

**SECTION 07500
ELASTOMERIC BUILT-UP ROOFING
GUIDE SPECIFICATIONS
KLB-100•4P•I•CS**

[GENERIC, NO BRAND NAMES USED
EXCEPT PARAGRAPH 2.02]

PART I - GENERAL REQUIREMENTS

1.01 RELATED SECTIONS

Section 06100	Carpentry
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 warranty and Intent to warranty Certification.
- C. Submit most recent copy of manufacturer's literature applicable to products and specifications to be used, including applicable flashing details.
- D. Submit three sheet samples, approximately 8" X 10", of ply sheet and flashing sheet.
- E. 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 conformation with 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 Engineer or 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 Engineer 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 Engineer and such decision shall be final.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to jobsite on pallets. Package labels shall indicate material name, production date and/or 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.

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 375°F-450°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 flash point or 500°F.

- C. Ensure roof deck is structurally sound to support the live and dead load requirements of roofing system and sufficiently rigid to support construction traffic.

1.06 CODE COMPLIANCE

It shall be the roofing contractor's responsibility to ensure that all work done under this project shall be in compliance with applicable Code Requirements including obtaining any required permits prior to the start of the job.

1.07 WARRANTY

- A. Prior to project close out, the roofing contractor shall submit the manufacturer's preapproved 25 year labor and material warranty.

PART II - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Products manufactured in the USA by a nationally recognized company who has sold this system for a minimum period of ten years.

2.02 ROOFING MATERIALS

- A. Roofing Membrane System

Project Specification Standard:

Barrett Co. ram•Tough No. KLB-100•4P•I•CS or approved equal.

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

Polyester Reinforcement	4 plies
Elastomeric Bitumen	170 lbs. (approx.)
Cap Sheet	400 lbs. 100 sq. ft.

1. Ply Sheet: Polyester reinforcement complying with the following minimum specifications:

Material - Heat set, resin stabilized, flat calendared spunbond polyester.

Color		Grey
Weight, oz/yd	ASTM-D-1117	5.4 oz/yds_
Thickness	ASTM-D-1777	17.4 mils
Grab Tensile	ASTM-D-1682	230 lbs/MD; 190 lbs/CD
Elongation, %	ASTM-D-1682	63% MD; 57% CD
Tear Strength	ASTM-D-2263	82.0 MD; 68.8 CD
Mullen Burst Test	ASTM-D-774	200+ lbs
Frazier Air Perm		
Ft/Ft	ASTM-D-1117	245 per min.
Strain Energy		
Product	Instron 4201	70 lbs/in. min. @ 70°F 12 in./min.
Cold Weather		
Flexibility	GCB 37-GP-50	0°F PASS

2. Elastomeric Bitumen complying with the following minimum specifications:

<u>Test</u>	<u>Method</u>	<u>Specifications</u>
Softening Point	ASTM-D-36	190°F min.
Flash Point		500°F min.
Viscosity Brookfield, Model HAT #1 probe @ 50 RPM	ASTM-3236	75-250 cp
Penetration (dmm)	ASTM-D-5	30-70 dmm
Elongation @ 77°F min.	ASTM-D-2523	1000% min.
Resilience, 77°F		35% min.
Flexibility 0°F 1/4" Mandrel bend		Pass
Recommended Application Temperature Max.		350°F-475°F
Application Temperature		475°F
Max. Kettle Temperature		500°F
Heat Resistance Penetration 77°F, 100 g., 5 Sec.		70 dmm max.

Ductility	ASTM-D-113	35 cm min.
Flexibility	Mfg	0°F

3. Cap Sheet and Flashing Sheet: SBS sheet reinforced with 180 gram polyester complying with the following minimum specifications:

Description	Granule surface Cap Sheet
Thickness	.150 inches (4mm)
Roll Size	3' X 37' (.91x11.3m)
Side Lap	3" (76.2mm)
End Lap	6" (152.4mm)
Coverage per Roll	100 Ft._
Weight per Roll	90 lbs (40.9 kg)
Breaking Strength MD	584 N
XD	430 N
Ultimate Elongation MD	18.1%
XD	17.9%
Water Resistance:	
Dimensional Change MD	0.01%
XD	0.08%
Water Absorption	0.4gms
Low Temperature Flex.	Pass @ -35°C
Water Vapor Transmission	0.13 g/m/24hr.
Dynamic Impact @ 23°C	Pass
@ -10° C	Pass
Lap Joint Strength:	
5 days @ 23°C	451 N
5 days @ 50°C in (H O)	410 N
5 days freeze & thaw	396 N
Crack Bridging Capacity after 10 cycles @ -30°C	Pass @ -30°C

