



# Elastomeric Built-Up Roofing Systems : ram-Tough

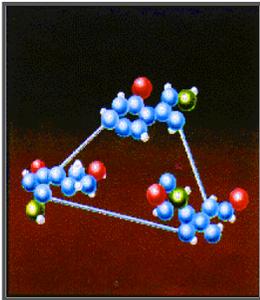
## THE UNCOMPROMISING ROOFING SYSTEM

A roof must be considered a part of a building's thermal envelope - a living, breathing part of the structure that is affected by what happens inside and out. It must work in perfect harmony with all forces of nature, structural dynamics of the building, and the constraints and imperfections imposed by man. Barrett RAM-TOUGH Elastomeric Built-Up Roofing System were engineered to meet this challenge.

RAM-TOUGH systems are a hybrid of two different roofing philosophies, BUR design has always depended upon the multi-layered fabric concept for strength and safety. Single-ply, representing the other end of the spectrum, has strength and safety built into the sheet. The uncompromising RAM-TOUGH system provide the features and benefits of both parents by combining the principle of fabric

reinforcements and waterproofing bitumen from BUR with the concept of engineered elastomerics found in single-ply roofs. RAM-TOUGH's multiple reinforcement layers provide exceptional strength and forgiveness. The elastomeric bitumen and polyester reinforcements increase the safety factor of membrane integrity and work to dissipate strain energy relentlessly.

Representing the optimum balance between BUR and single-ply philosophies, RAM-TOUGH elastomeric BUR systems were designed and engineered to work in harmony with all the uncompromising forces imposed upon them.



RAM-TOUGH elastomeric bitumens are thoroughly engineered thermoplastic elastomer materials manufactured from highly select bitumen and Shell Kraton® SEBS rubber polymer.

The polymerization of the Bitumen form a strong, microscopic elastic network of rubberized strands with tough styrene end blocks. This creates a rugged reinforcing structural network that is filled with waterproofing bitumen.

Significantly enhanced adhesive and cohesive properties help prevent blistering, delamination and wind damage. The unique "cold flow" self-healing properties help make it unparalleled by single-ply systems.

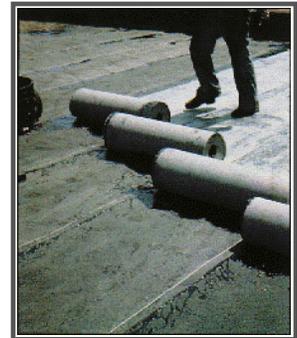
Simply put, Barrett puts more into the bitumen so you get so much more out...  
The result: An uncompromising waterproofing adhesive.

POLY•FELT's continuous filament spunbond manufacturing process provides an isotropic fabric with the greatest strength-to-weight ratio of any non woven fabric.

POLY•FELT is bonded with a highly cross-linked acrylic binder and contains no low-melt temperature binder fiber resulting in excellent thermal stability. A unique condensing process during manufacture allows optimum bitumen "bleed-thru" saturation creating a completely monolithic waterproof membrane.

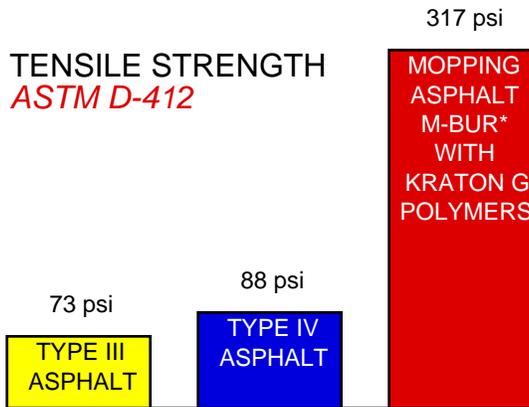
PLY•FELT uses no mineral or talc surfacing material to interfere with adhesion. User-friendly properties decrease the overall dependency of workmanship skills. Lightweight 10 SQ. 37 lb. rolls reduce handling and installation labor costs.

POLY•FELT is an uncompromising partner, providing a vital link in BARRETT's evolutionary Hot Built-Up Roofing Systems.



