

# Architectural GUIDELINES

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MEMBRANES



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# GENERAL ARCHITECTURAL DETAILING

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## SPECIFICATION OF GENERAL DETAILING

The following wording format is one often used to cover general detailing of roof waterproofing in architectural specifications following the specification of the waterproofing membrane itself:

### GENERAL DETAILING

All layers except base sheet shall be turned up and solidly bonded to vertical surfaces, to flashing/dampcourse height, and positively fixed to prevent slumping. Turn up and solidly bond to sleeves provided for penetration. In a vented membrane system, vent strips from the first base sheet shall be provided approximately 3metre centres, 300mm wide at perimeter walls and penetration.

**NOTE:** Vent strips should **not** be placed beneath joints in flashings. All layers except base sheet shall be turned down into roof outlets and gutters and shall be solidly bonded to the deck. An additional 450mm strip of membrane shall be interleaved into the membrane system at all turn-ups and downs etc.

**Rain water outlets:** Clamp ring type outlets are recommended.

# IMPORTANT NOTES ON DESIGNING WATERPROOF FLAT ROOFS

## ROOF DRAINAGE

**FALLS:** Good drainage greatly increases the life of a roof membrane. It is the responsibility of the Specifier to achieve good roof drainage. A Fall of 15mm per metre is required to ensure positive drainage. The very minimum acceptable is 22mm in 3metres, but every effort should be made to improve upon this. Internal gutters require the same falls as roofs.

**GUTTERING: Internal gutters** can be waterproofed using a continuation of the roof membrane. However, as this is the most critical area, an additional layer is recommended. Where possible, solid bonding of the membrane to the gutter is recommended. **Internal outlets** should be specially designed for membrane systems and incorporating mechanical sealing against back pressure. **External gutters** should not be designed to turn over or be fixed to the deck. A separate flashing of high performance roof membrane should be installed to support the membrane turn down and permit removal of corroded gutters without damaging the membrane.

## FLASHINGS AND CAPPINGS

Cover flashings and dampcourses play an equally important role in keeping a building waterproof and adequate attention should be given to the selection of materials and their placement in the structure. Poor flashing detailing often leads to a premature failure of the roof membrane. As a general rule, flashing and capping heights should be at least 150mm above the highest water table level. Metal flashings should not be sealed to membranes as they have different co-efficients of thermal expansion. Different types of metals react against each other, so careful consideration should be given when specifying.

## PENETRATIONS

Vents, skylights etc. frequently work loose in time due to wind vibration and maintenance work. This movement is directly transmitted to the membrane. Separate sleeves or kerbs fixed to the deck but free of the penetration are recommended for support of the membrane. These turn ups can be over flashed from the penetration.

## TURN UPS

These are one of the most vulnerable points on a roof, having greater exposure to UV and possible mechanical damage. An additional strip of high performance membrane of these points is a wise precaution. It should be solidly bonded to vertical surfaces and onto the deck for a distance of 200mm to prevent water passing beneath the membrane in the event of a flashing failure. Cover flashings should extend to the deck or surface finish level to provide additional protection.

## ANGLE FILLETS

Where adjoining walls are not build on or form part of the roof deck but are independent from the roof, a separate turn up support made from timber, pressed metal or concrete is recommended to isolate the roof membrane from excessive movement.

## EXPANSION JOINTS

Where the roof is graded, movement joints should constitute the highest point. Where possible timber or concrete kerbs should be constructed on each side of the joint to support the turn up of the membrane. The dual kerbs can be finally capped in a manner which allows free movement.

## MAINTENANCE

All flat roofs and associated flashings and cappings should be inspected at least every two years so that any signs of possible defects through mechanical damage or structural movement can be quickly detected and corrected economically and before leakage occurs.

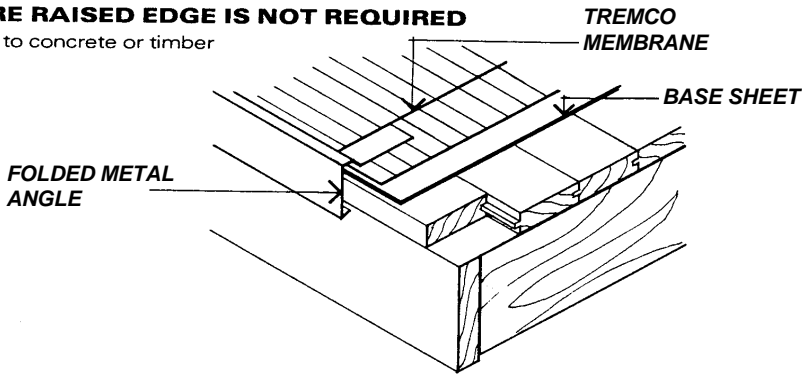
## USE OF SLIP SHEETS

Whenever a concrete topping, slab or tiled bed is to be placed over a membrane, it is essential that a slip sheet be used to separate the two.

# EAVES DETAILS

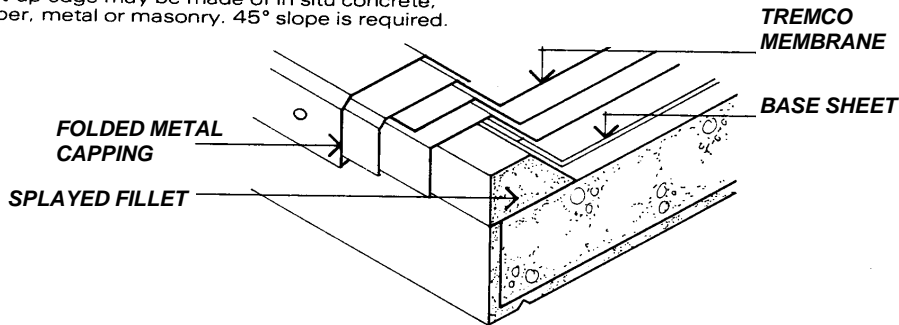
## WHERE RAISED EDGE IS NOT REQUIRED

Applies to concrete or timber

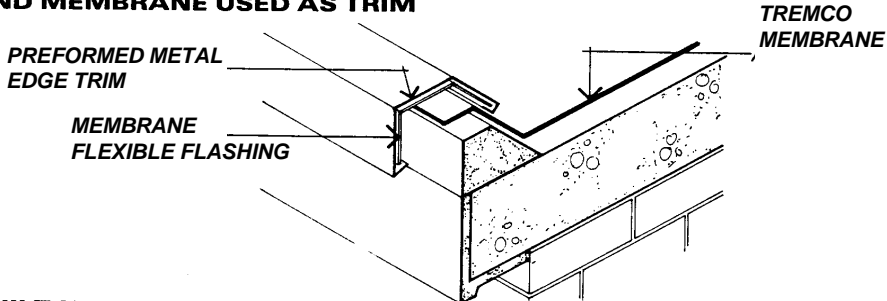


## BUILT-UP EDGE WITH PREFORMED METAL EDGE TRIM

Built-up edge may be made of in situ concrete, timber, metal or masonry. 45° slope is required.

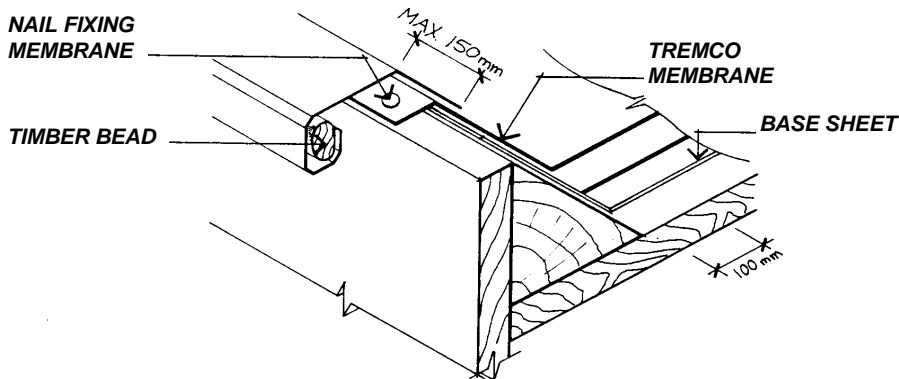


## BUILT-UP EDGE WITH TIMBER FILLET AND MEMBRANE USED AS TRIM



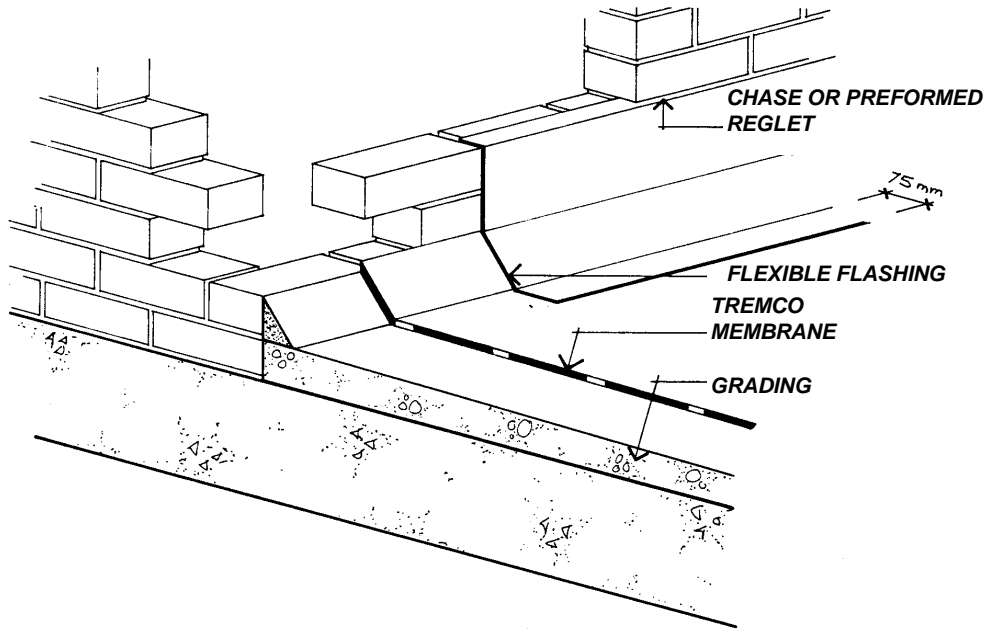
## BUILT-UP EDGE WITH FOLDED METAL CAPPING

Built-up edge may be made of in situ concrete, timber, metal or masonry. 45° slope is required.

