

# GUIDE SPECIFICATIONS

## SECTION 07500 ELASTOMERIC MODIFIED BUILT-UP ROOFING KLB-100 4P•I•CS ENERGY STAR® APPROVED

### PART 1 – GENERAL

#### 1.01 RELATED SECTIONS

Section 02050 Demolition  
Section 06100 Carpentry  
Section 04500 Masonry Repair  
Section 07220 Roof Insulation  
Section 07600 Sheet Metal  
Section 07710 Roofing Accessories  
Section 07900 Caulking & Sealants

#### 1.02 SUBMITTALS

- A. Submit Manufacturer's written approval or license of Applicator for installation of the herein specified roofing system.
- B. Submit Manufacturer's sample Twenty-five Year Labor and Material System Warranty and Manufacturer's Intent to Warranty Certification for this project.
- C. Submit most recent copy of Manufacturer's literature applicable to products and specifications to be used, as specified herein, including applicable flashing details.
- D. Submit three sheet samples, approximately 8 inches x 10 inches, of both ply sheet and flashing sheet.
- E. Submit evidence of Manufacturers history of production for the system specified herein. A minimum of twenty (20) years experience is required. Documentation shall include job lists with project size, Architect of record, installing Applicator, telephone numbers and contact names.
- F. Submit, in duplicate, certification from the primary Manufacturer, properly attested by a corporate officer, stating that all materials being supplied comply with the specifications and requirements of the contract documents, including conformance to all federal, state and local building codes including United States Code Section

41:10, Subsections a-d, popularly known as the "Buy American Act".

### 1.03 QUALITY ASSURANCE

- A. All the materials specified herein are cited as a minimum standard of quality and shall not preclude consideration of equal or superior materials. All suggested "equivalent materials" or other substitutions are to be submitted to the Architect for consideration a minimum of ten (10) days prior to bid date. Submittal shall include all evidence of compliance or superiority of material from the proposed substitute Manufacturer. If accepted by the Architect, an addendum will be issued to all bidders for their consideration of the proposed substitute Manufacturer. Determination of equivalency of all substitutions shall rest exclusively with the Architect and such decision shall be final.
- B. All installation details and techniques shall conform to manufacturer's requirements and recommendations as published in the current N.R.C.A. Manual of Low Slope Roofing. In the event of conflict, the more stringent recommendation shall be followed.

### 1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to jobsite on pallets. Package labels shall indicate material name, production date and product code.
- B. Store materials in dry, protected areas in an upright position. Control temperature of storage areas in accordance with Manufacturer's instructions. Protect materials from moisture with breathable tarps on sides and top surfaces.

### 1.05 PROJECT CONDITIONS

- A. Follow local, state and federal regulations, safety standards and codes. When a conflict exists use the stricter requirements.
- B. Do not apply roofing materials unless proper bitumen application temperatures (EVT or approximately 350°F-475°F) can be maintained or when water in any form (i.e. rain, dew, ice, frost, snow, etc.) is present on the deck. Do not heat bitumen above 500°F. Under no circumstances should material be heated above flash point.
- C. Ensure roof deck is structurally sound to support the live and dead load requirements of the roofing system and sufficiently rigid to support construction traffic.

## 1.06 WARRANTY

Prior to project close out, the Applicator shall submit the Manufacturer's pre-approved No Dollar Limit Twenty-Five Year Labor and Material Warranty.

## **PART 2 - PRODUCTS**

### 2.01 ACCEPTABLE MANUFACTURERS

The Barrett Company is set forth as the referenced standard of quality. Other manufacturers of equal or better quality may request approval in conformance with specification requirements. Architect approved equals remain subject to all specification requirements.

### 2.02 ROOFING MATERIALS

#### A. Roofing Membrane System:

Project Specification: Barrett Co. **Ram-Tough KLB-100•4P•I•CS** specification or approved equal as noted above shall comply with the following minimum specifications.

Materials required per 100 sq. ft. of roof area:

<b>Poly•Felt 265 VP</b>	4 plies
<b>KLB-100</b> Elastomeric Bitumen	125 lbs., approx.
<b>Ram Cap 306</b>	1 ply
<b>Ultra-White</b> Primer	.75 gal., approx.
<b>Ultra-White</b> Coating	1.5 – 2 gal., approx.

