particles of asphalt. The asphalt and "modifiers" are not generally miscible, yielding an emulsion similar to salad dressing. Over time, the two phases of the emulsion tend to separate and overall dispersion decreases.

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Modified Bitumen (PMB)

UV RESISTANCE	Intense UV exposure can break the PMB blend, reducing ductility which promotes crazing, embrittlement and cracking. FiberTite's KEE membranes utilize a solid and permanent polymer alloyed during coating process, ensuring long-term flexibility and resistance to harsh UV exposure.	UV exposure breaks down the dispersion of polymers within the PMB blend. Protecting the blend is paramount and requires substantial maintenance over the life of the roof. Any displacement of the surfacing(s) will lead to accelerated aging and eventual failure.
CHEMICAL RESISTANCE	Chemical discharge and environmental fallout are detrimental to many roofing systems across the country. Exposure to contaminants accelerates the breakdown of "asphalt based" 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.	Numerous chemicals, greases, fats and environmental contaminants are known to be detrimental to "rubber" and asphalt. Blends of these two materials do not improve resistance. Most PMB Roofing System manufactures specifically exclude "exposure to chemicals" from their warranties.
PUNCTURE	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. FiberTiteXTreme has no rival in its resistance to overall impact and puncture. With an impact rating that exceeds 50 joules, not even a built roof can match its puncture performance.	PMB Roofing Systems are generally afforded good puncture resistance through their mass and multi-ply reinforcement. However, the sun can heat and subsequently soften the materials, reducing puncture and impact strength and promoting displacement of the surfacing through general foot traffic. Initial ductility will mask latent damage to the reinforcements.
PONDING WATER	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 the algae, biomass, and environmental contamination that can accumulate in ponding water. FiberTite Roofing System Warranties contain no exclusions for ponding water.	Ponding water can have a three-fold detrimental effect on PMB 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 fallout throughout the roof system. The concentration of these chemicals can accelerate breakdown of the blend. Eventually, algae and other biomass including plants and trees take root in the crazed surfaces. Most PMB manufacturers specifically exclude the effects of ponding water from their warranties.
WIND RESISTANCE	Wind is inevitable, and FiberTite Roofing Systems are engineered to stay in place. Standard FiberTite Roofing System warranty exclusions for wind does not begin with gale force but rather hurricane force. Specially engineered systems are eligible for higher peak gust coverage up to 100 mile per hour.	Most PMB manufacturers begin their wind exclusions with "Gales". Wind speeds as low as 39 mph can be considered "Gale Force".
INSTALLATION AND MAINTENANCE	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 viability to be easily heat welded throughout the life of the membrane if a repair or roof top modification is needed.	PMB Roofing Systems are laborious. Redundant "plies" suggest redundant labor and subsequently more opportunity for error. Surface preparation is critical when bonding ply to substrate and ply to ply whether using torches, adhesive or hot asphalt. Blisters, bridging and ridging become evident as ductility of the blend reduces over time. Roof top modifications and repairs can be just as laborious with questionable long-term effectiveness. Maintenance can be problematic. Ensuring the integrity of the protective surfacing gets costly over the years. This combined with the difficulty in identifying latent issues through the surfacing creates a cycle of frustration.
COATING ADHESION	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.	Delamination between the blend and the reinforcement is a common issue with aged PMB roof systems. Additionally, cold application temperatures, dirt and moisture can have a detrimental effect on inter-ply adhesion within the PMB layers. Poor adhesion can leave the roof system blistered and vulnerable to wind uplift.
FLAME RESISTANCE	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.	Asphalt has poor fire resistance. PMB Roofing Systems require aggregates and fire retardant coatings to provide UL Class A fire rated assemblies.

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



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