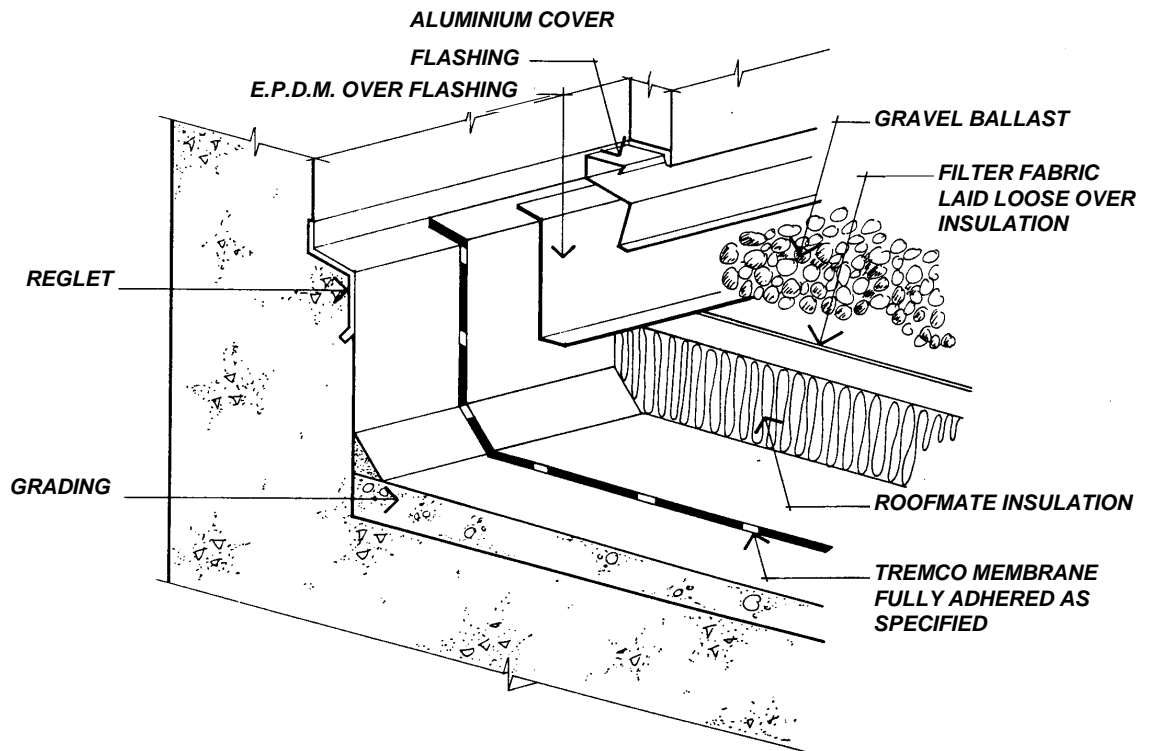


## UPSTAND DETAILS

FOR WALL ABUTMENTS AND PARAPETS

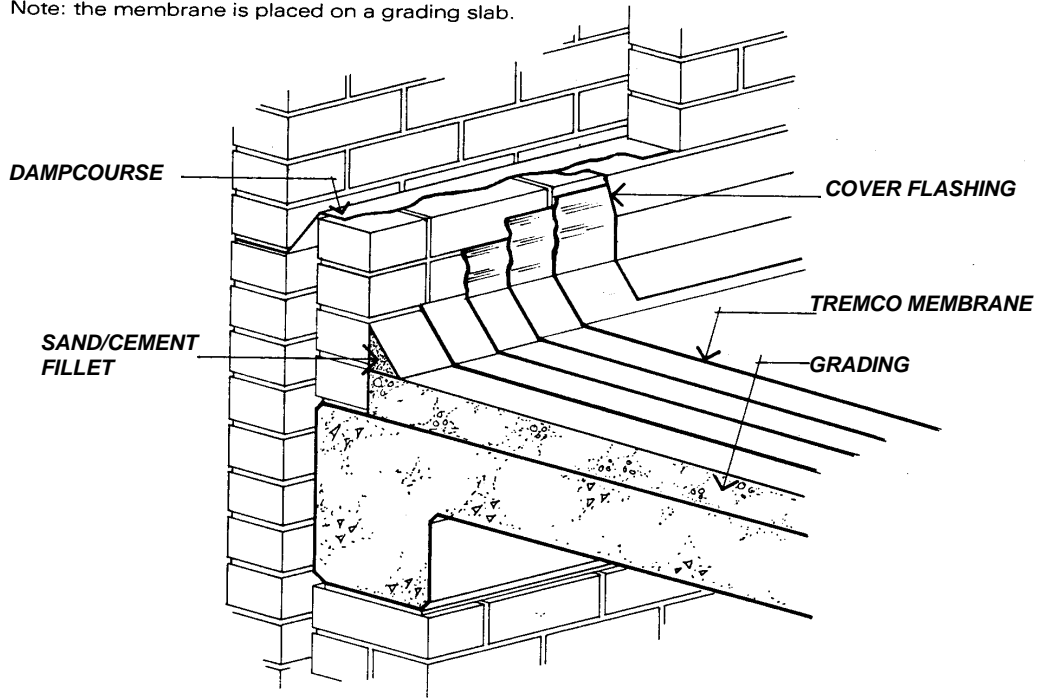


MEMBRANE AS OVERFLASHING INTO WALL CHASE

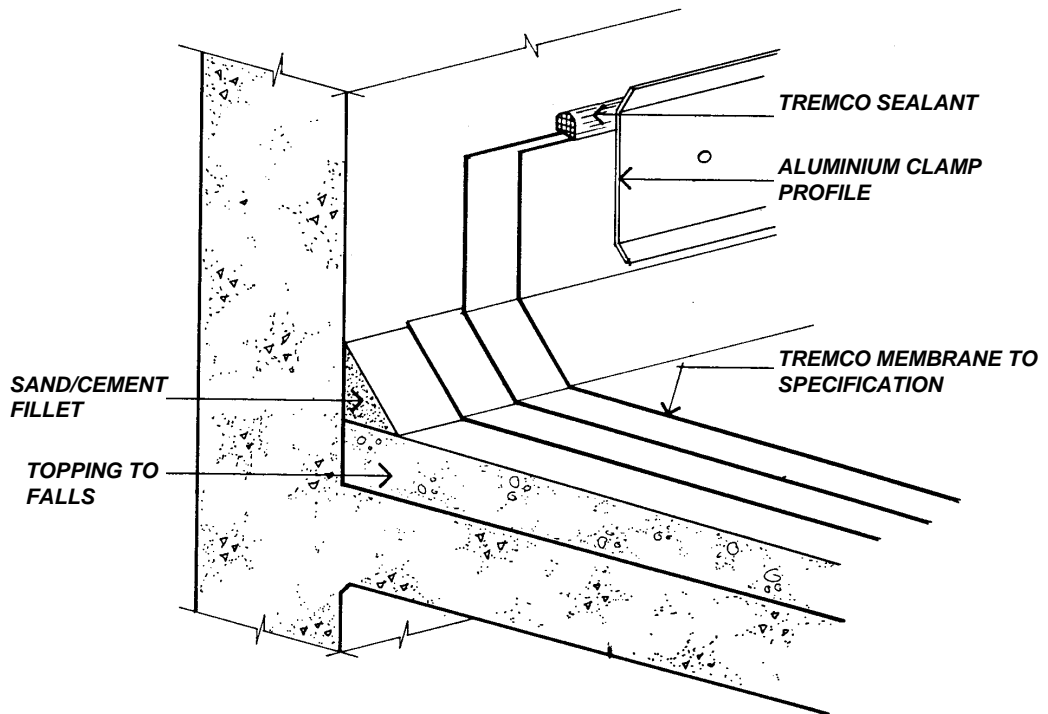


## MEMBRANE WITH METAL OVERFLASHING (ALSO SHOWING DPC TREATMENT)

Note: the membrane is placed on a grading slab.