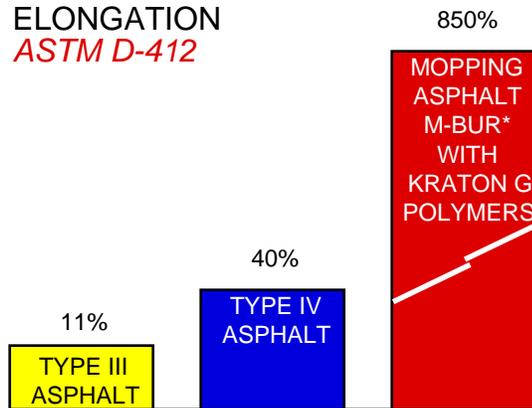
## HIGH TENSILE STRENGTH

As shown Kraton G Polymer modified mopping asphalt had a maximum tensile strength of 317 psi, more than 4 times greater than the tensile strength of a Type III asphalt, and 3.5 times greater than a Type IV asphalt.



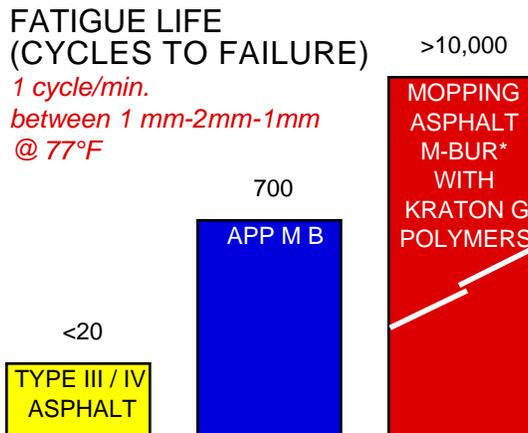
## HIGH, RECOVERABLE ELONGATION

The figure shows Kraton G Polymer modified asphalts to have more than 75 times the elongation of a Type III asphalt, and 21 times the elongation of a Type IV asphalt. In addition, Kraton G Polymer modifieds have the ability to retract elastically to their original shape.



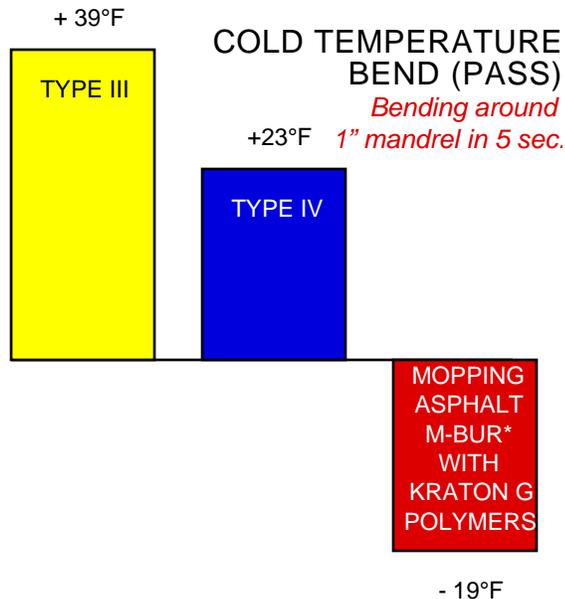
## EXCELLENT FATIGUE RESISTANCE

Kraton G Polymer modified asphalt has the strength to withstand the toughest conditions - like building shifts, heavy foot traffic and extreme temperature changes. Its fatigue life is 500 times greater than either standard asphalt or APP modified asphalt, as shown.



## COLD WEATHER FLEXIBILITY

Kraton G Polymer modified asphalts offer excellent low temperature flexibility. In Cold Bend Testing, they maintained flexibility down to -19° F, far below the breaking point of Type III or Type IV asphalt, as shown.

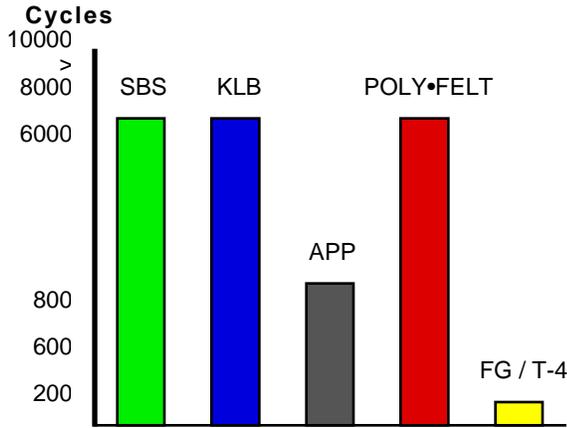


## EXCELLENT FLOW RESISTANCE

Kraton G Polymer modified asphalts are ideal for use in a wide variety of roofing environments. Even in the hottest climates, they maintain their integrity with excellent flow resistance. Kraton G Polymer mopping asphalts typically have softening points much greater than Type III or Type IV asphalts.

