

Why FiberTite® VS. EPDM

Field splice or field weld?

EPDM is a thermoset material that exhibits good weathering characteristics but can be problematic when creating field seams to ensure water-tightness. Roof system performance hinges upon a mechanical seaming process. Whether tapes or glues are used, the performance of the system rests upon the ability of things to "stick" together. FiberTite Roofing Systems are based upon Thermoplastic technology. Molecular bonding of the materials occurs during the heat welding process. Creating performance at a molecular level ensures that field seams are 10 times more secure than those created with a mechanical seaming process.

	FiberTite (36 mil)	EPDM-Based Roofing Membranes (45 mil)
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 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>	<p>EPDM is a vulcanized rubber compound. Its standard black appearance is due to "carbon black" loading that provides good UV resistance. However, formulations require modification to enhance the membrane's resistance to ozone. Additives are also required to impart marginal fire resistance properties to the finished membrane. Sealing EPDM is comparable to patching an inner tube; the difference is that an inner tube patch is not expected to endure the heat, moisture and UV encountered in the roof environment. These elements alone can break down the glues, leaving a relatively good membrane but leaky system.</p> <p>Energy efficiency as it relates to EPDM membrane is non-existent. Attempts at producing "white" EPDM were disastrous. Coatings are usually required to bring EPDM roof systems into acceptable parameters for Energy Star Rating compliance.</p>
UV RESISTANCE	Intense UV exposure can break the chemical bonds within a thermoplastic compound over time. KEE is a solid and permanent polymer ensuring long-term resistance to harsh UV exposure.	Most EPDM roofing membranes possess inherent UV resistance.
CHEMICAL RESISTANCE (ASTM ANIMAL FAT, COMPRESSOR OIL, JET FUEL A)	Chemical discharge and environmental fallout are detrimental to many roofing systems across the country. Exposure to contaminants can soften and swell EPDM roofing membranes. 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.	EPDM membranes have an ominous reaction when exposed to common environmental contaminants. Exposure to fatty acids, oil grease and jet fuels promote swelling of the membranes. Long-term exposure can lead to eventual softening and deterioration of the membrane. Most EPDM roofing membrane manufacturers specifically exclude "exposure to chemicals" from their warranties.
PUNCTURE RESISTANCE (ASTM 4833)	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.	EPDM membranes generally forgo the expense of using "fiber" as an internal puncture barrier in favor of using mass or thickness to provide the illusion of durability. Independent testing confirms that EPDM membranes are no match for FiberTite's internal "fiber" barrier.
TEAR STRENGTH (ASTM 751) TONGUE TEAR	The "fiber" in FiberTite is engineered using high denier polyester fibers, knitted into a tight 18x19 yarn pattern to create a virtual framework that ensures toughness.	EPDM manufacturers trade fiber for thickness to create the illusion of strength. EPDM roofing membrane manufacturers generally promote thicker to appear better. However, conventional EPDM technology cannot, regardless of thickness, exhibit even good tear values when compared to FiberTite Roofing Membranes.

FiberTite (36 mil)

EPDM-Based Roofing Membranes (45-50 mil)

PONDING WATER DAMAGE RESISTANCE	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.	Generally, EPDM membranes perform well under ponding water conditions. However, ponding at seam areas can become a catalyst for the breakdown of the adhesive within the mechanical seam. Also, when the water is composed of a concentration of chemical discharge and environmental fallout throughout the roof system, degradation usually occurs. Most EPDM roofing membrane manufacturers specifically exclude the effects of ponding water from their warranties.
HAIL DAMAGE RESISTANCE	Moderate hail, generally stones of an inch or less in diameter, is a common occurrence and can be expected in many areas of the country. Hail is not specifically excluded in FiberTite Roofing System warranties.	EPDM roof systems usually provide good resistance to moderate hail impact.
WIND DAMAGE RESISTANCE	Wind is inevitable, and FiberTite Roofing Systems are engineered to stay in place. Standard FiberTite 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 mile per hour.	Most EPDM manufacturers begin their wind exclusions with "Gales." Wind speeds as low as 39 mph can be considered "Gale Force."
EASE AND QUALITY OF REPAIR	Since the KEE backbone for the compound is naturally thermoplastic and permanent, FiberTite Roofing Systems retain their viability to be heat welded throughout the life of the membrane.	Although somewhat laborious, the "mechanics" for repairing EPDM roofing membrane are straightforward. Clean it, prime it, glue a patch and seal the patch to prevent moisture from getting to the glue.
COATING ADHESION (ASTM 751)	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.	Adhesion can be a primary indicator of the technical expertise required for integrating the coating and the fabric into one high performance unit. Typically, the greater the adhesion, the better the welds and the greater the membranes' resistance to possible delamination. Reinforced EPDM roofing membrane manufacturers do a fair job of using an open weave reinforcement to accomplish "strike through" bonding between the sheet on the face and the sheet on the back of the membrane. Unfortunately, this is no substitute for their problematic seaming process. Seams usually fail before adhesion properties can be evaluated.
TENSILE STRENGTH (ASTM D882)	Thickness can promote a deceptive perception of strength. FiberTite Roofing Systems are engineered with strength at their core. Built with the heaviest and most tightly knit fabrics in the industry, is it any wonder that FiberTite Roofing Systems exhibit superior tensile/breaking strengths.	Typically, the lower the fiber content, the lower the tensile values.
TEAR STRENGTH AT 'REAL WORLD' ROOF TEMPERATURES (ASTM HIGH TEMP DEAD LOAD)	Load strain evaluation can be a good indicator of a membrane's endurance against the long-term effects of cyclical wind uplift and thermal shock. ASTM D751 now includes a means for evaluating roofing membranes under a high temperature dead load. FiberTite Roofing System membranes exhibit the benefits of a truly integrated fabric and coating system with unmatched dead load testing results.	Slippage, seam failure and excessive elongation are characteristics of EPDM dead load testing.
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.	EPDM roofing membranes exhibit combustible characteristics when compared to those of FiberTite under UL 214 test criteria.

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