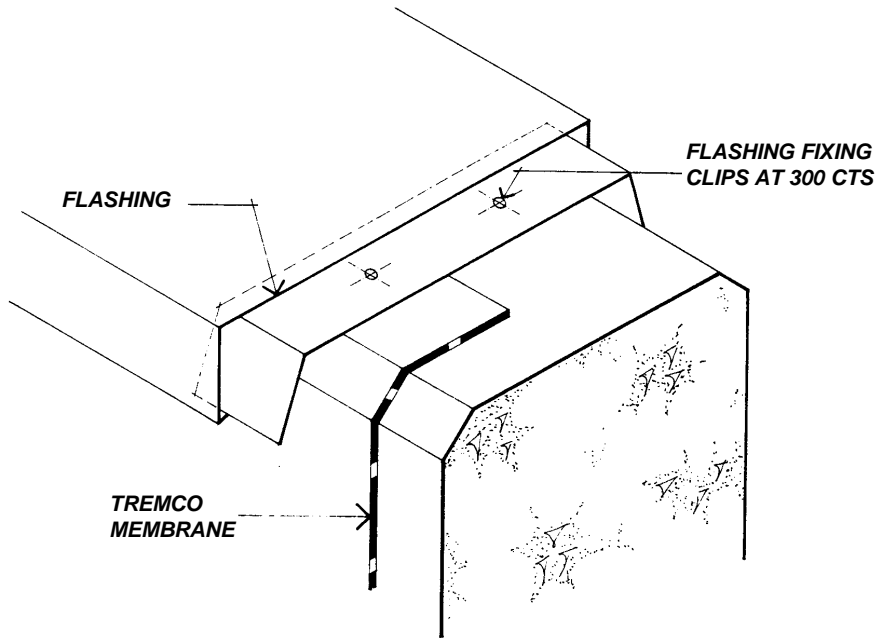


## SIMPLE PRESSURE SEAL TYPE PERIMETER FLASHING

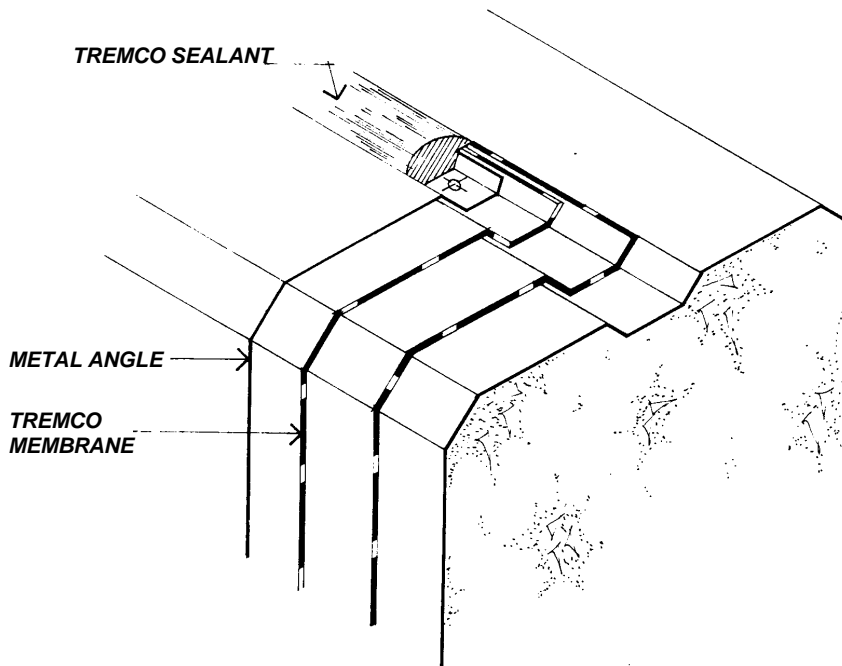


# PARAPET DETAILS

TYPICAL CONCRETE PARAPET PROFILE WITH METAL CAPPING

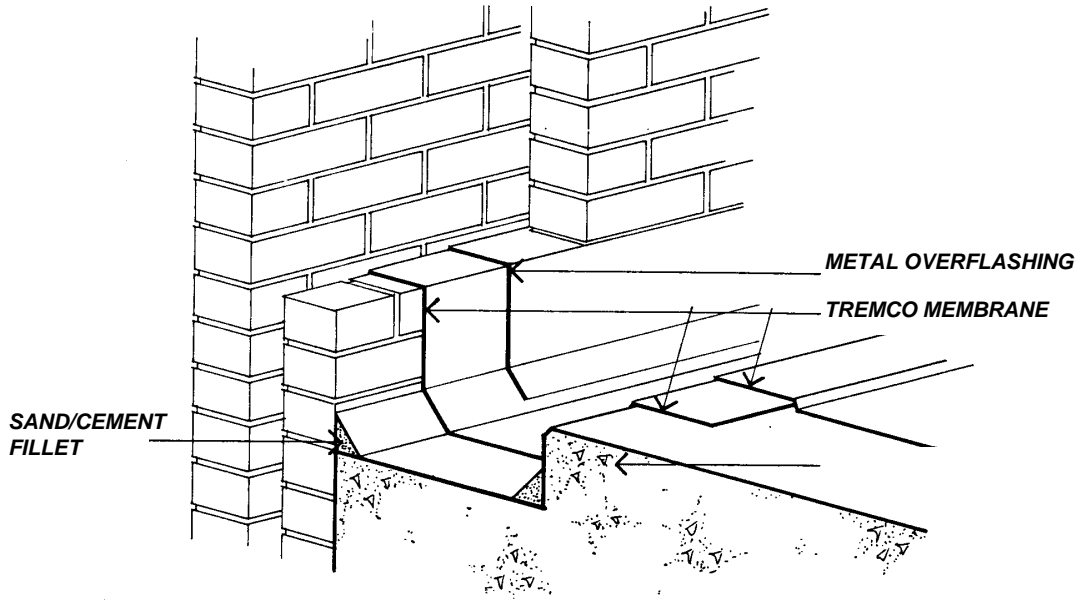


METAL HALF-CAP FOR CONCRETE PARAPET

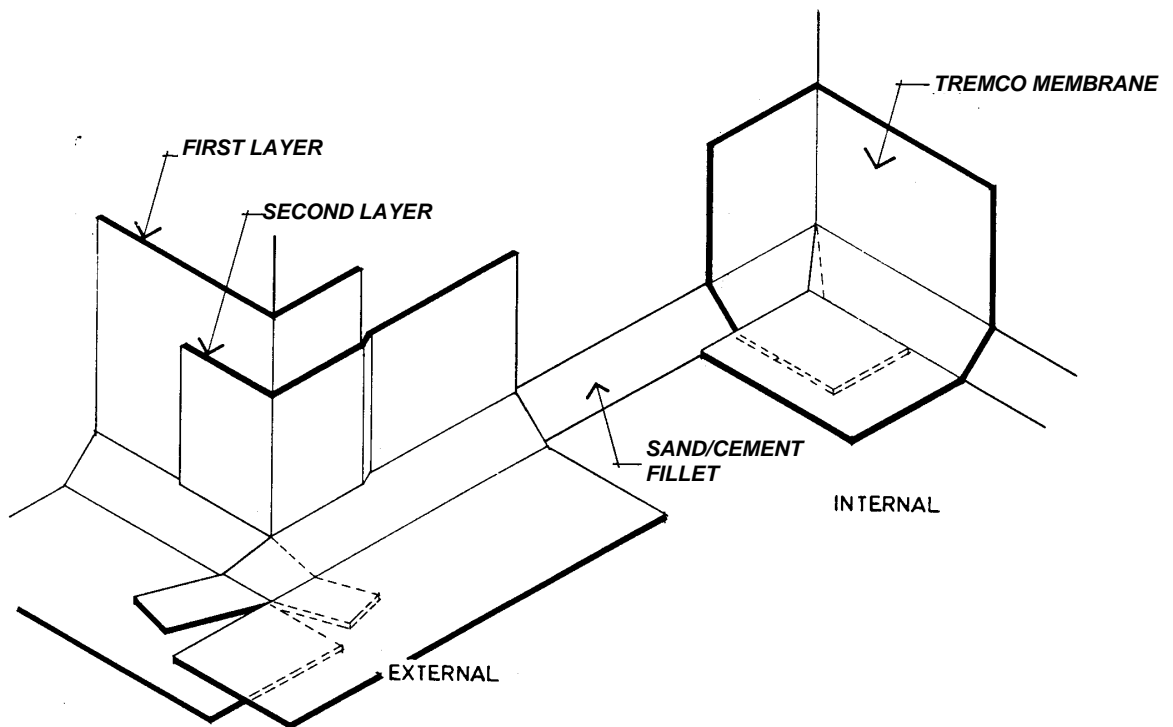




## BOX GUTTER BESIDE PARAPET WITH OVERFLASHING

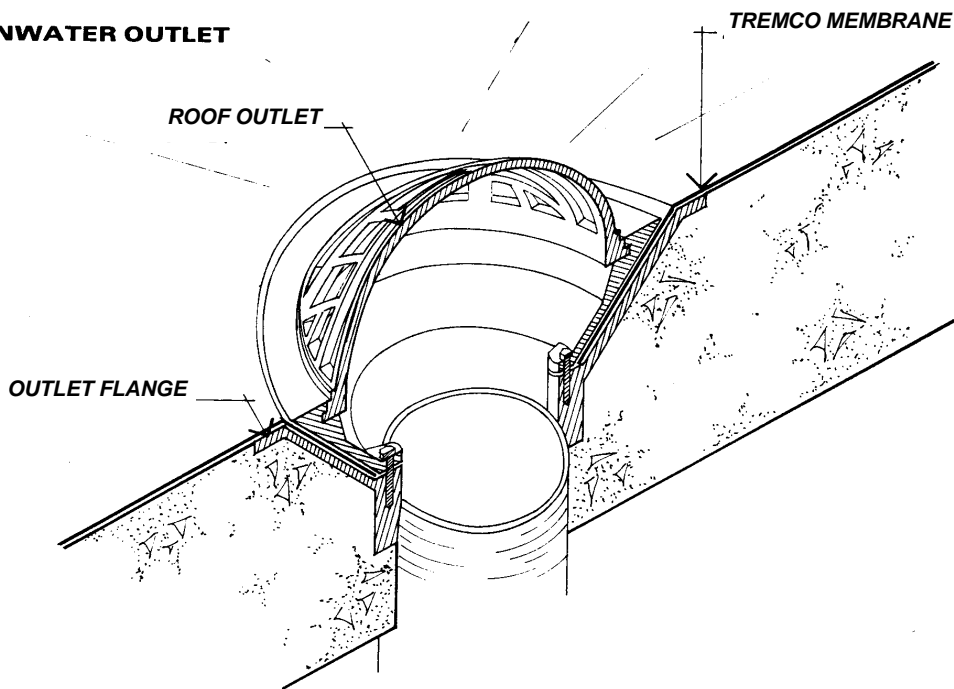


## CORNERS

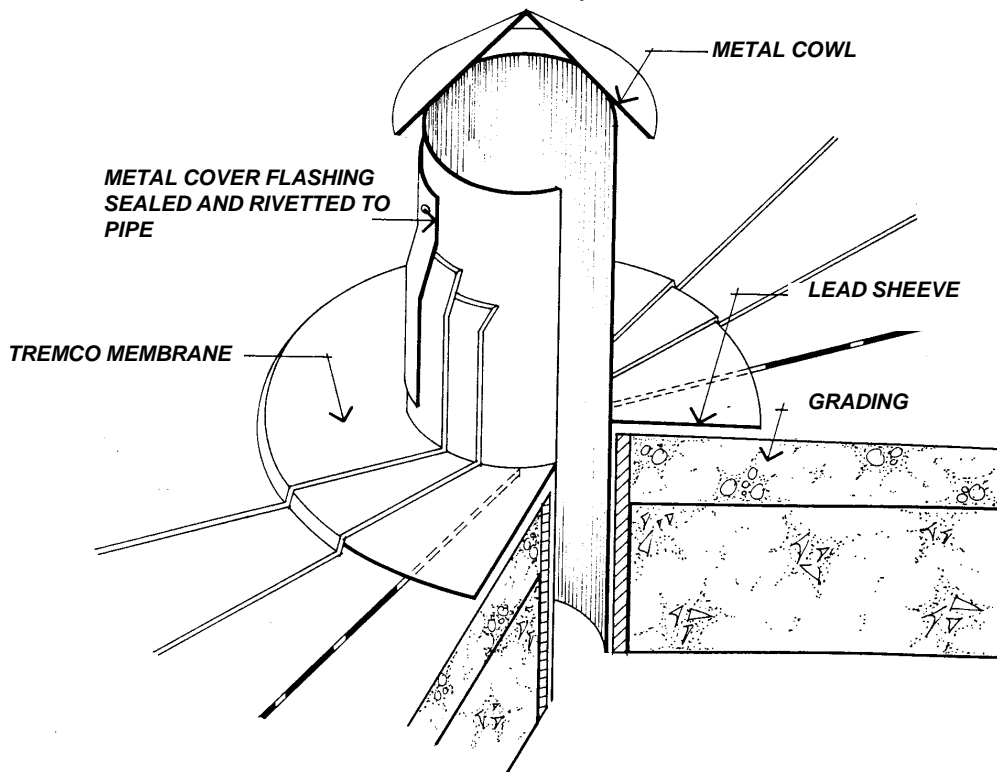


## PENETRATIONS

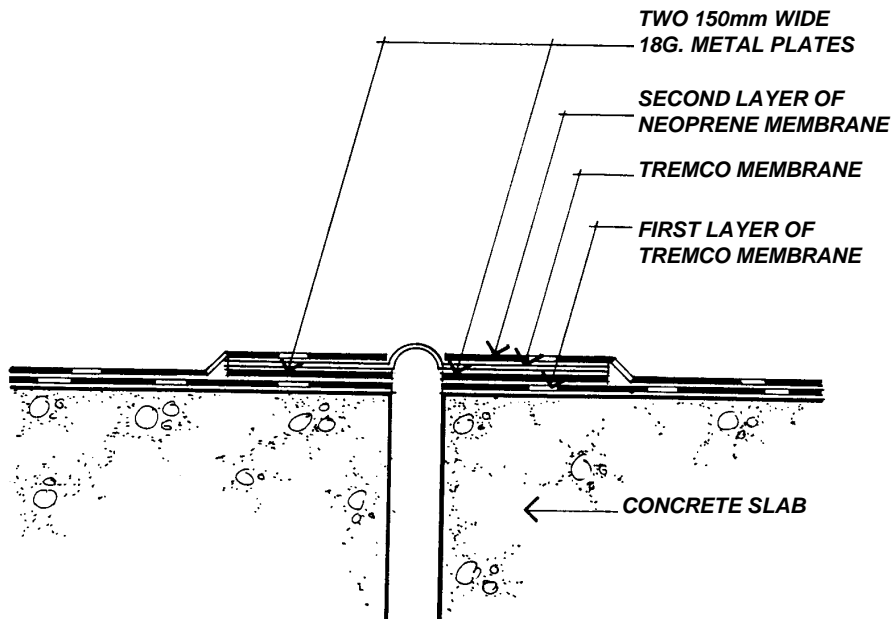
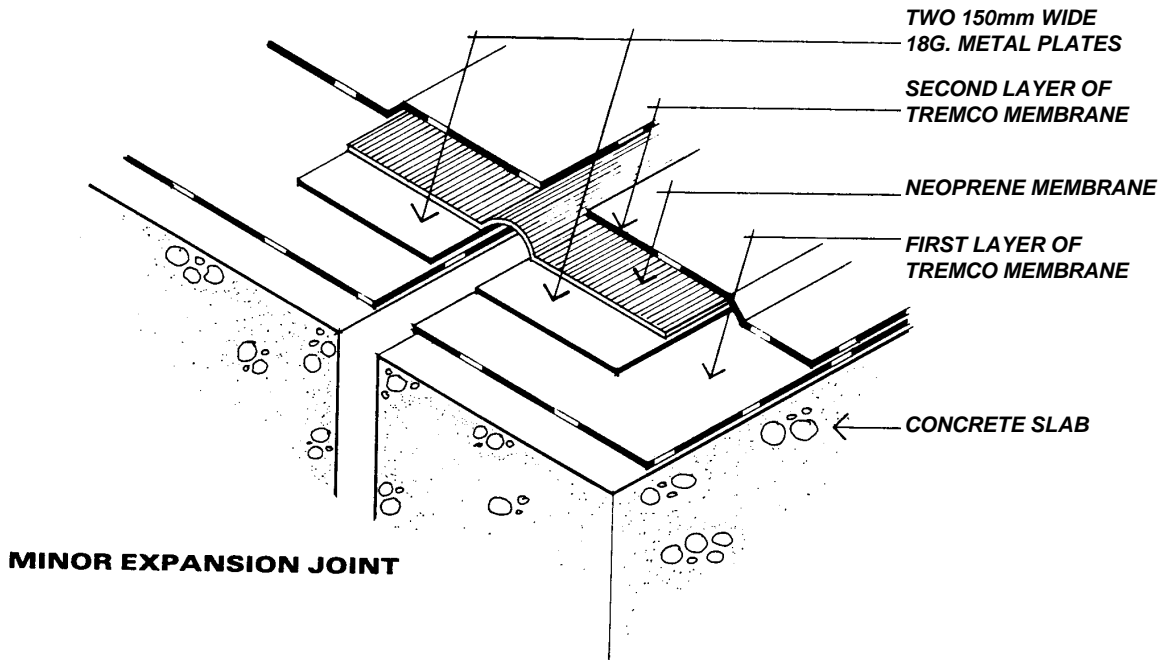
### RAINWATER OUTLET



### VENT PIPE (WITH METAL COLLAR FLASHING)

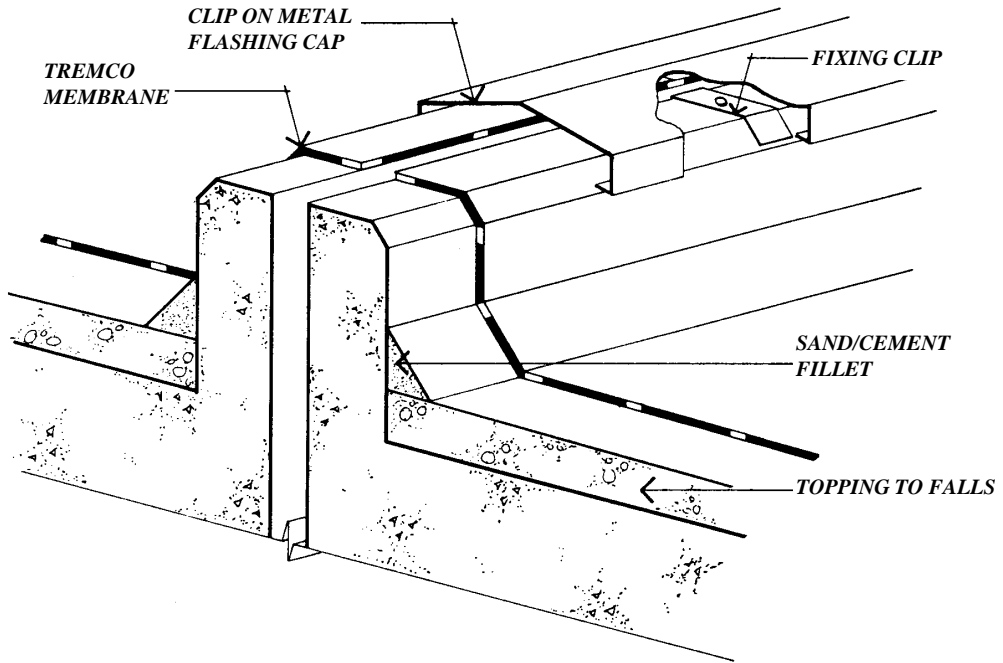


# EXPANSION JOINTS



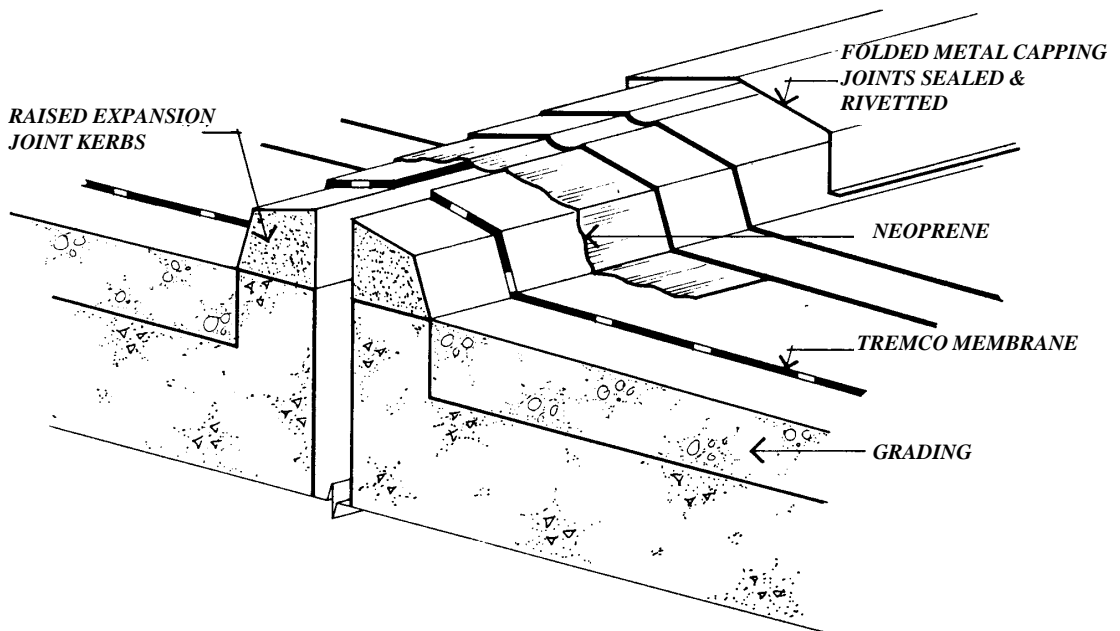
## MAJOR EXPANSION JOINT (RAISED)

