



**Arch 1240 Methods of Construction in Architecture**  
**Professor Jason Montgomery**



# **Roofing** (CHAPTER 16) **Part I**

**Low Slope Roofs**

**Roof Decks**

**Thermal Insulation**

**R Value**

**Position in Roof Assembly**

**Vapor Retarder**

**Membranes**

**Ballasting and Traffic Decks**

**Edge and Drainage Details**

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# Components of a Low Slope Roof

Roof Deck

Thermal Insulation

Air Barrier

Vapor Retarder

Roof Membrane

Drainage Components

Roof Drains

Gutters

Downspouts

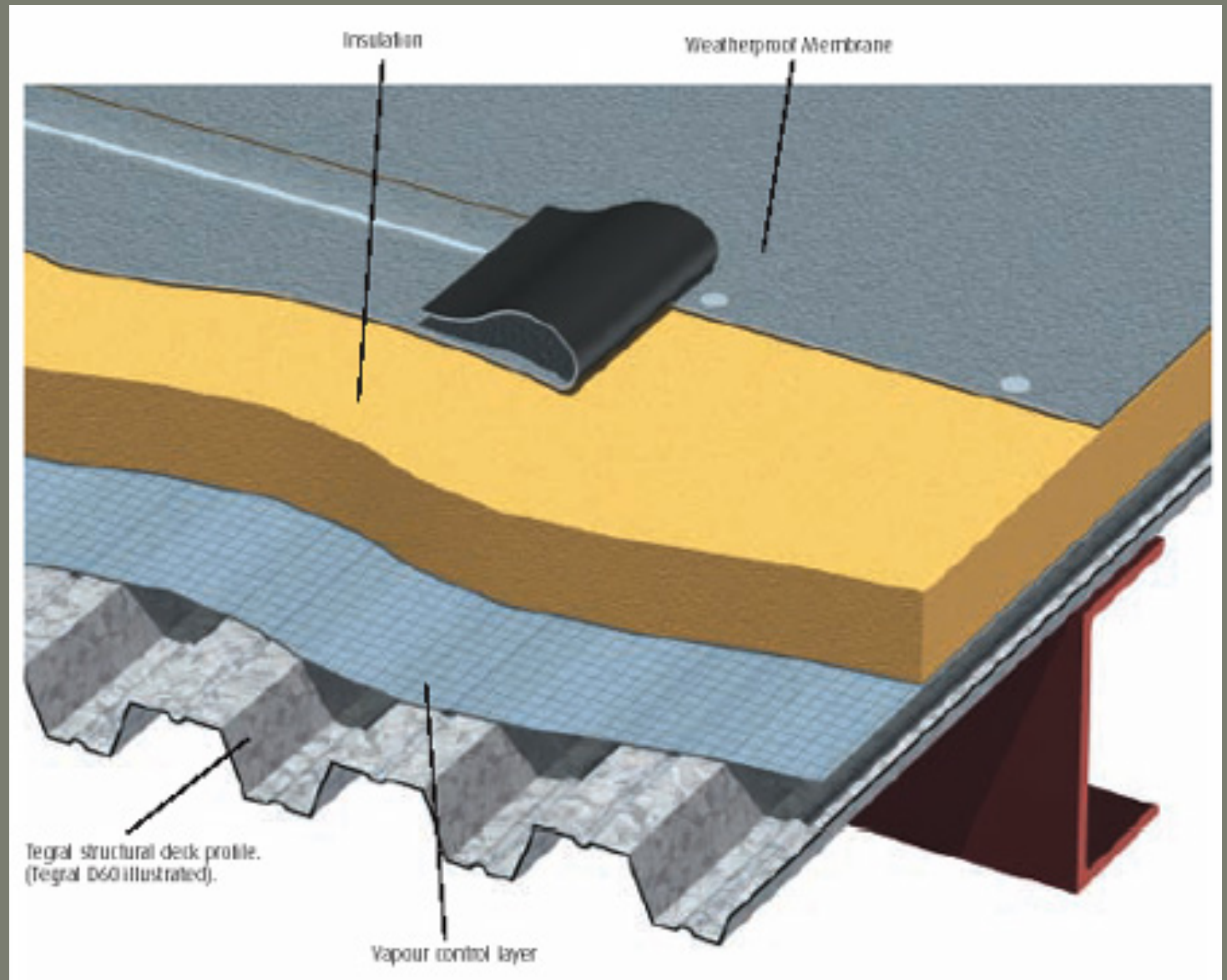
Flashing





LOW SLOPE ROOFS NEW YORK

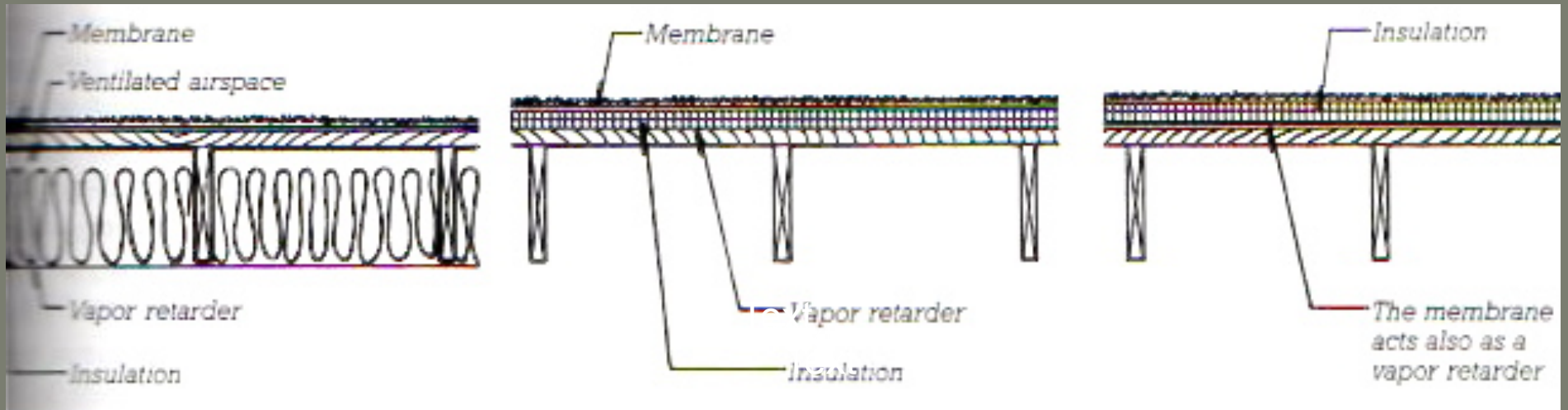
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## LAYERS OF ROOF CONSTRUCTION

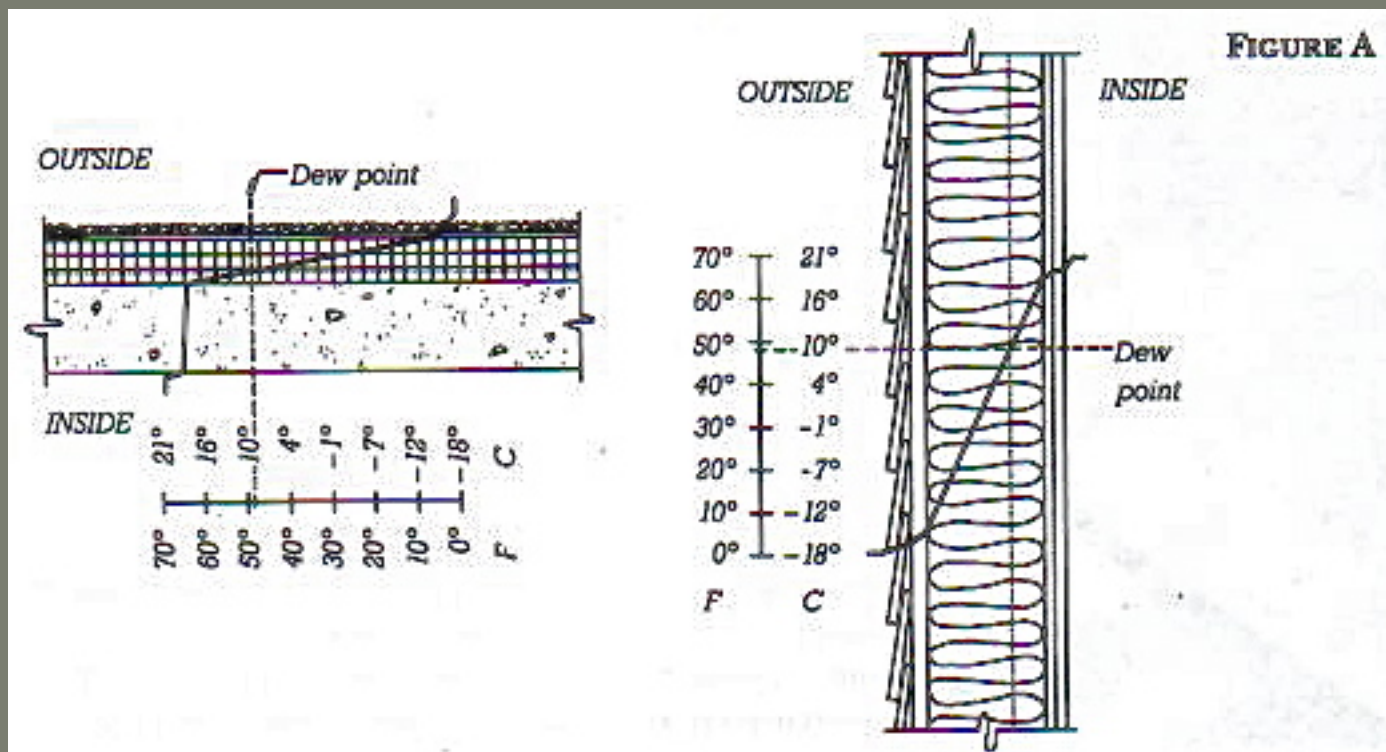
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## Insulation in a Low Slope Roof





