METHODOLOGY

Tank base mastic cushion using flintkote 3

how to with a.b.e.®

All the relevant product data sheets are to be read for additional information like pot life, mixing instructions, surface preparation, ventilation, temperature application limitations, etc.

MATERIALS

- **flintkote type 3** bituminous emulsion.
- Ordinary Portland Cement: fresh and free of lumps.
- Clean river or crusher sand: no pit or Berea Red sands to be used.
- Clean potable water: free of salts which would adversely affect the performance of the mix composition.

MIXING

- Mixing may be carried by hand or by use of a concrete mixer depending on the size of the work required.
- Add all the materials to the required quantity of **flintkote type 3** and continue mixing until all the materials are suitably coated and a plastic mortar consistency is achieved. Prolonged mixing, after the aggregates are well coated and consistency obtained, must be avoided. Should additional water be required for workability then add the quantity to the aggregates prior to introduction to the bitumen emulsion.

LAYING

- Due to the relatively long setting time of the mastic do not apply the material greater than 20 mm in thickness.
- For layers greater than 20 mm in thickness it is recommended that the application be performed in a number of layers.
- The mix may be placed over an insulating material such as rigid sheets of polystyrene – if required – providing that this will not result in collapse under load and is applied in accordance with the Engineer's specification.
- The mastic may be applied using conventional mortar methods; employing screed rails where possible in order to achieve required levels and tolerances.
- The placing and striking off of the excess mortar should be completed within 30 minutes of mixing.

SETTING

- Setting time is dependent on the thickness of the mastic, relative humidity, wind, temperature and the absorption factor of the sub-base. In local summer conditions a 13 mm thick application will set in approximately 3 to 4 hours on a sub-base having no absorption properties.

LIMITATIONS

- The **flintkote** bitumen base mastic should not be laid if rain is imminent. Should there be doubt about the setting time then thinner layers must be applied, also adequately cover the areas concerned in the event of precipitation.
- Un-set mastic must be protected against frost in cold climates.
- In petroleum tank installations the bituminous mastic should not come into contact with the liquids contained therein and detail work should be so performed so as to alleviate this possibility.
- Good housekeeping should be employed for optimum performance.

DATA SHEETS

Technical information may be found in the **a.b.e.®** technical site manual and it is recommended that particular attention be paid to the following:

- Surface preparation.
- Mixing.
- Pot life.
- Over coating time.
- Curing time.
- Safety precautions.

YIELD DETERMINATION

The total on the absolute yield, under mix proportion guide, is the approximate volume you will obtain when mixing in those proportions. Allow approximately 10% for waste.

Example:

Tank base diameter = 2.0 metres.

Tank base mastic = 13 mm thick.

Volume of material required = $\pi/4 \times 22 \times 0.013 \times 1000 = 40.8$ litres say 41 litres, add 10% waste = 45 litres.

Therefore 45 litres divided by 71 litres, from the mix proportion guide under the absolute yield, equates to +63% of the proportions in the table, parts by mass or parts by volume.

MIX PROPORTION GUIDE

Materials	Parts by Volume	Parts by Mass	Absolute Yield
Fine Aggregate	100 litres	110.00	42.31 litres
Cement (OPC)	2 litres	3.32	1.06 litres
flintkote type 3	28 litres	28.00	28.00 litres
Total	130 litres	141.32	71.37 litres
Water	Quantity required to adjust for workability		
One cubic metre = 1000 litres			

ASSUMPTIONS

Fine aggregate – loose bulk density	1.0 litre = 1.1 kg
Fine aggregate – relative density	2.65
Cement – loose bulk density	1.67 (i.e. 30 litres = 50 kg)
Cement - relative density	3.14
flintkote type 3 – relative density	1.0
Water – relative density	1.0
Bulking factors may vary according to moisture content and handling of materials.	

SUGGESTED SAND GRADING

Sieve Size (mm)	Accumulative % Passing
4.750	85 - 100
2.360	69 - 90
1.180	45 - 70
0.600	30 - 50
0.300	18 - 30
0.150	10 - 21
0.075	5 - 15

Note: It is important that the 0.075 mm sieve specification limits are adhered to, marginal variations on the other sieve sizes could be tolerable.

PRODUCTS REQUIRED

- **flinkote 3**.
- Ordinary Portland Cement.
- Sand as grading above.

EQUIPMENT NEEDED

- Festo mixer with a helical coil mixing head.
- Steel float.
- Steel Trowel.
- Suitable 25 litre steel can for mixing.

OR

- 50 litre Pan mixer.