Showing termination of membrane and concealed fixing for metal capping

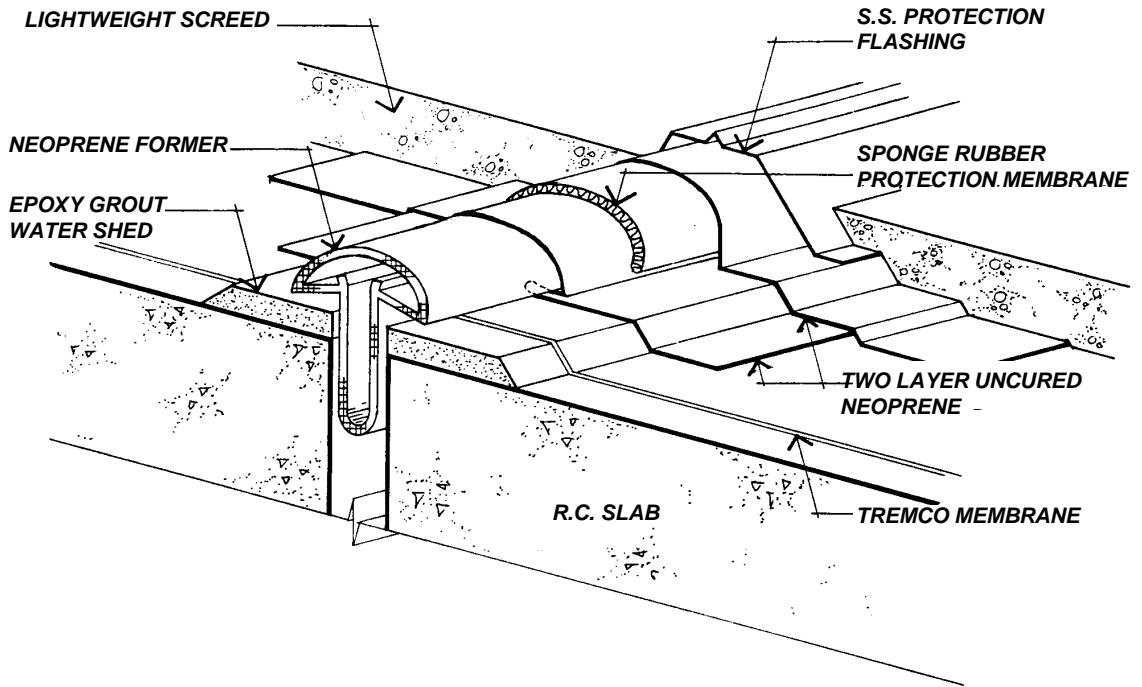


## MINOR EXPANSION JOINT (RAISED)

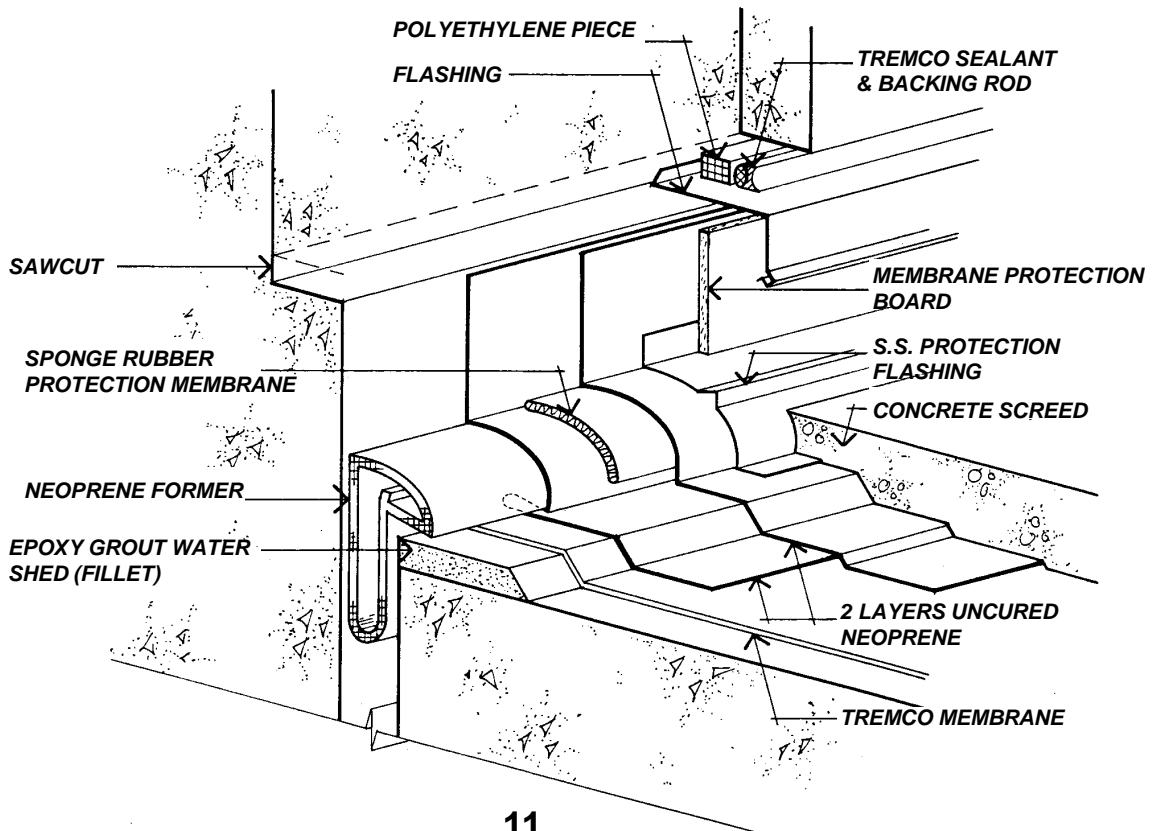
Showing membrane with wave continuing over joint



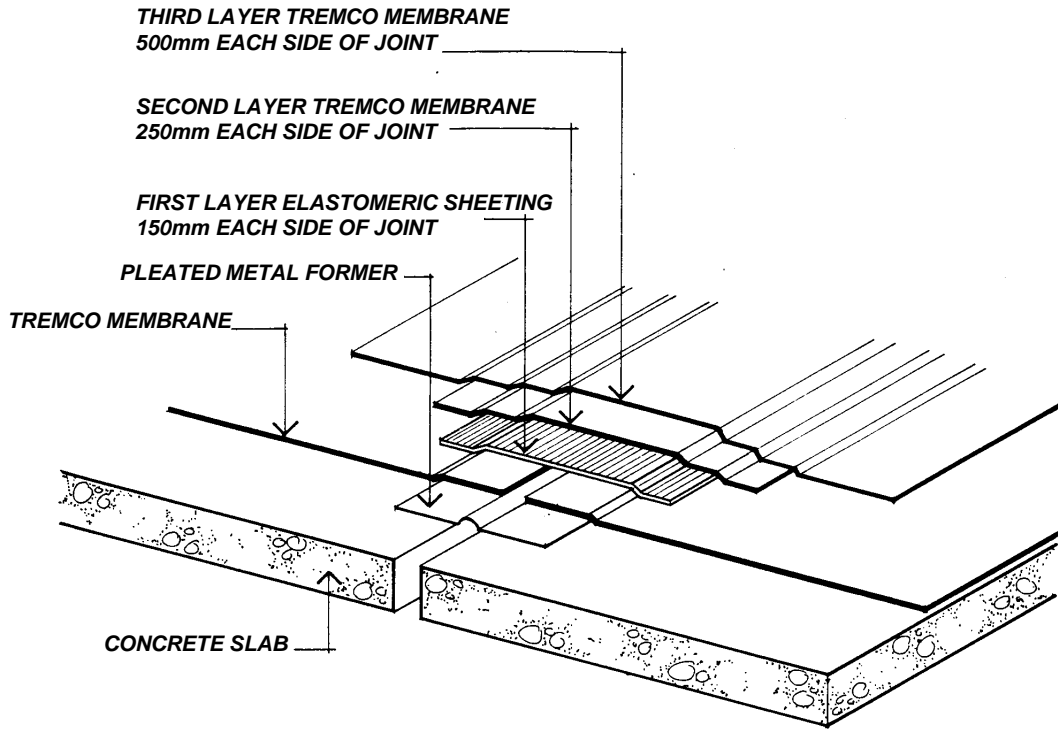
## MAJOR JOINT WITH PREFORMED NEOPRENE JOINT FORMER



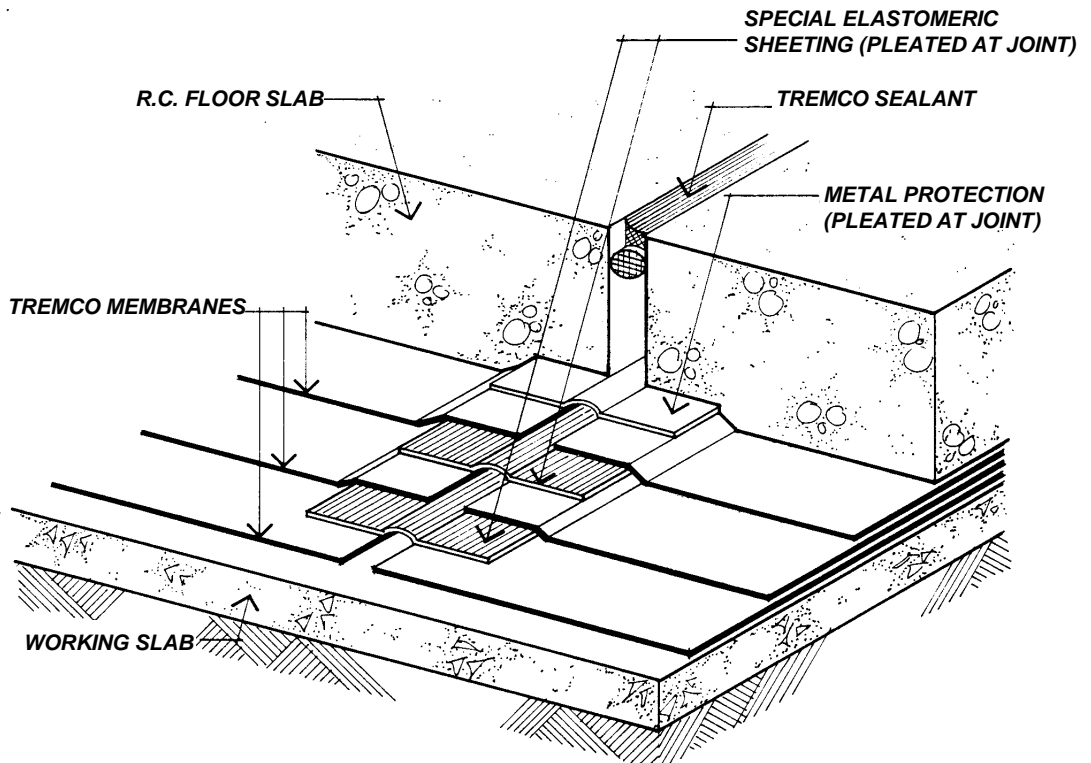
## MAJOR JOINT WHERE VARYING LEVELS OCCUR - USING NEOPRENE JOINT FORMER



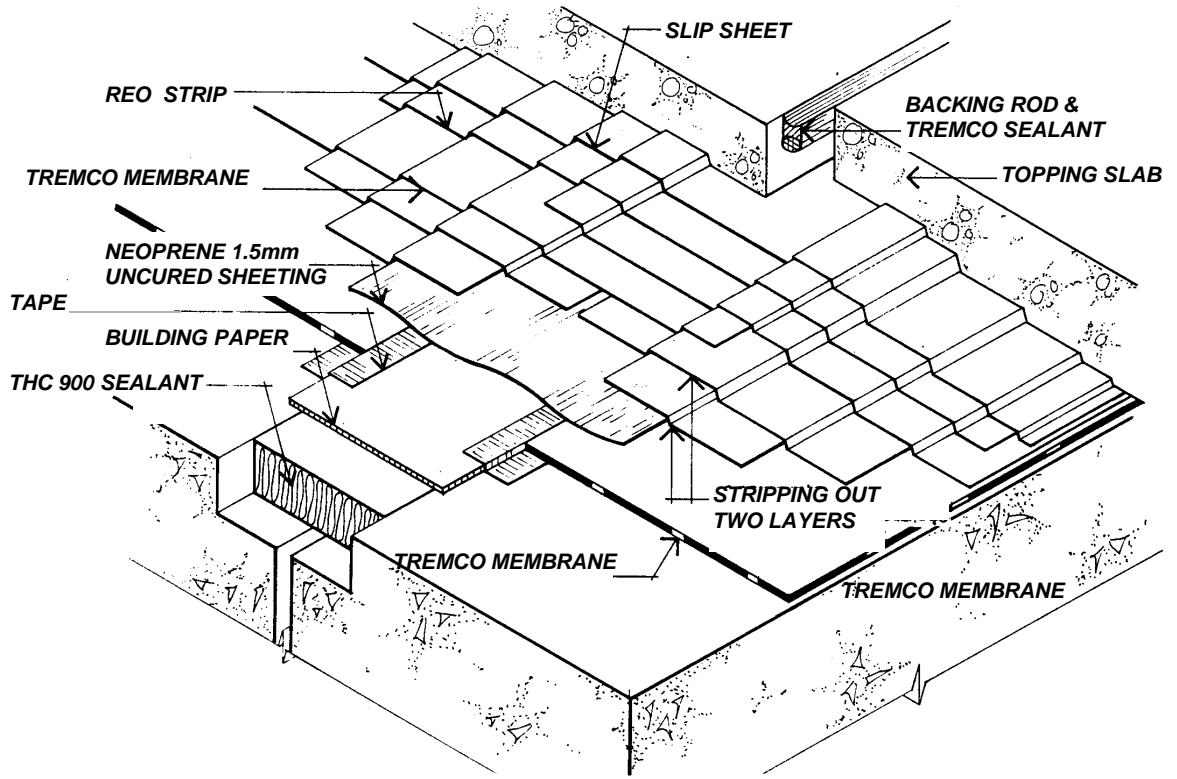
## HORIZONTAL EXPANSION JOINT (FOR SINGLE LAYER)