# Insulation, R Value, Dew Point, and Vapor Retarder



LOW SLOPE  
ROOF  
MEMBRANE:

BUILT UP  
ROOF



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LOW SLOPE  
ROOF  
MEMBRANE:

BUILT UP  
ROOF



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LOW SLOPE  
ROOF  
MEMBRANE:

BUILT UP  
ROOF



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LOW SLOPE  
ROOF  
MEMBRANE:

EPDM (SINGLE  
PLY)

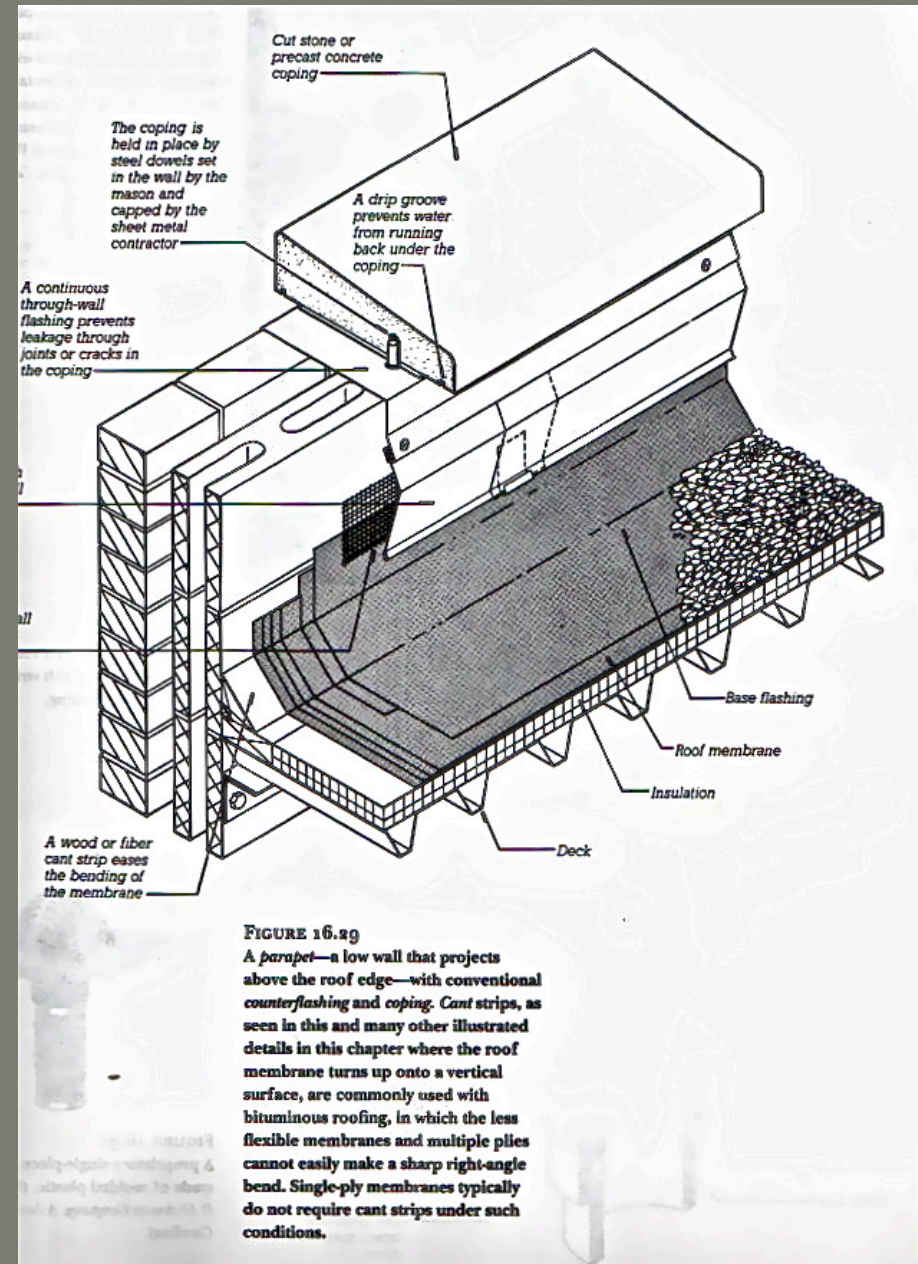
APPLIED WITH  
ADHESIVE



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## Parapet Detail





ROOF CONSTRUCTION AT BRICK PARAPET

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PARAPET  
DETAIL:

BRICK  
MASONRY  
WALL WITH  
CONCRETE  
FRAME

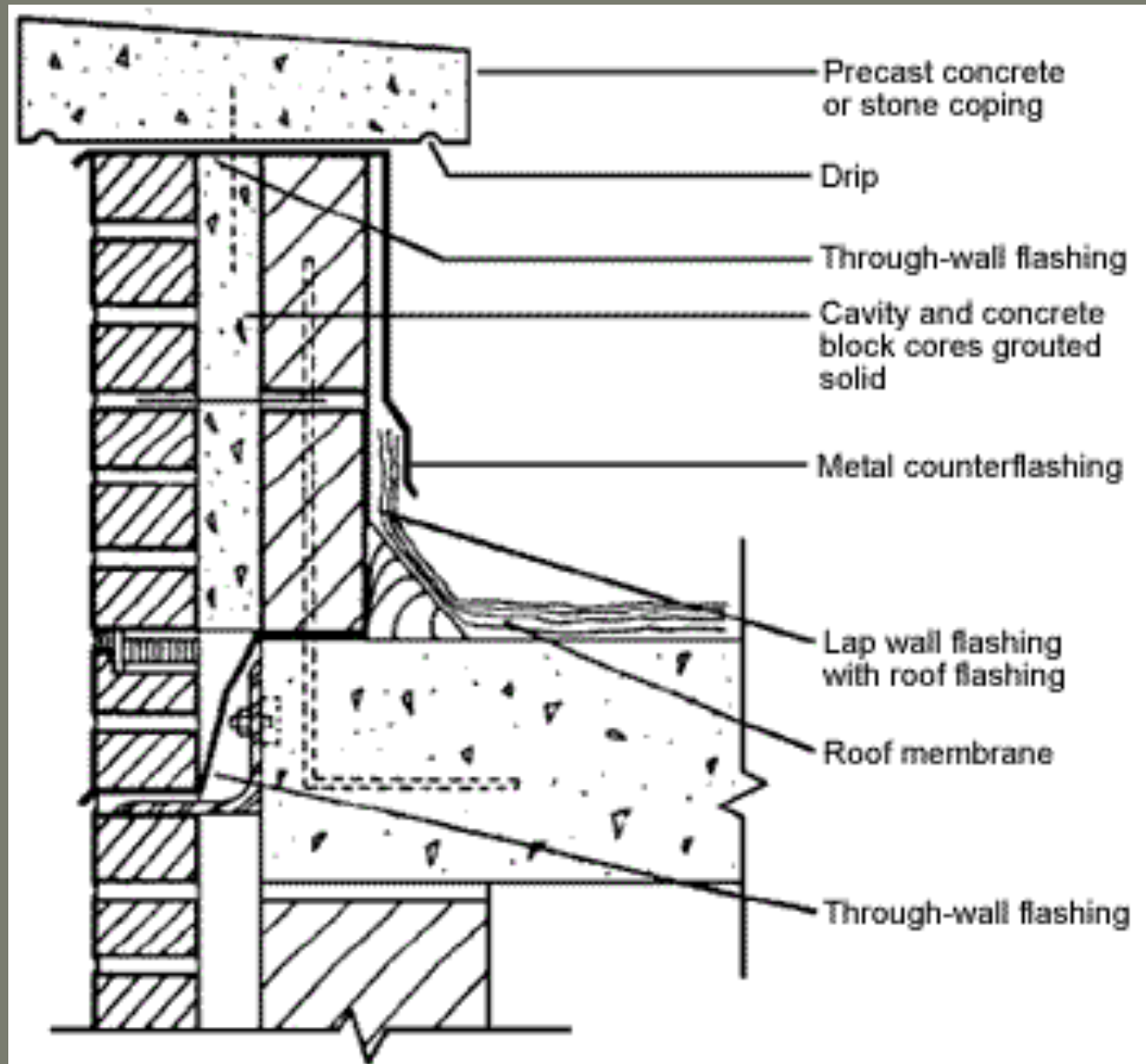


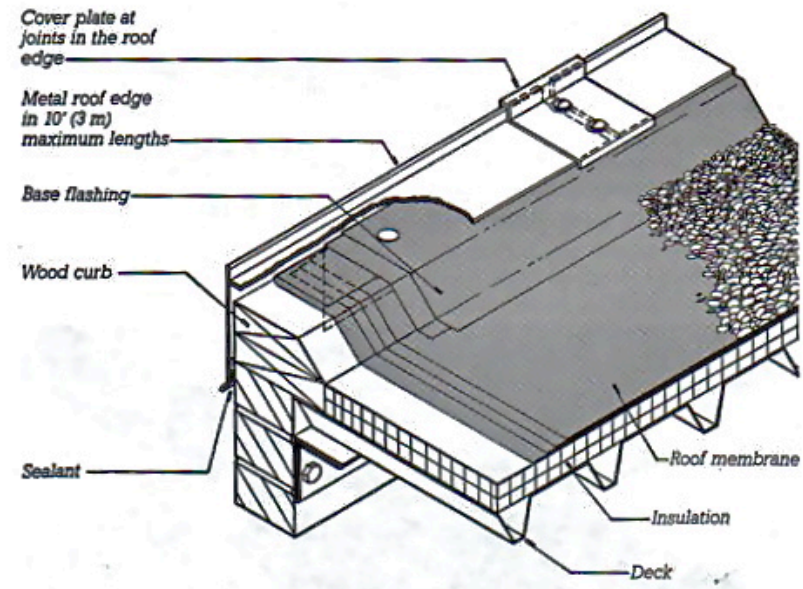
Figure 2



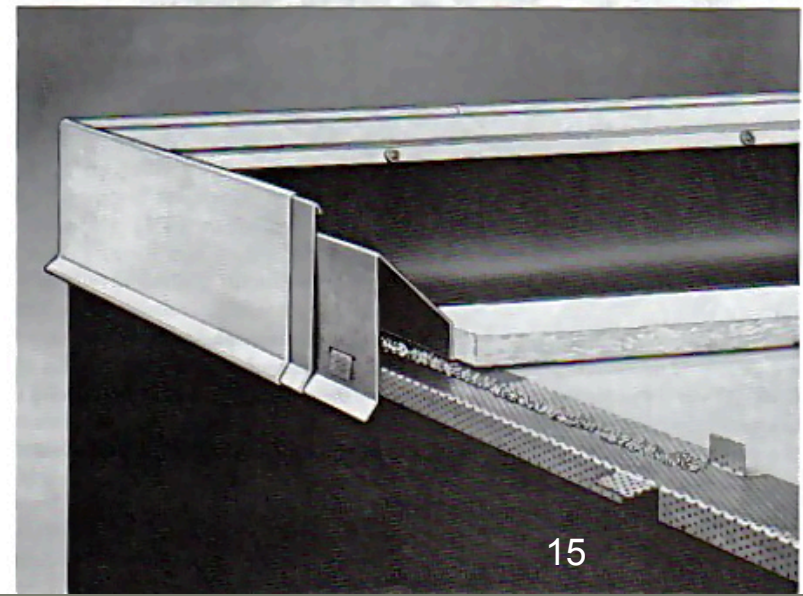
### Edge and Drainage Details for Low-Slope Roofs

Some typical details of low-slope roofs are presented in Figures 16.24–16.33. All are shown with built-up roof membranes, but details for single-ply membranes are similar in principal.