B. Related Materials

1. Primer: Asphaltic Primer/Surface Conditioner shall comply with ASTM D 41 requirements.
2. Nails: As specified by the fastener manufacturer for specific application.

3. Pipe and Stack Flashings: Neoprene closed boot, supplied by primary materials manufacturer, and installed in accordance with published flashing details.
4. Roof Insulation - See Section 07220.
5. Sheet Metal - See Section 07600.
6. Cant Strips - Impregnated fiber cant strip approved by manufacturer in compliance with ASTM C-208 with 4 inch face.
7. Flashing mastic shall be mastic-trowel grade SBS Modified cold process cement.

PART III - EXECUTION

3.01 PREPARATION

- A. Remove all trash, loose debris and ponding water from roof surface.
- B. Inspect roof deck surface, all perimeters and all roof projections. Notify Engineer, Owner and materials supplier of any unsatisfactory conditions prior to proceeding.

3.02 APPLICATION

- A. Roofing Membrane
 1. After new insulation has been properly installed (Section 07220), starting at the low points of the roof set 4 plies of specified polyester reinforcement in solid moppings of elastomeric bitumen, overlapping starter plies in shingle fashion. Bitumen interply mopping shall be approximately 25-30 pounds per 100 square feet, per mopping and provide a continuous film of bitumen and shall have no voids or holidays. Broom in all polyester plies.

In no place shall felt touch felt nor shall there be any evidence of "fishmouths" or wrinkles. Complete installation of all plies each day and glaze coat finished plies each night.

B. Rooftop Equipment & Pitch Pockets

1. All Air Conditioners and mechanical roof top units shall be lifted to allow installation of new roofing and flashing under unit. New equipment dunnage, flashing and metal coping shall be installed as shown or required. Install neoprene wearpads between the unit supports and dunnage.
2. Install new pitch pockets as per manufacturer's requirements with integral rain hoods. Fill with elastomeric bitumen and crown for proper drainage with SBS mastic.

C. Roofing Drains

1. All drains, shall be flashed with sheet lead flashing weighing 4 lbs/sq. ft., set in SBS mastic over the new roofing and flash with two additional plies of Polyester and elastomeric bitumen.

D. Base Flashings

1. Bridge all junctions of vertical and horizontal surfaces with 45° cant strips. All roofing plies shall extend a 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 flashing only after the built-up roofing has been installed. Flashing system shall be composed of four plies of polyester reinforcement overlapped 4, 6, 8 and 10 inches onto the horizontal roof surface.

Complete with one ply of SBS cap sheet flashing

overlapped 12 inches onto the horizontal roof surface, with side laps offset 18 inches from polyester backer sheets. Minimum height for base flashing is 8 inches, and counter flashing must be provided.

Base flashings shall be mechanically fastened 8 inches, on center, with fasteners approved for the substrate receiver with one inch aluminum termination bar.

E. Surfacing

1. Install specified cap sheet in a flood coat of elastomeric bitumen at the rate of approximately 30 lbs/100 sq.ft. Insure that bitumen bleeds out at all side laps. Install loose granules over bleed out bitumen as required.

3.03 FIELD QUALITY CONTROL

A. Roof Cuts:

Test cuts may be taken by a representative of the Engineer at his discretion. Test cuts should be 3 inches by 48 inches (1 square foot) and should run perpendicular to 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 NRCA.
2. Send roof cuts to Engineer and material supplier for laboratory examinations.
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 standard procedures.

- B. Correct deficiencies in roof, if any, (determined by roof cut analysis) as prescribed by Engineer or material supplier.

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

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

3.06 MAINTENANCE

- A. Semi-annual inspections and a systematic maintenance program are recommended to the Owner and Engineer. Contact a Qualified Roofing Consultant Representative for further information.