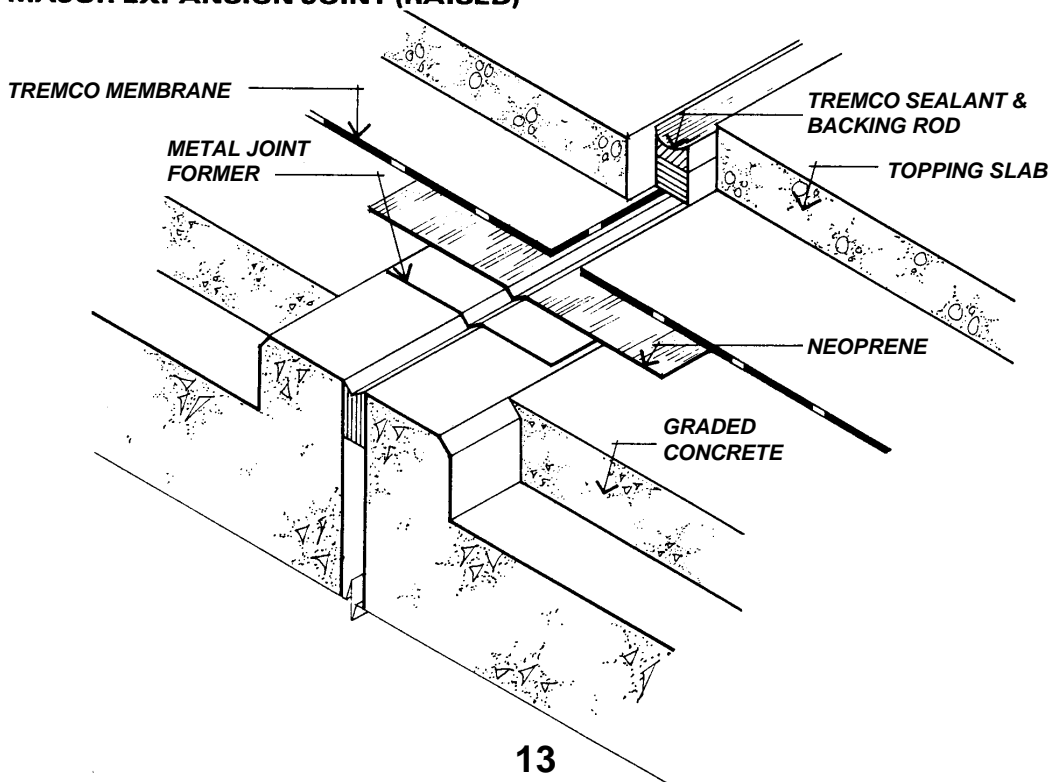
## HORIZONTAL EXPANSION JOINT (FOR DOUBLE LAYER)



## MAJOR EXPANSION JOINT (FLAT)

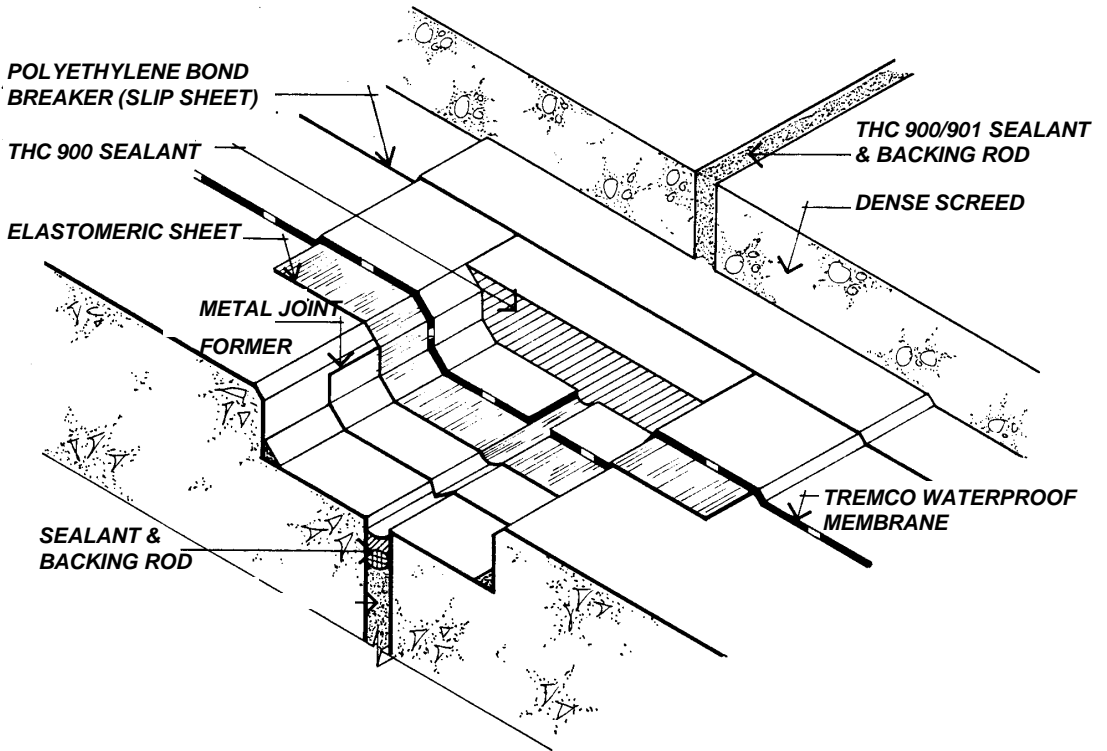


## MAJOR EXPANSION JOINT (RAISED)

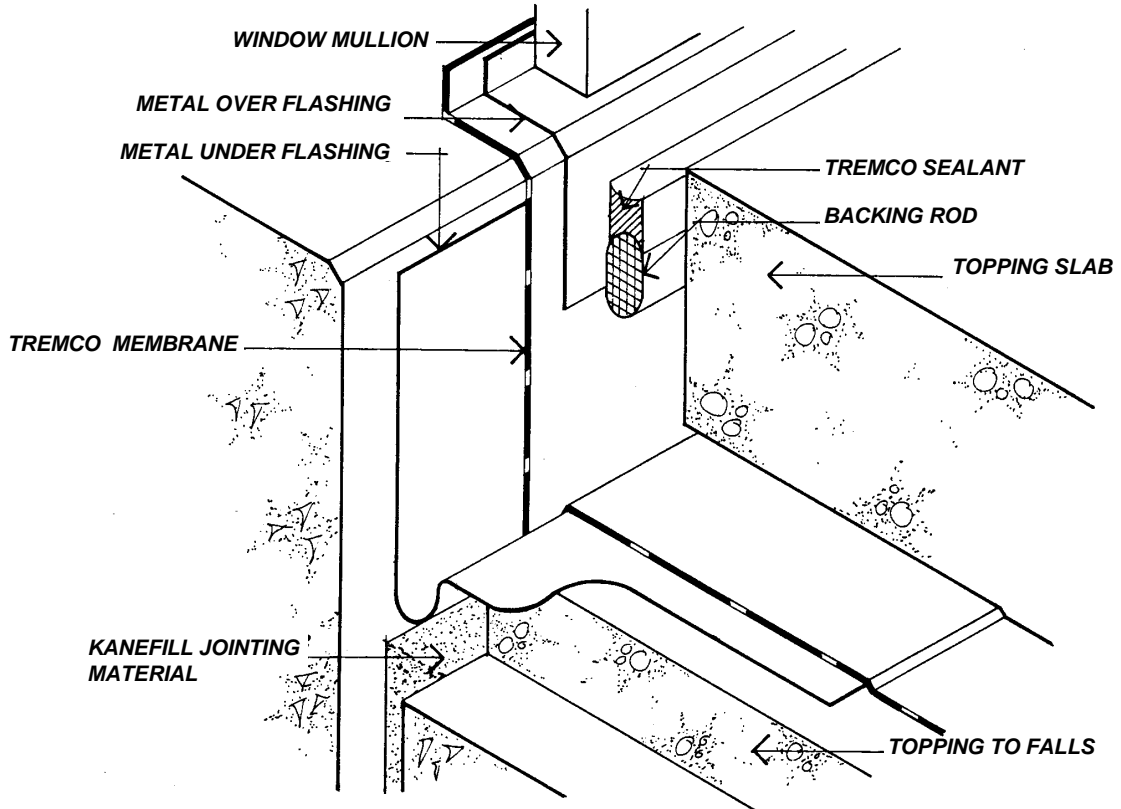


## TRAFFICABLE SURFACE

Major expansion joint (flat)



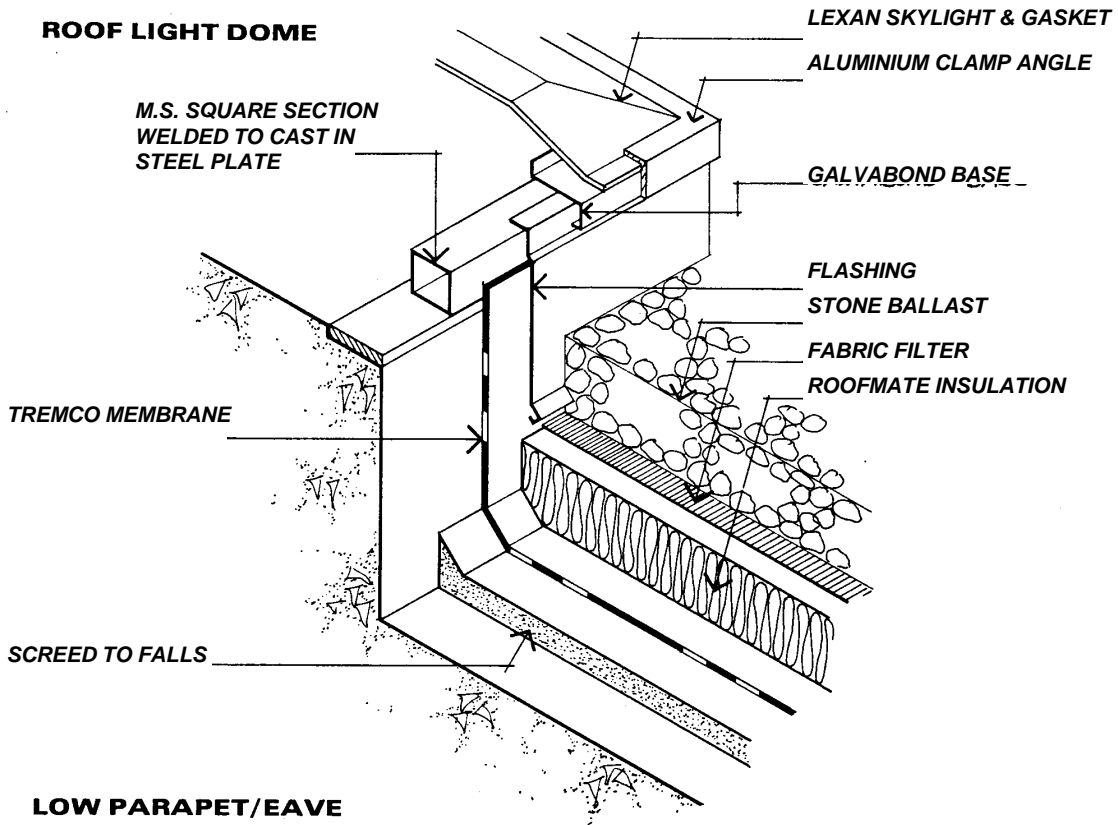
## TRAFFICABLE SURFACE JOINT AT DOOR SILL Alternative