1. Ply Sheet: **Ram Poly•Felt 265 VP**, or approved equal shall comply with the following minimum specifications:

Material - Heat set, resin stabilized, spunbond polyester.

<u>TEST</u>	<u>METHOD</u>	<u>TYPICAL TEST RESULTS</u>
Basis Weight	ASTM D-3776	170 gm/m, 5.0 oz/yd <sup>2</sup>
Thickness	ASTM D-1777	19.7 mils
Tensile Strength, lbf	ASTM D-4830	137 MD, 94 XD
Elongation, %	ASTM D-4830	26 MD, 28 XD

Tear Strength, lbf	ASTM D-4830	31 MD, 27 XD
Fatigue Life	ASTM D-8B	>10,000 cycles
Frazier Air Perm Ft <sup>3</sup> /Ft <sup>2</sup>	ASTM D-1117	245 min

2. Elastomeric Bitumen: **Ram-Tough KLB-100** shall comply with the following minimum specifications:

<u>TEST</u>	<u>METHOD</u>	<u>TYPICAL TEST RESULT</u>
Softening Point	ASTM D-36	220°F
Flash Point	ASTM D-92	min 550°F
Viscosity Brookfield, Model HAT #1 probe @ 50 RPM	ASTM D-3236	75-250 cp
Penetration (dmm)	ASTM D-5	30-70 dmm
Elongation @ 77°F min	ASTM D-2523	1000%
Resilience, 77°F	ASTM D-412	35% min.
Heat Resistance Penetration 77°F, 100 g, 5 sec	ASTM D-5	70 dmm max
Ductility	ASTM D-113	40 cm min.
Low Temp Flexibility	ASTM D-3111	0°F
Solubility	ASTM D-2024	99% min.

3. Cap Sheet and Flashing: **Ram Cap 306** shall comply with ASTM D-6164, Type I, Grade G minimum specifications, SBS polymer-modified sheet Reinforced with polyester fabric.
4. Energy Star® Roof Coating: RAM Ultra-White latex coating and primer shall be Energy Star approved, providing a minimum initial solar reflectance rating of 0.65 and aged solar reflectance rating of 0.50.

B. Related Materials

1. Primer: **Ram Primer/Surface Conditioner** shall comply with ASTM D-41 requirements.
2. Pipe and Stack Flashings: **Ram Pipe Boot** supplied by primary materials Manufacturer and installed in accordance with published flashing details.
3. Cant Strips: Impregnated fiber cant strip shall comply with ASTM C-208 with 4 inch face and approved by membrane Manufacturer.
4. Flashing Mastic: **ram Mastic**-trowel grade SBS modified cold process cement shall comply with ASTM D-4586, Type I.
5. Nails and Mechanical Fasteners: As specified by the fastener Manufacturer for specific application and approved by membrane Manufacturer.
6. Roof Insulation - See Section 07220.
7. Sheet Metal - See Section 07600.

**PART 3 - EXECUTION**

3.01 PREPARATION

- A. Remove all trash, loose debris and ponding water from roof.
- B. Inspect roof deck surface, all perimeters and all roof projections. Notify Architect of any unsatisfactory conditions prior to proceeding.
- C. Install new insulation in accordance with Section 07220.

3.02 APPLICATION

- A. Roofing Membrane:
  1. After new insulation has been properly installed, set four plies of Barrett **Poly•Felt 265 VP** in solid moppings of **KLB-100** elastomeric bitumen, by starting at the low point and applying a 9 1/2 inch width sheet followed by 19 and 28 1/2 inch width sheets followed by a full sheet. Overlap each succeeding ply by 9 1/2 inches, following the ply lines shingle fashion. At least four plies of **Poly•Felt 265 VP** shall cover the existing roof surface at every point.

Bitumen interply mopping shall be approximately 25-30 pounds per 100 square feet, per mopping and provide a continuous film of bitumen without voids or holidays. Broom in all **Poly•Felt 265 VP** plies from the side of the sheet. Do not walk on installed plies until bitumen is thermoset cool. In no place shall felt touch felt nor shall there be any evidence of "fishmouths" or wrinkles. Bitumen shall "bleed-out" at all side laps.