## AGGRESSIVE ADHESION

Kraton Polymers in bitumen are naturally adhesive. Therefore, Kraton G Polymer asphalts offer tremendous adhesion to most roofing substrates. These benefits have been demonstrated in Kraton Polymer based crack sealants for highways, and in adhesives and sealants for the construction industry. Adhesion is that of standard : 10 x's Std. ASTM D-312 Asphalt.



## FATIGUE LIFE

Bitumen Test : 1mm gap min. width cycled to 2mm gap Fabric Tests : ASTM D-813

Microscopic cracks occur when the roof mat is consistently stressed and deformed especially over gaps such as insulation joints. Thermal shock accelerates and increases this stress.

Fatigue is the process of repeated “crack bridging” deformation causing these flaws to grow into failure-causing cracks.

Fatigue Life is the number of repeated deformations required to bring about product failure.

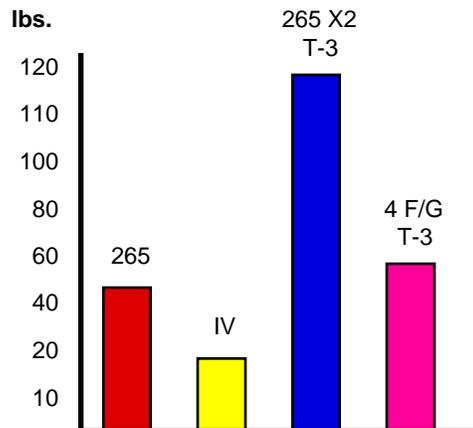
The superior fatigue life of RAM-TOUGH ensures extended roof life.

## PUNCTURE RESISTANCE

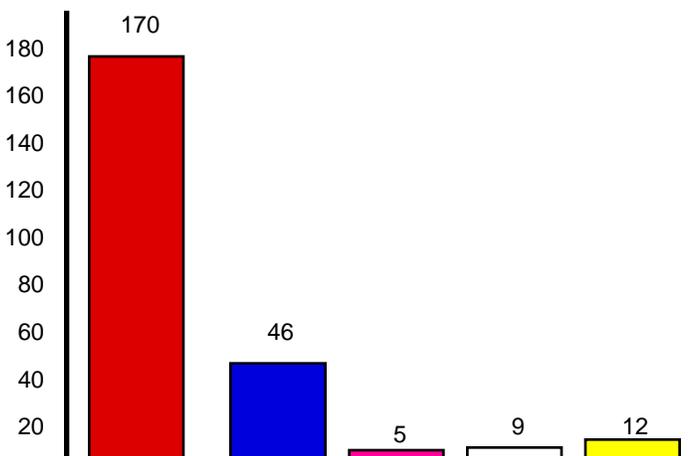
Test Procedure : A 5/16 in. diameter beveled end steel rod driven through sample at 12 in./min. @ 70°F

Ply for ply, POLY•FELT more than triples the amount of protection glass felts afford against fastener “backout”, invasive threats and other aggressive damage.

In 2 ply system format with asphalt, POLY•FELT’s protection level is still almost double that of a 4-ply fiberglass system.



## in.-lbs./in.



- KLB 100, 4 PLY POLY•FELT 265VP
- TYPE III ASPHALT, 2 PLY FOLY•FELT 265VP
- TYPE III ASPHALT, 4 PLY FIBERGLASS TYPE VI
- BASE SHEET TORCH M/B
- 2 PLY FIBERGLASS FELT. MOP M/B

## THE SYNERGISTIC EFFECT

USABLE LOW TEMPERATURE STRAIN ENERGY @ 0°F

Cold temperature load-strain testing best simulates the grueling realities of life at the top. It provides the best indicative measure of a membrane’s “toughness” and its resistance to compromise, at this most demanding temperature extreme.