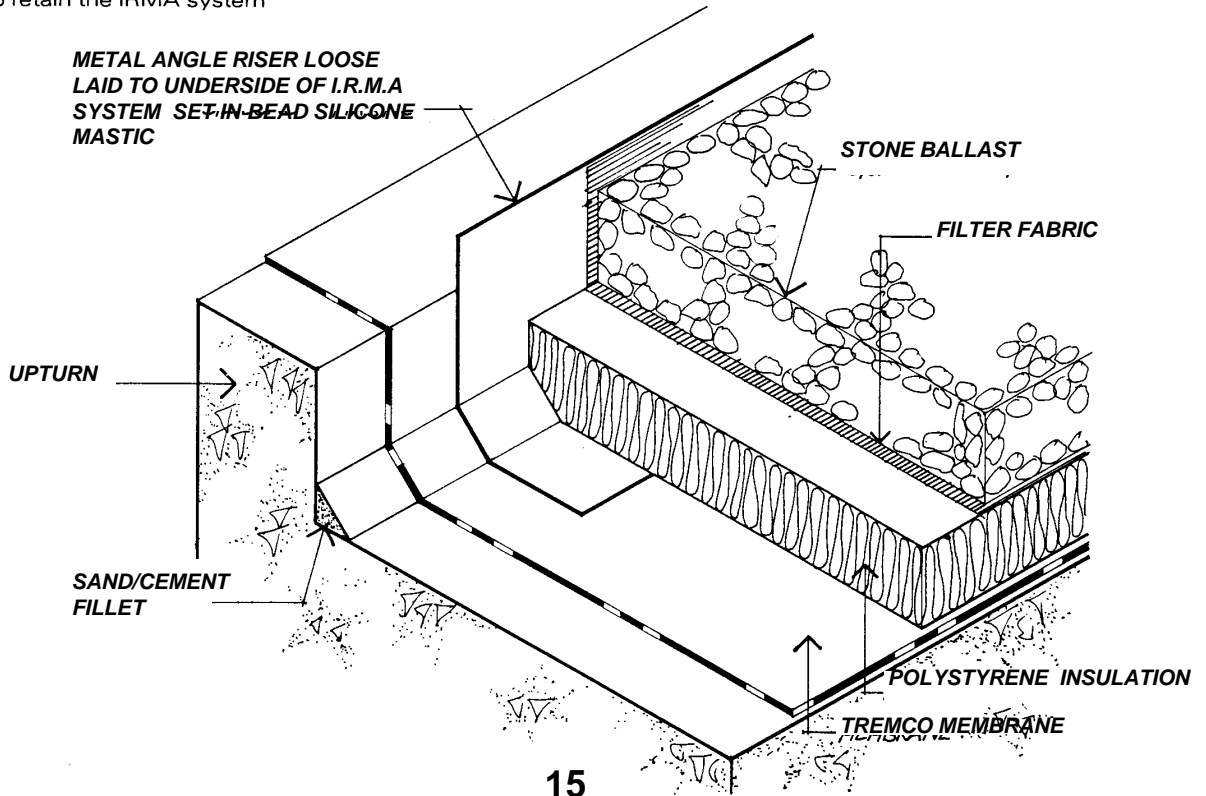
# INSULATION – IRMA

## ROOF LIGHT DOME

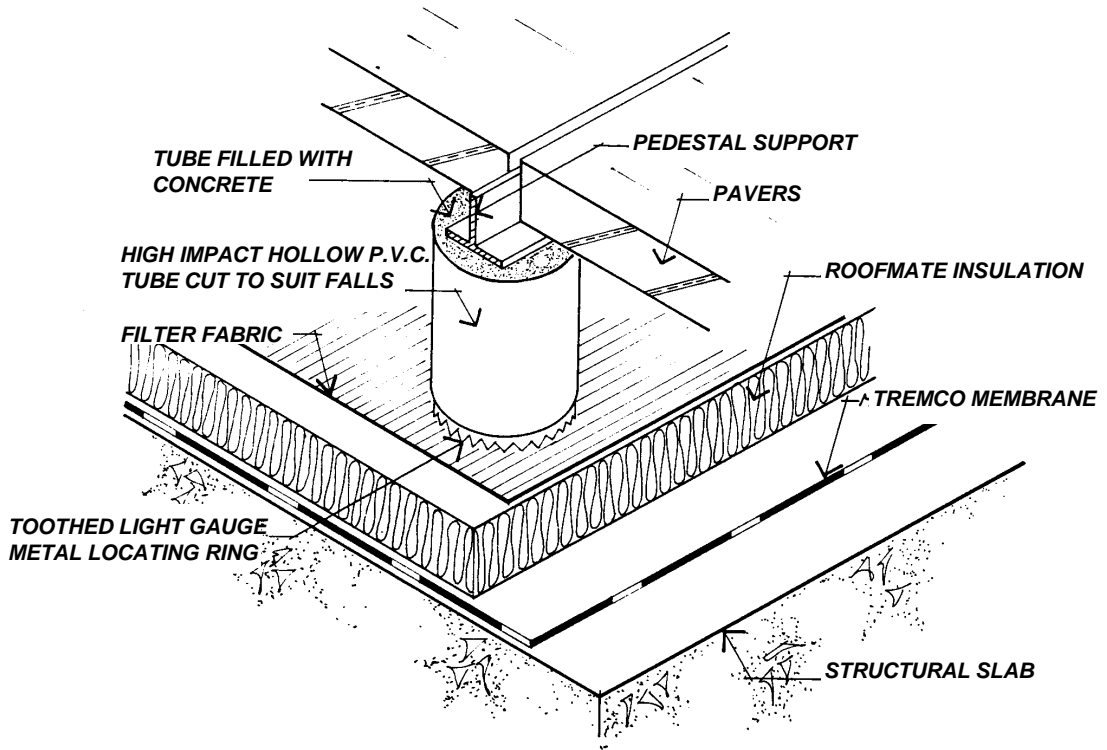


## LOW PARAPET/EAVE

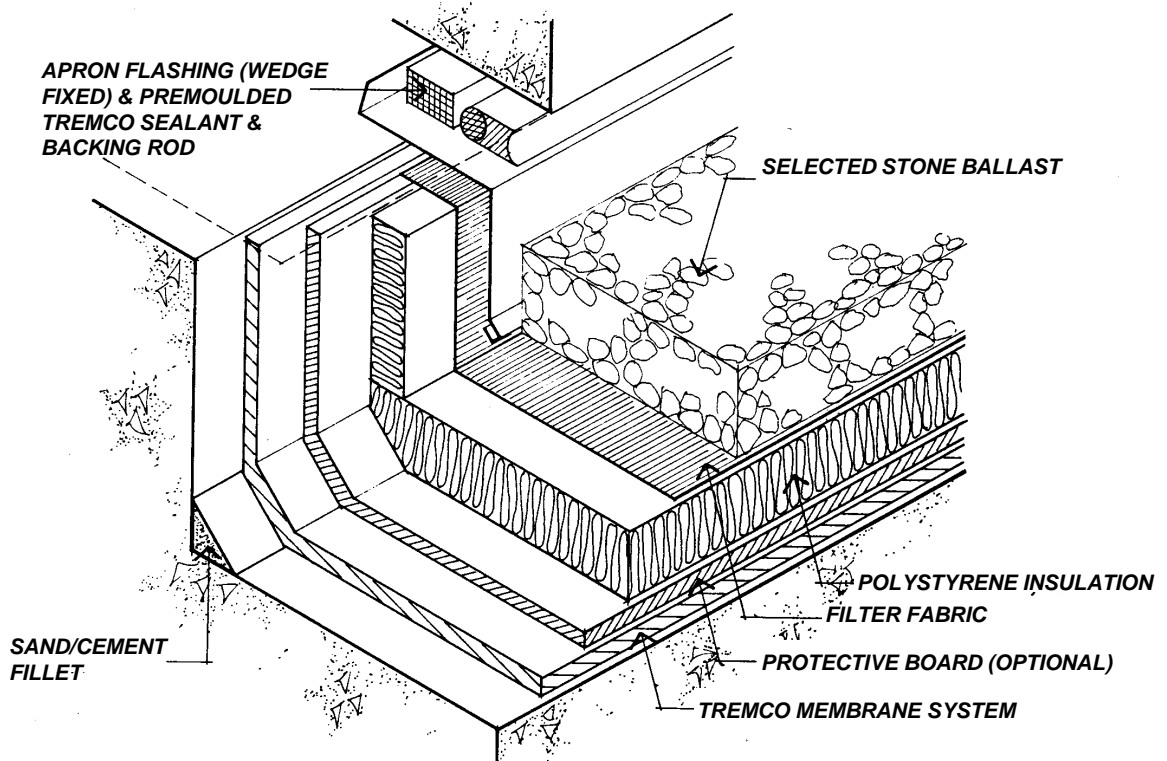
Where height of upturn or parapet is insufficient to retain the IRMA system