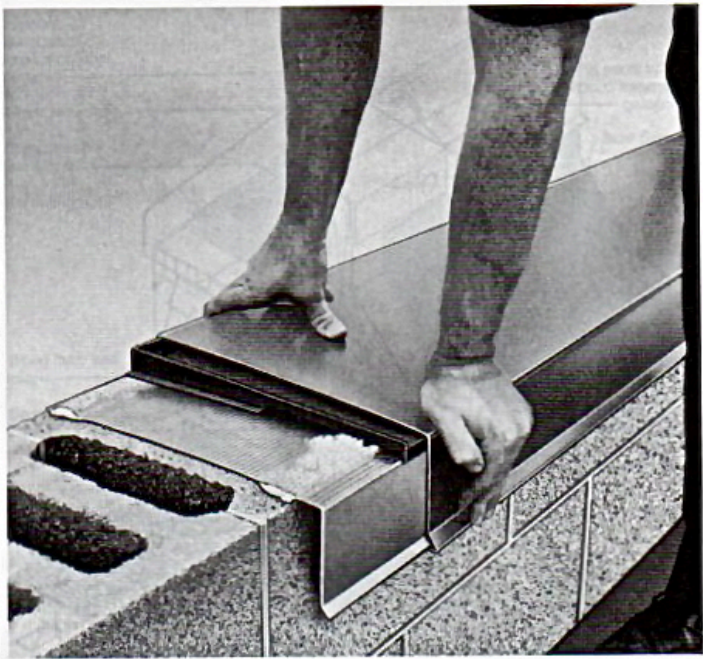
## Roof Edge Detail



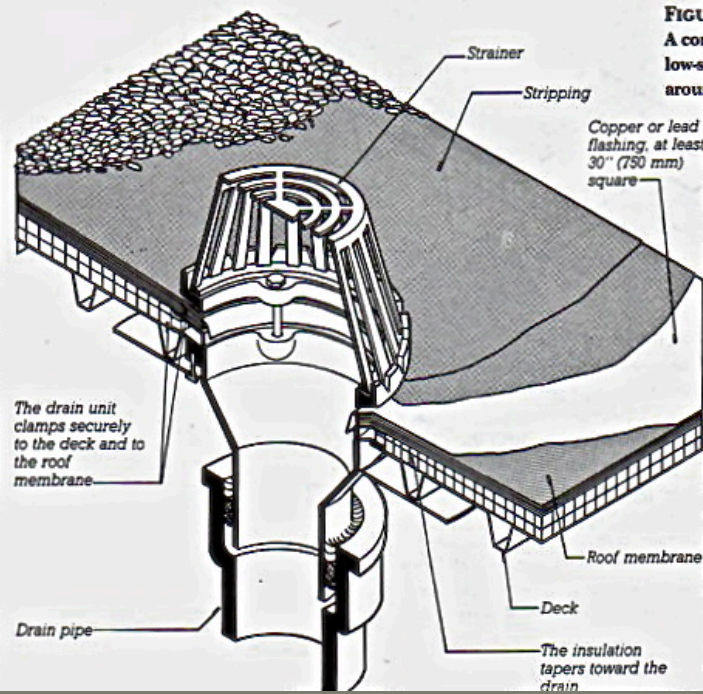
## Roof Edge Detail



# Parapet Coping



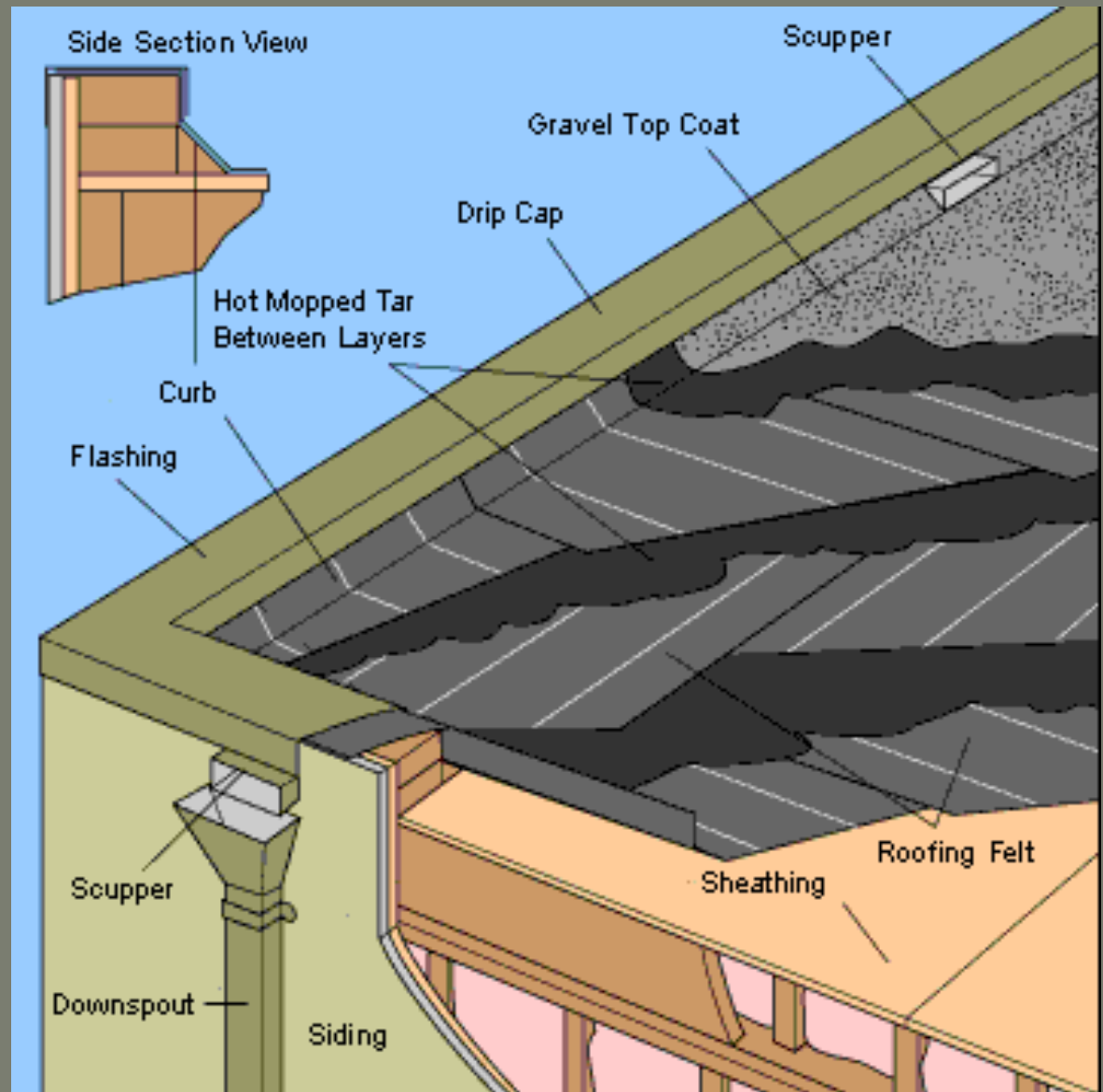
# Roof Drain



LOW SLOPE ROOF  
DRAINAGE:

SCUPPERS

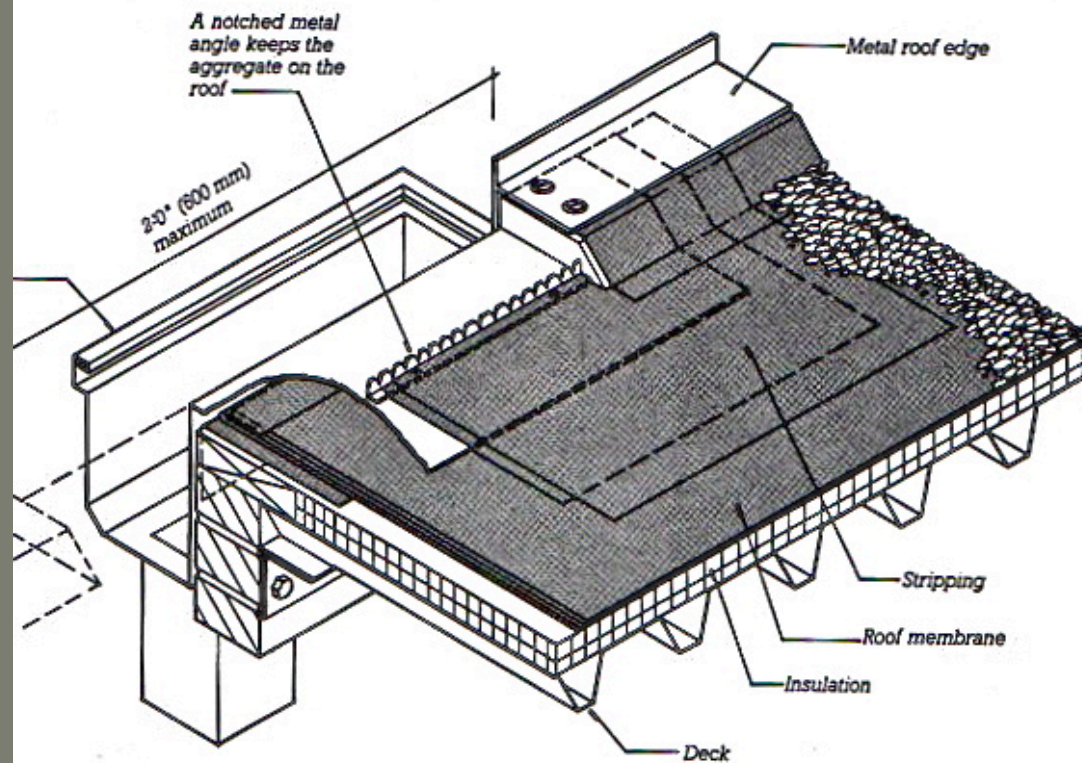
THROUGH  
PARAPET  
DRAINAGE



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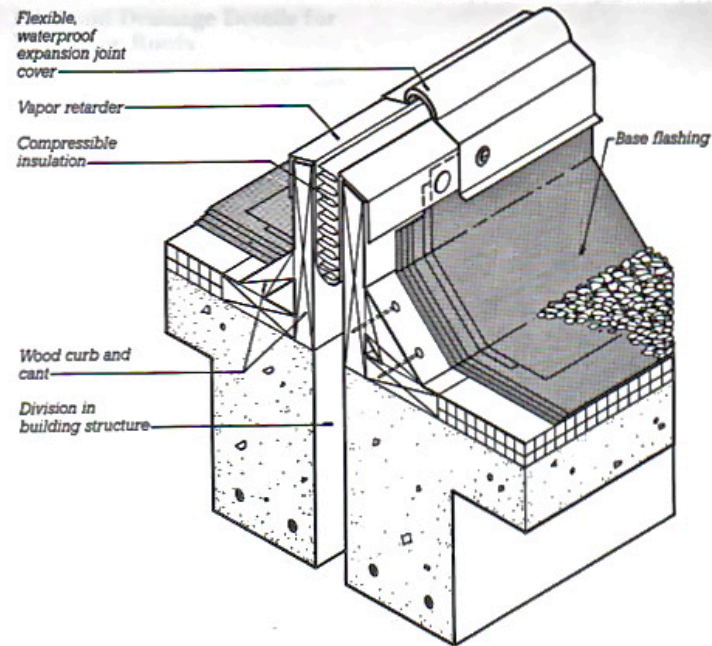
## Scupper Detail



**FIGURE 16.26**

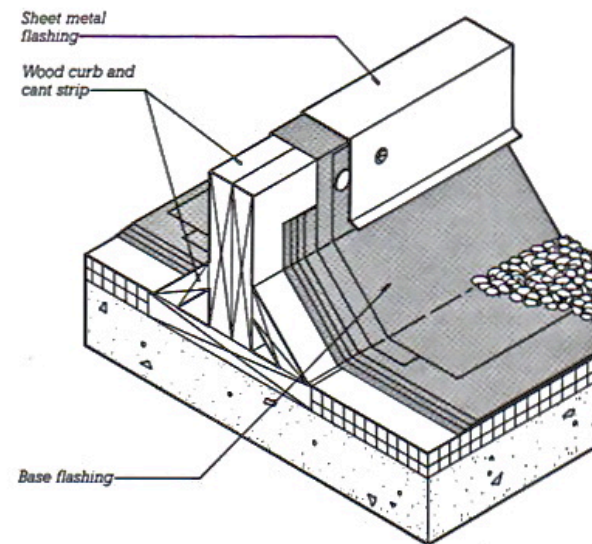
**Detail of a scupper.** The curb is discontinued to allow water to spill off the roof into a gutter and downspout. Additional layers of felt, called *stripping*, seal around the sheet metal components. Most roofs use interior drains (Figure 16.31) as their primary means of drainage, with scuppers more frequently used as secondary drainage to limit ponding in the case of a clog in the primary drain.

