

RC 10

1. SYSTEM GENERAL DESCRIPTION

DOUBLE LAYER PROTECTED ROOFING MEMBRANE FOR ACCESSIBLE ROOFS.

Using Torch Applied high performance **SBS** Polymer Modified Bitumen Membrane, reinforced with a Composite carrier of Non-woven Polyester armored with Glassfiber Filaments, and insulated with Extruded Polystyrene rigid insulation boards

2. SYSTEM COMPONENTS

2.1 LIGHTWEIGHT CONCRETE (L.W.C.)

- a- Lightweight cellular concrete shall be made to provide slopes for drainage of rain water.
- b- Design lightweight concrete mix to produce the following physical properties unless otherwise specified elsewhere:-
 - Dry Density: (500 - 550) kg/m³.
 - Minimum Compressive Strength: 14 kg/cm².
- c- Use minimum amount of water to produce a workable mix.
- d- Use special mixing equipment specifically manufactured to produce and pump L.W.C. on roof in order to ensure homogeneity and density poured on roof.
- e- Light weight foam concrete shall be covered with a sand/cement screed layer of 25 mm thickness.

2.2 PRIMER (OPTIONAL)

According to surface conditions, a layer of priming coat shall be required. Primer shall be applied in one coat.

Coverage rate: 200-400 gm / m²

REF.: PRIMANIL, as manufactured by BITUNIL or equivalent.

2.3 ROOFING MEMBRANE

1-BASE LAYER:

This waterproofing layer shall be of SBS modified bitumen membrane reinforced with non-woven polyester reinforcement, and have the following properties: -

Type of Test	Test Method	Unit	PROPERTIES	
			Longitudinal	Transverse
Softening point	ASTM D 36	° C	120	
Cold Flexibility	EN-1109	° C	-10	
Tensile Strength	EN-12311-1	N/5cm	600	400
Elongation @ Break	EN-12311-1	%	35	40
Tearing Strength	EN-12310-1	N	175	175
Dimensional Stability	EN-1107-1	%	±0.5	±0.5
Water Absorption	ASTMD-5147	%	<1	
Vapour Permeability	EN 1931	μ	60,000	
Adhesion To Concrete	Pelage UEATc	N/cm	40	
Thickness / weight	-	MM.	3	

Ref. "NiloFlex 10 PP" as manufactured by "BITUNIL" or equivalent

2-MAIN LAYER:

This waterproofing layer shall be of Heavy Duty SBS modified bitumen membrane reinforced with a composite carrier of non-woven Polyester armoured with Glassfiber filaments, and have the following properties: -

Type of Test	Test Method	Unit	PROPERTIES	
			Longitudinal	Transverse
Softening point	ASTM D 36	° C	130	
Cold Flexibility	EN-1109	° C	-25	
Tensile Strength	EN-12311-1	N/5cm	1000	650
Elongation @ Break	EN-12311-1	%	40	40
Tearing Strength	EN-12310-1	N	250	325
Dimensional Stability	EN-1107-1	%	±0.3	±0.3
Water Absorption	ASTMD-5147	%	<1	
Vapour Permeability	EN 1931	μ	80,000	
Adhesion To Concrete	Pelage UEATc	N/cm	40	
Thickness / weight	-	Kg/Sqm	5	

Ref. **“BITUGUM 25”** as manufactured by **“BITUNIL”** or equivalent

NOTE: A SEPARATION LAYER OF 150 MICRONS POLYETHYLENE SHEET SHALL BE LAID LOOSE ONTO THE MEMBRANE SYSTEM, WITH 150 MM OVERLAPS

2.4 INSULATION

Extruded polystyrene thermal insulation boards with ship lapped edges shall be used.

Boards shall have a thickness, of 50mm, to provide a minimum U-value; Insulation boards shall have the following properties:

Physical Property	Unit Value	Test Method
Density	32 Kg/m ³ (±5 %)	DIN 53420 ASTM D 1622
Compressive Strength at 10 % deflection:	300 k Pascal	DIN 53421 ASTM D 1621-73
Thermal conductivity (k factor) (After 5 years at 24 C°)	0.032 watt/m C°	DIN 52612 ASTM C 518-76
Water vapour permeability	0.4 - 0.6 perm. inch	ASTM C 355-64
Water absorption by submersion	Less than 1 % by volume	DIN 53428 ASTM D 2842

2.5 FILTER FABRIC

A filter fabric protection layer of polyester or polypropylene 120gm/m² shall be loose- laid onto insulation board, with 150mm overlaps.

2.6 BALLAST (ROOF TOP COVERING)

Ballast layer shall be one of the following materials as specified in drawings and bill of quantities:-

1. TILES

Roof tiles or marble shall be as specified, due to the use of roof area:

Cement roof tiles

Mosaic roof tiles

Marble tiles

OR other types as specified

2. GRAVEL: (FOR NON-ACCESSIBLE ROOFS OF FACILITIES/SERVICES BUILDINGS ...ETC.)

A gravel layer with minimum thickness of 5 cm clean washed rounded gravel sized (25-40) mm diameter, shall be laid onto the filter fabric, as recommended by manufacturer of membrane system.

2.7 ACCESSORIES

1. CANTS

Cants shall be 50mm x 50mm chamfered at 45 degrees, and shall be made for internal corners at roofs with parapets. Cants shall be of sand/cement mortar

2. BASE FLASHING

The base flashing MBM strip shall be "BITUGUM 25 Mineral" self protected, mineralized membrane, as manufactured by "BITUNIL" or equivalent, and shall be fully bonded and secured into a 20X20 mm wall groove, and pointed with polysulphide sealant, conforming to ASTM C 920.

3. DRAINS

- Drains shall be cast iron roof drains and parapet drains of types and sizes approved by the engineer and as recommended by the roofing membrane manufacturer.
- Roof drain shall allow for free drainage at all levels.