## PEDESTAL SUPPORT SYSTEM OVER IRMA (GROSS FALLS)

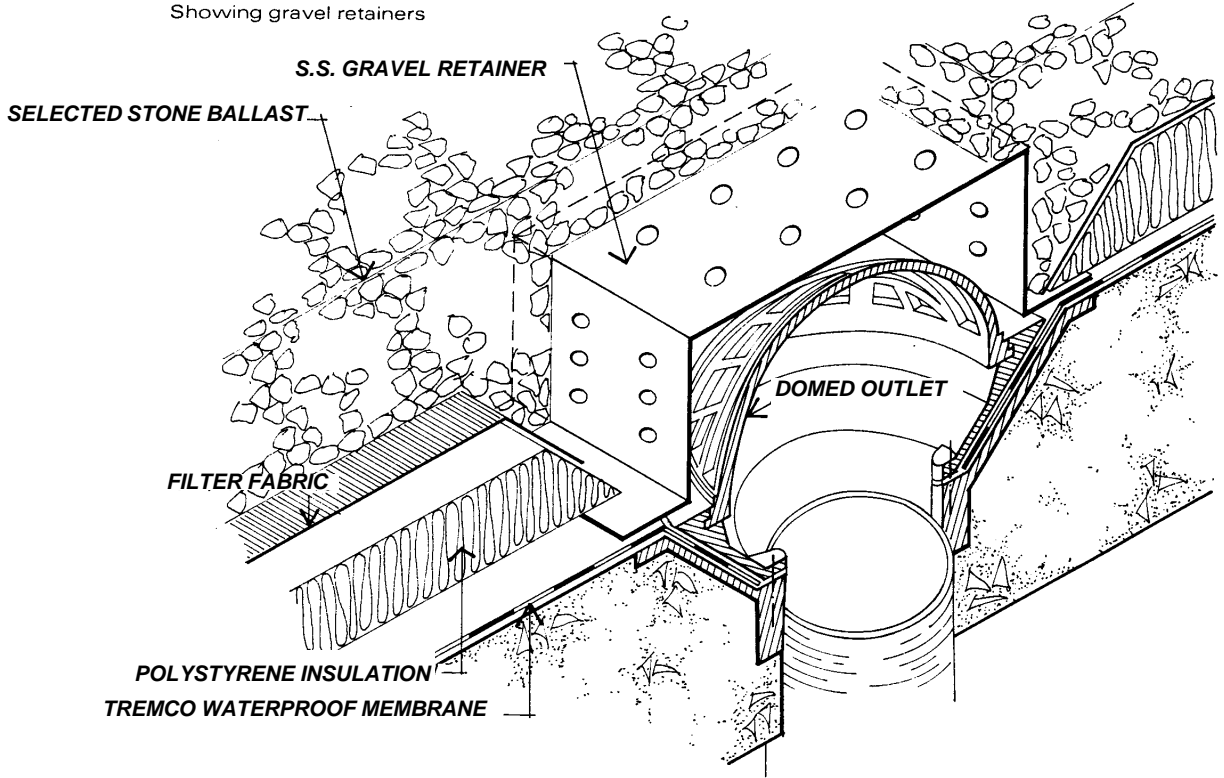


## IRMA TO UPSTAND & REGLET

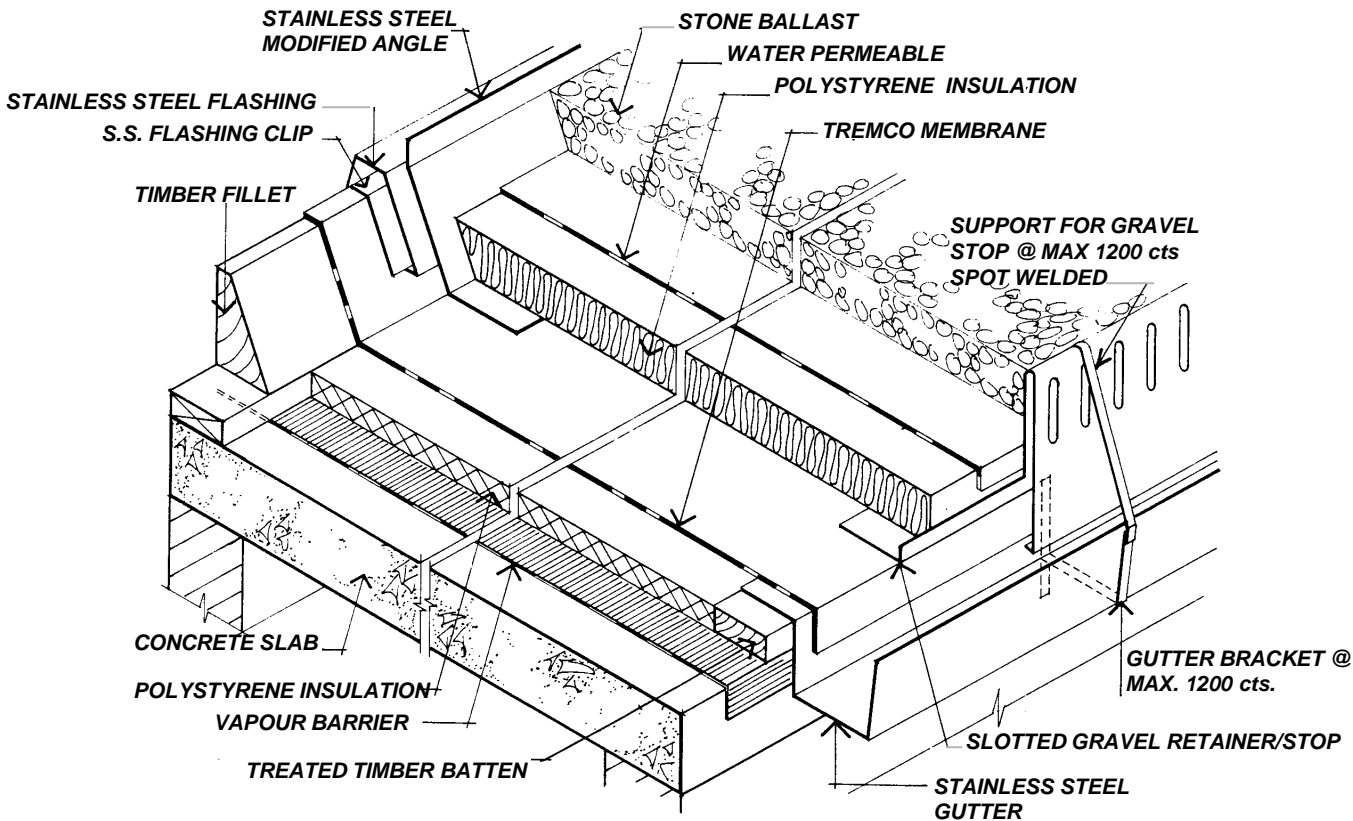


## RAINWATER OUTLET

Showing gravel retainers



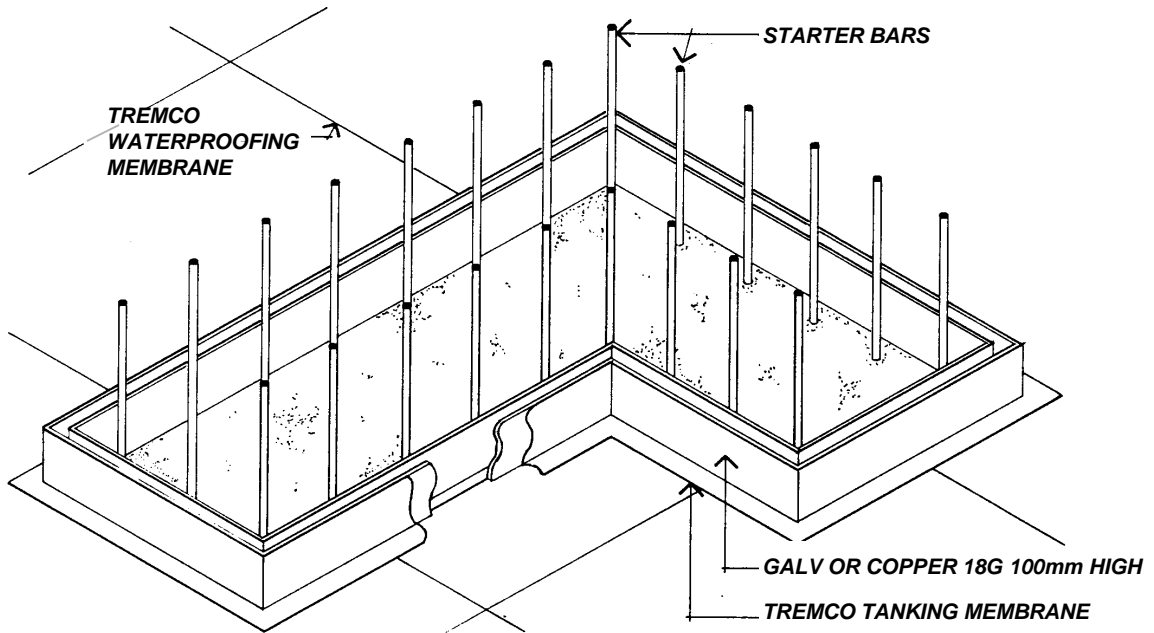
## SYSTEM MODIFIED FOR INTERNAL HIGH HUMIDITY



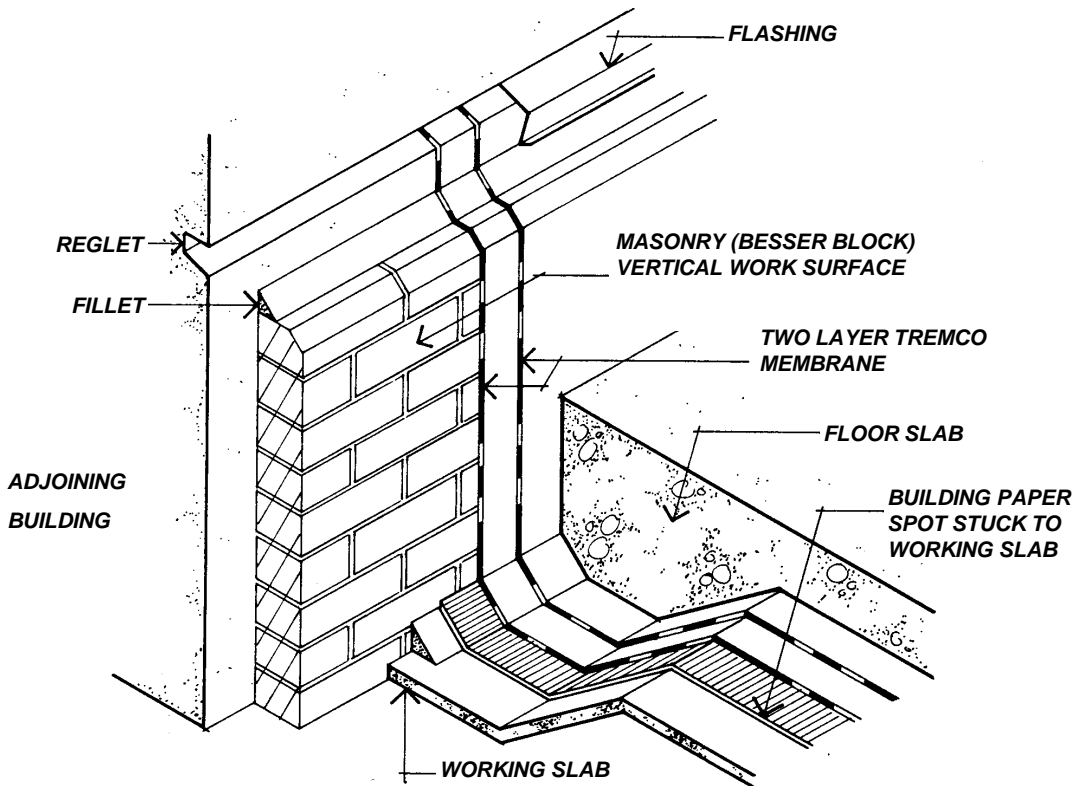
# TANKING



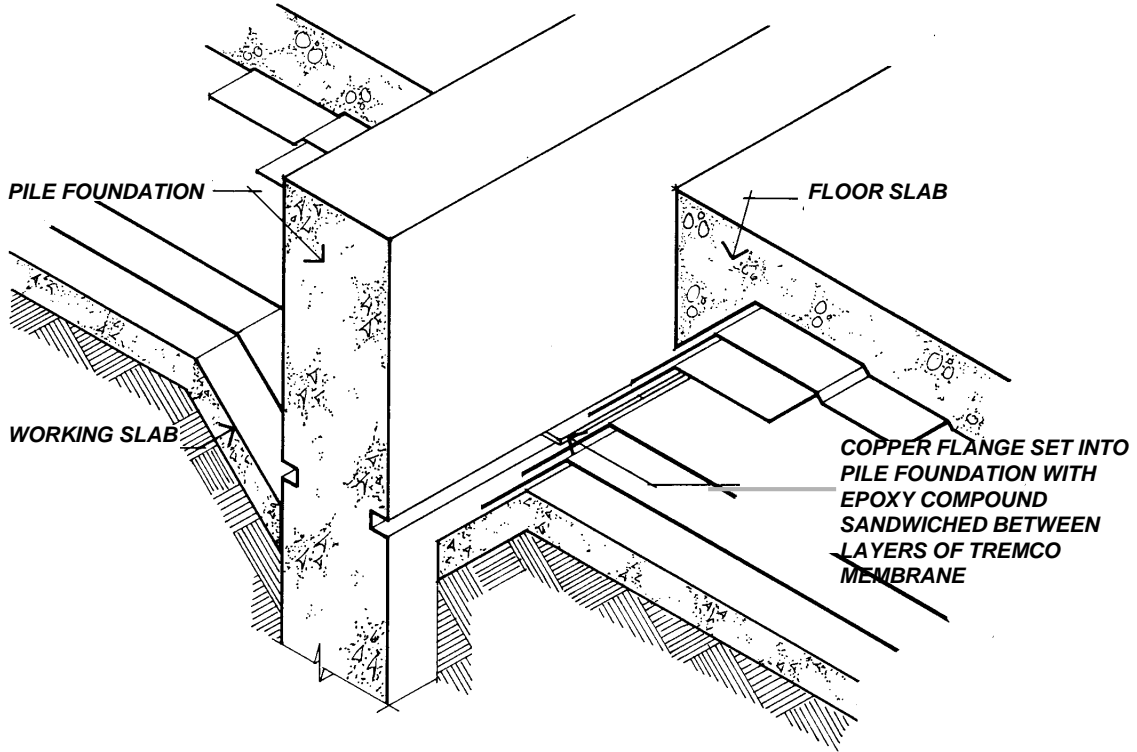
## DOUBLE WATERSTOP ON BASEMENT FLOOR



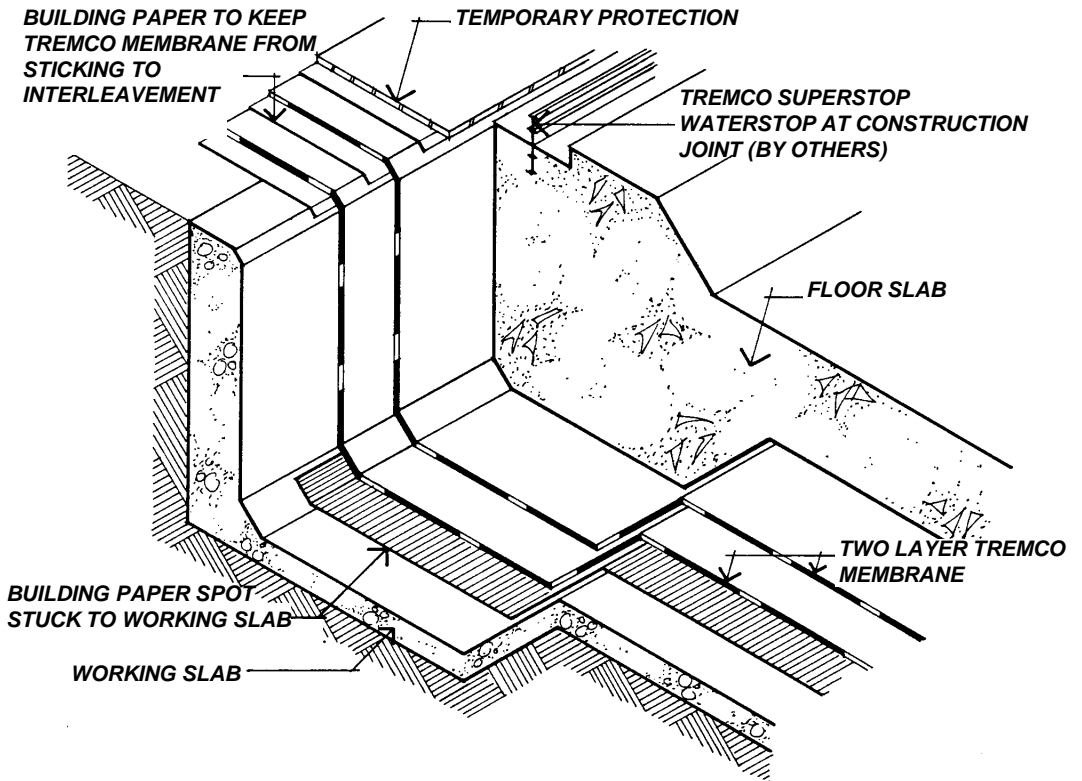
## MEMBRANE TO VERTICAL SURFACE WHERE INSUFFICIENT WORKING SPACE EXISTS FOR NORMAL METHOD