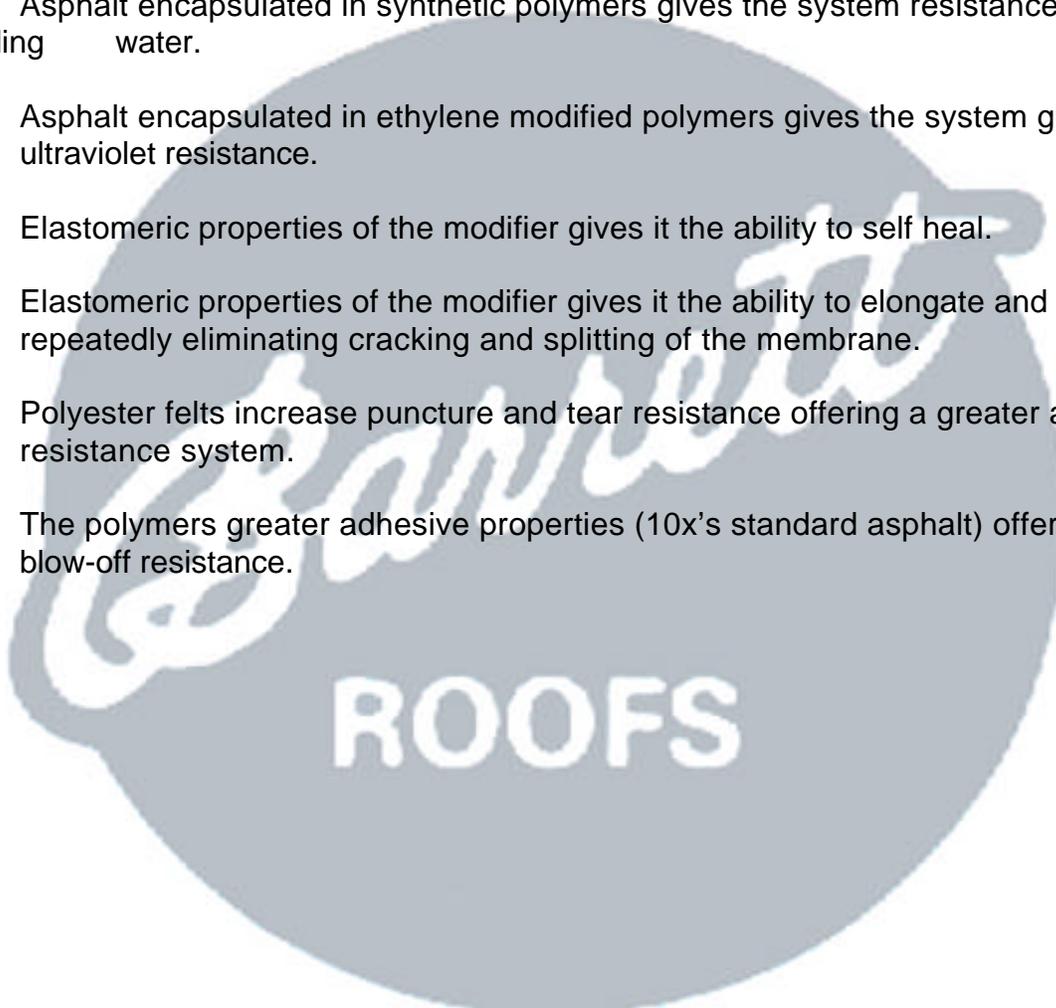
The performance features of RAM-TOUGH components make words like “Tough” and “Uncompromising” take on new character and meaning.

The dramatic performance of KLB and 4-ply POLY•FELT exhibits 43 times greater usable strain energy than a 4-ply fiberglass built-up roof. The economical 2-ply POLY•FELT with Type III asphalt provides more than 12 times the usable strain energy of a 4-ply fiberglass assembly.

Barrett Elastomeric Asphalts can be installed over a variety of substrates and are eligible for 5 to 25 years warranties based on the application.

### **Barrett's KLB-100 Elastomeric Asphalt Benefits.**

- Asphalt encapsulated in synthetic polymers gives the system resistance to standing water.
- Asphalt encapsulated in ethylene modified polymers gives the system greater ultraviolet resistance.
- Elastomeric properties of the modifier gives it the ability to self heal.
- Elastomeric properties of the modifier gives it the ability to elongate and recover repeatedly eliminating cracking and splitting of the membrane.
- Polyester felts increase puncture and tear resistance offering a greater abuse resistance system.
- The polymers greater adhesive properties (10x's standard asphalt) offers greater blow-off resistance.



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