2. Complete installation of all plies each day including cap sheet.
3. After all base flashings have been installed with two plies of **Poly•Felt 265 VP**, install **ram Cap 306** in full mopping of specified bitumen over the field of the roof.. Ensure that mopping exceeds the roll width. Broom or roll the cap sheet in place after installation. Install loose granules over bitumen bleed at side laps while bitumen is warm and with tack. Finished membrane appearance shall not show evidence of visible bitumen nor shall there be any dry laps.

B. Base Flashings:

1. Bridge all junctions of vertical and horizontal surfaces with 45° cant strips. All roofing plies shall extend minimum of 2 inches above the top of cant.
2. The flashing system shall be a component of, or attached to, the roof deck or roof deck system. Apply polyester flashing sheets only after the ply sheets of the built-up roofing have been installed and prior to the cap sheet. Start flashing system by mopping in two plies of **Poly•Felt 265 VP** overlapped 4 inches and 6 inches onto the horizontal roof surface. After **Poly•Felt 265 VP** base flashing is installed, cap sheet from the field of roof is installed and terminates 2 inches above cant.
3. Complete the base flashing with one ply of **ram 306**, overlapped 8 inches onto the horizontal roof surface cap sheet. Offset the side laps 18 inches from **Poly•Felt 265 VP** backer sheets. Apply mastic seal and granules at all base flashing seams.
4. Base flashings shall be mechanically fastened 8 inches, on center, with fasteners and termination bar approved for the substrate receiver. Minimum height for base flashing is 8 inches, and the maximum height is 20 inches. Counter flashing must be provided.

C. Rooftop Equipment & Pipe Penetrations:

1. All air conditioners and mechanical roof top units shall be lifted to allow new roofing and flashing under unit as required. Minimum height for all

curbs is 8 inches. Raise as shown or required. New equipment dunnage, flashing and metal coping shall be installed as shown or required. Install new neoprene wearpads between the unit supports and dunnage.

2. Flash grouped pipe and conduits as per Manufacturer's requirements using metal boxes and/or curbs with integral rain hoods. Flash individual pipes with copper, stainless steel or lead flashings.

D. Roofing Drains:

All drains shall be flashed with new sheet lead flashing 36 inches square weighing four pounds per square foot, set in **ram Mastic** over the new roofing and flashed with two plies of **Poly•Felt 265 VP** and elastomeric bitumen.

E. Energy Star® Coating

After the installation has been completed, apply RAM Ultra-White primer to the membrane surface at the rate of 0.5 to 1.0 gallons per 100 square feet and allow primer to dry. Apply first coat RAM Ultra-White coating over the primed surface at the rate of approximately 3/4 gallon per 100 square feet and allow to dry. Apply second coat of RAM Ultra-White perpendicular or at right angle to the first coat at the rate of approximately one gallon per 100 square feet. Cover all base flashings and all projection flashings at the same time the field of the roof is coated.

### 3.03 FIELD QUALITY CONTROL

A. Roof Cuts:

Test cuts may be directed by a representative of the Manufacturer or the Contracting Officer at his discretion. Test cuts should be 3 inches by 48 inches and should run perpendicular to the direction of the felts to provide a representative sample of the roofing work. Test cuts generally will not exceed 1 per 100 squares of roof area.

1. Follow field audit criteria outlined by ASTM Standard D 3617-83.
2. Send roof cuts to: Structural Research Inc., Madison, Wisconsin, or Manufacturer approved, equally accredited laboratory, for laboratory examinations. Applicator shall allow \$500.00 for testing fees per 100 squares of roof area. Laboratory reports shall be submitted by the laboratory directly to the Architect.
3. Repair sampled areas by filling in the cut-out area then use a "feathered in" patch consisting of same number of plies as in the roof specification following the Manufacturer's and NRCA procedures

- B. Correct deficiencies in roof, if any, (determined by roof cut analysis) as prescribed by material Manufacturers and approved by the Architect.

### 3.04 CLEANING

- A. Remove equipment, trash, debris and any excess material from the jobsite.
- B. Repair any damage and remove any stains caused by work of this Section.

### 3.05 PROTECTION

General Contractor and the Owner shall protect finished roof areas from damage during subsequent construction not related to roofing.

#### **MAINTENANCE:**

Semi-annual inspections and a systematic maintenance program are recommended to the Owner and Architect.  
Consult your Barrett Representative or Barrett Approved Applicator for further information.