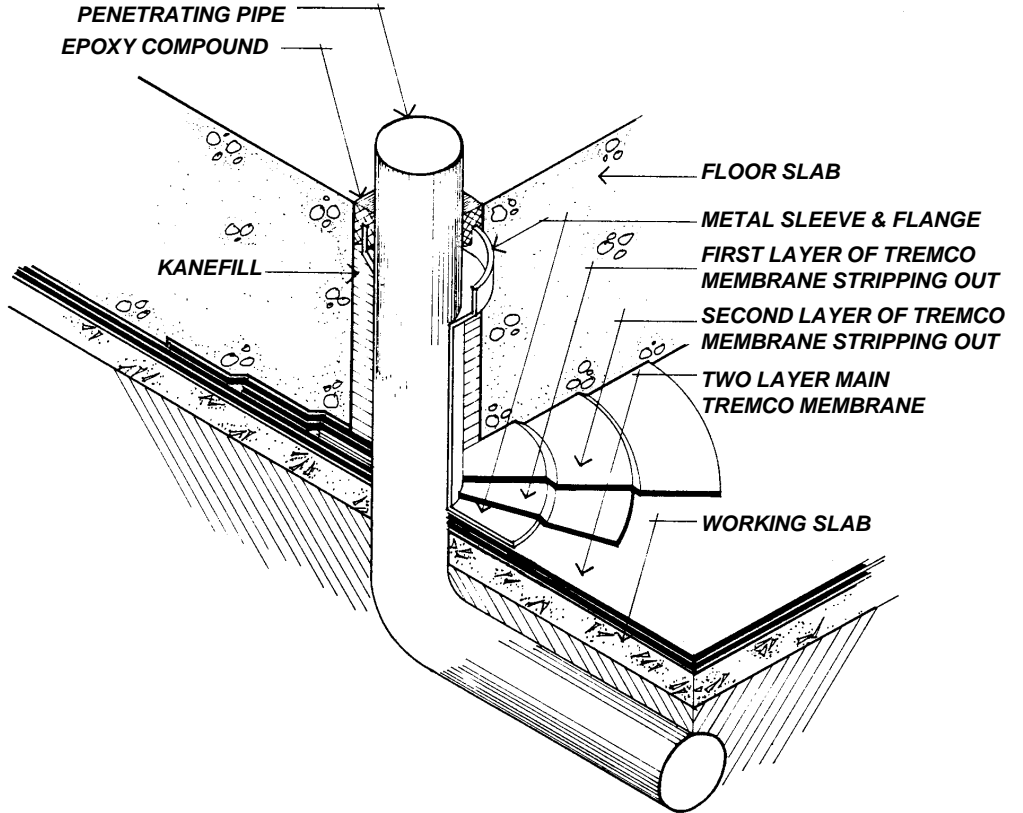
## PILE FOUNDATION



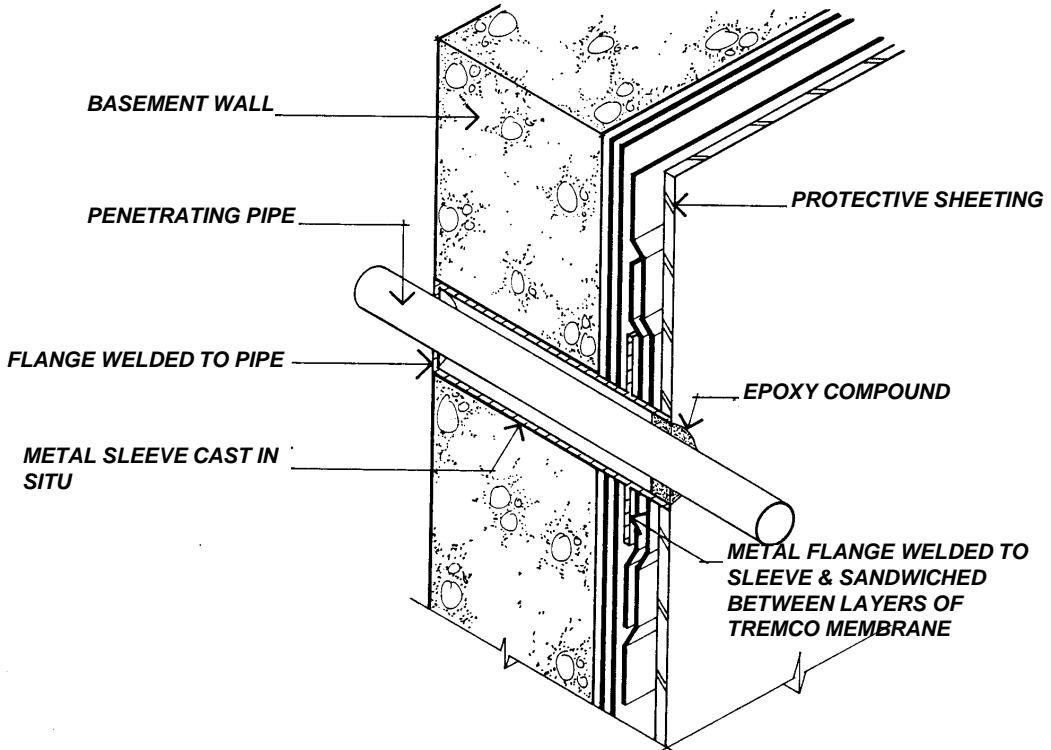
## MEMBRANE PASSING BENEATH FOOTING



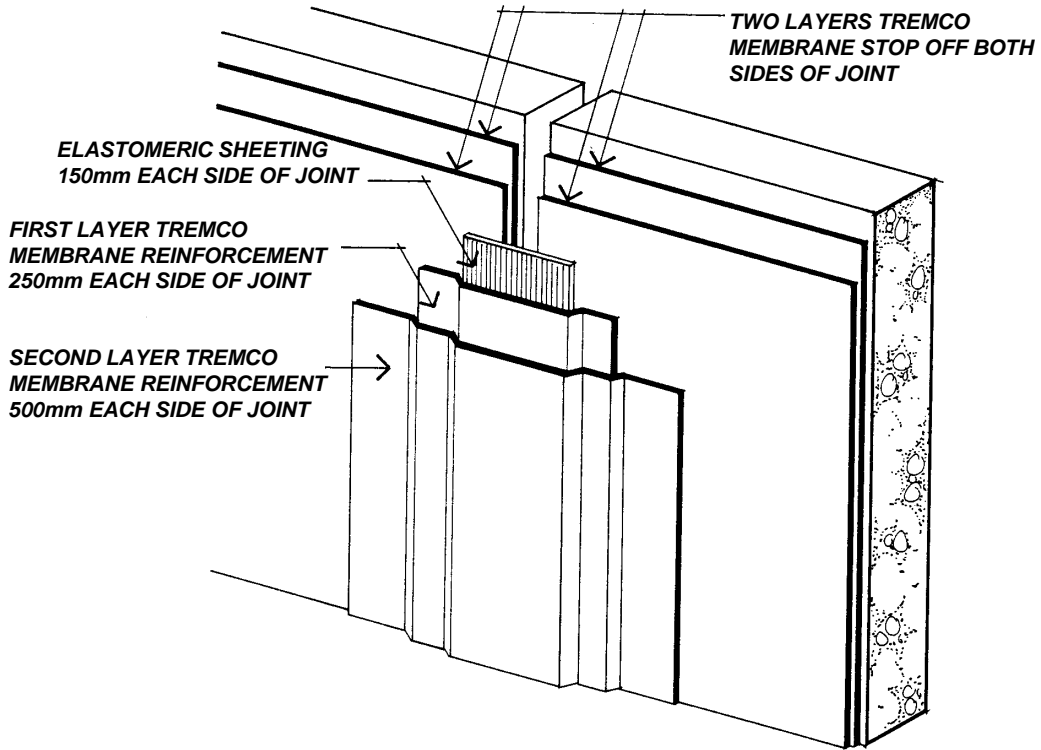
## PIPE THROUGH BASEMENT FLOOR (FOR DOUBLE LAYER)



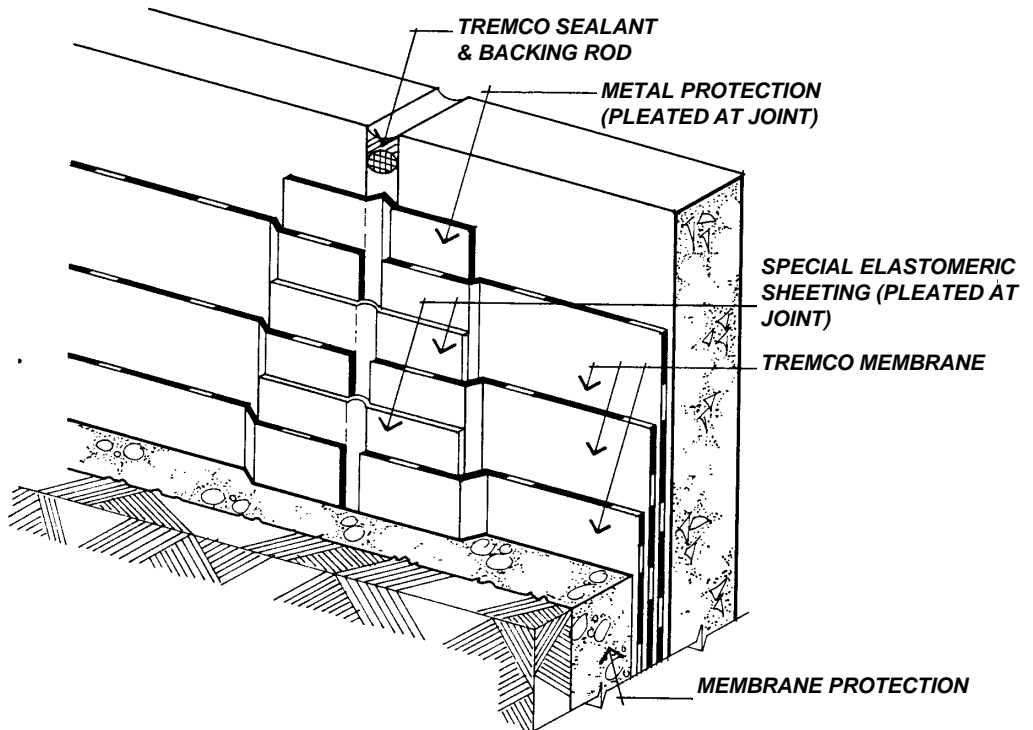
## PIPE THROUGH BASEMENT WALL



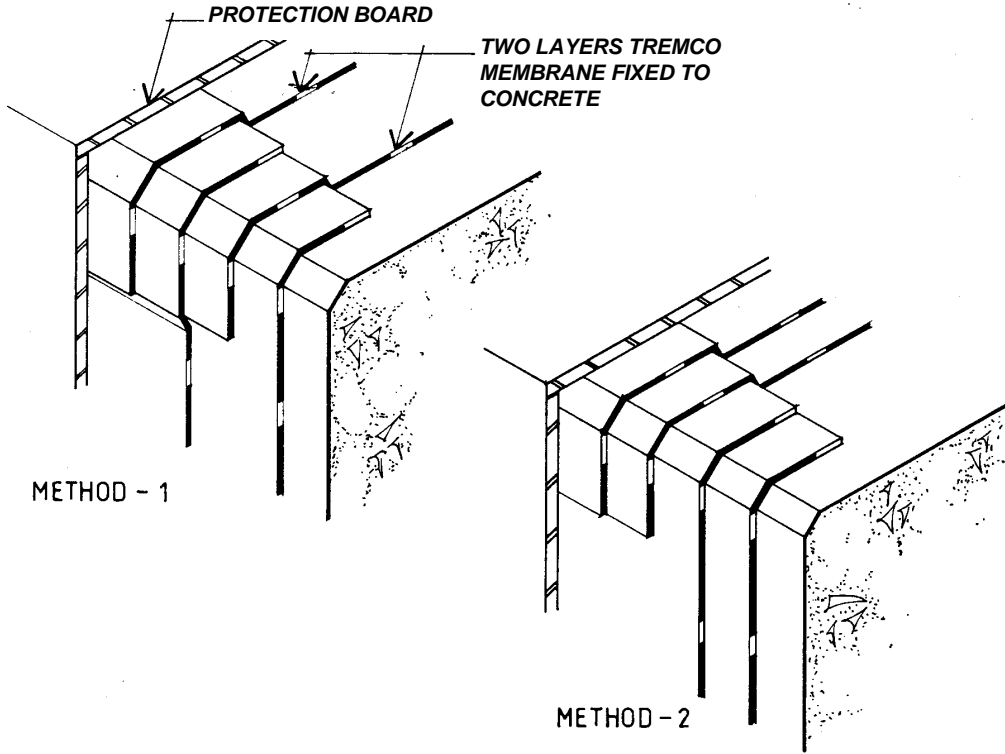
## VERTICAL EXPANSION JOINT (FOR SINGLE LAYER)



## VERTICAL EXPANSION JOINT (FOR DOUBLE LAYER)



## JUNCTION OR HORIZONTAL AND VERTICAL SURFACES



## PLANTER BOX