# Building Separation Joint



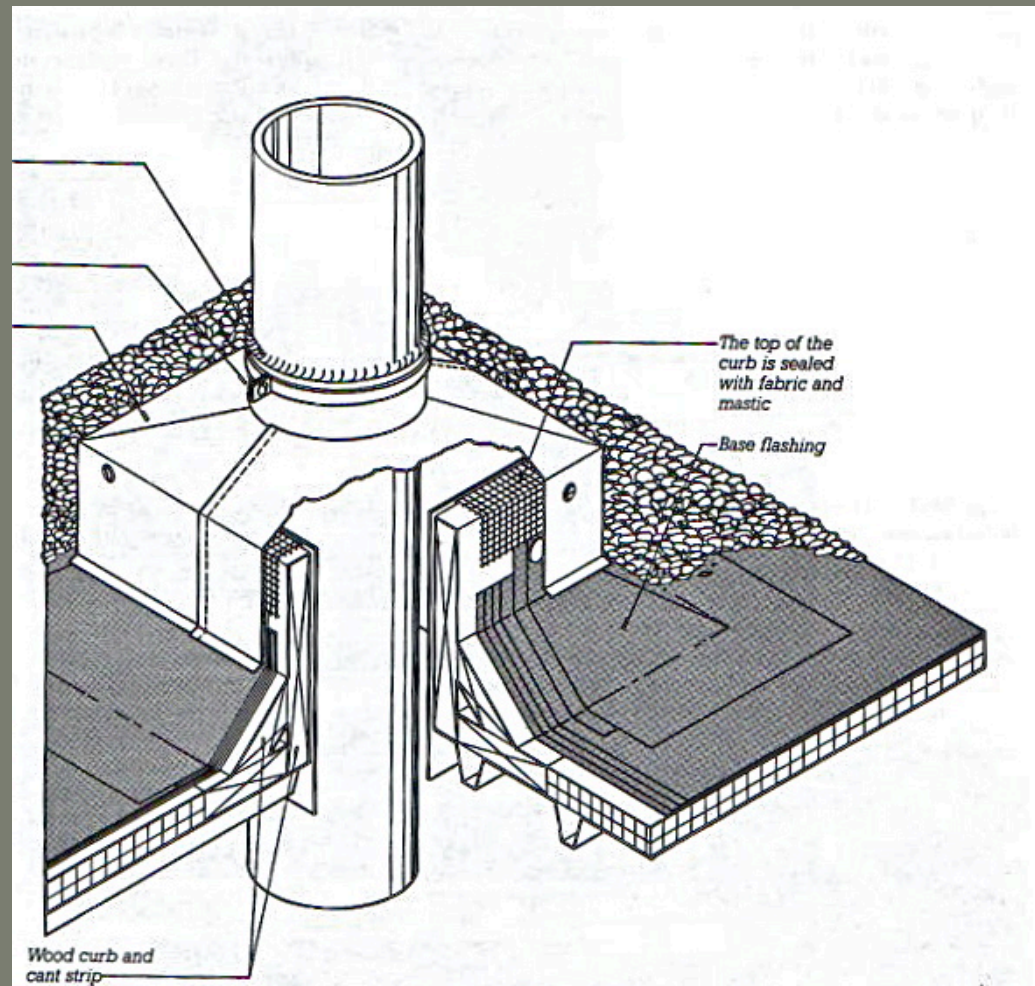
**FIGURE 16.27**  
A building separation joint on a roof. Large differential movement between the adjoining parts of the structure can be tolerated by this type of joint because of the flexibility of the joint cover to accommodate movement without tearing. The joint cover keeps standing water away from the membrane, which is a two-ply base flashing.

# Area Divider Joint



**FIGURE 16.28**  
An area divider is designed to allow for some movement only in the membrane itself, not in the entire structure. It is used to subdivide a very large membrane to allow for thermal movement.

# Roof Penetration Plumbing Vent Stack



**FIGURE 16.33**  
*A roof penetration for a plumbing vent stack. Notice how this and all the previous edge and penetration details for a flat roof use the curb, cant strip, and stripping to keep standing water away from the edge of the membrane.*





PAVING SYSTEM ON TOP OF LOW SLOPE ROOF

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# **Roofing (CHAPTER 16) Part I**

**Summary:**

**Roof Decking - options**

**Thermal Insulation - implications of placement**

**R Value**

**Position in Roof Assembly**

**Vapor Retarder - critical to prevent condensation**

**Membranes - multiple layered built up roof versus**

**Single member EPDM roof**

**Low Slope Roof Details**

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