


MASONRY

A close-up photograph of a brick wall. The bricks are reddish-brown with some darker spots and are laid in a standard running bond pattern. The mortar joints are light-colored. The word 'MASONRY' is written across the center of the image in large, bold, white, sans-serif capital letters.

Traditional Masonry Bearing Walls



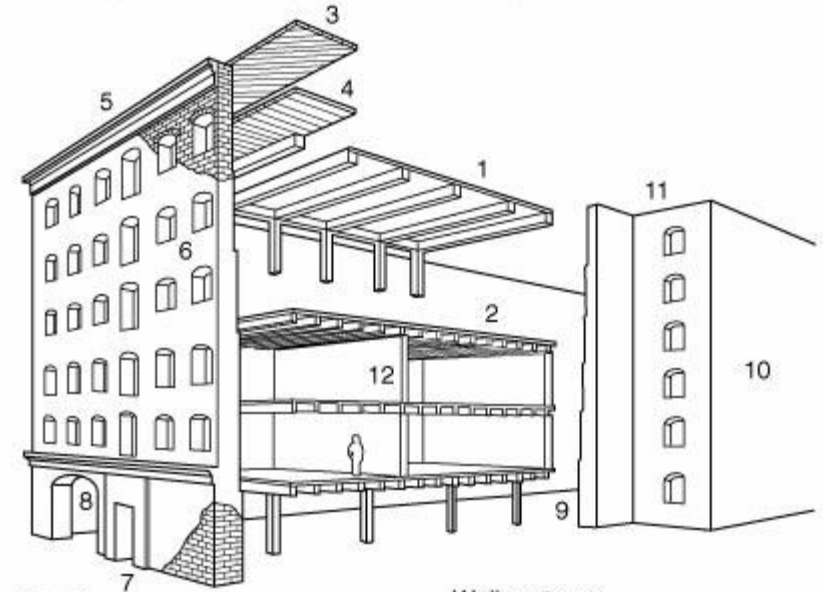
Mill Building, Lowell, Massachusetts

Roof/floor span systems:

1. Wood post and beam (heavy timber)
2. Wood post, beam, and joist (mill construction)

Roof/floor diaphragms:

3. Diagonal sheathing
4. Straight sheathing



Details:

5. Typical unbraced parapet and cornice
6. Flat arch window openings
7. Typical penetrated facade of residential buildings
8. Large openings of ground floor shops

Wall systems:

9. Bearing wall — four to eight wythes of brick
10. Typical long solid party wall
11. Light/ventilation wells in residential building
12. Nonstructural wood stud partition walls

Brick Wythe as “Veneer”



Fire-rated Masonry Enclosure



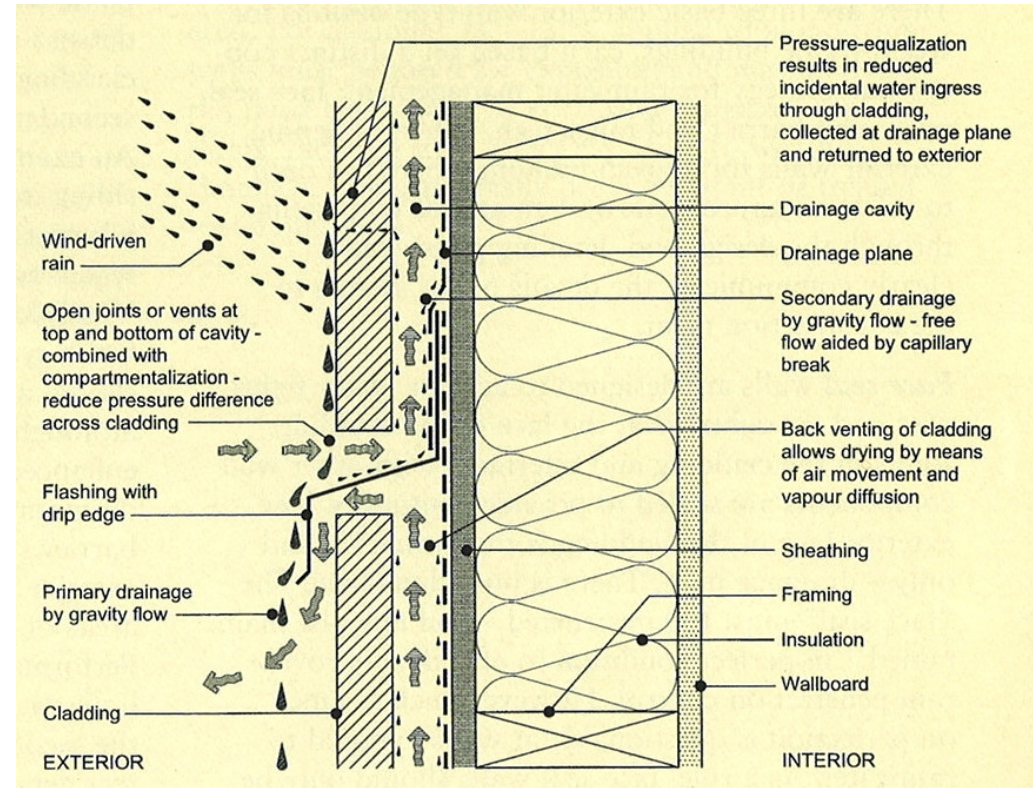
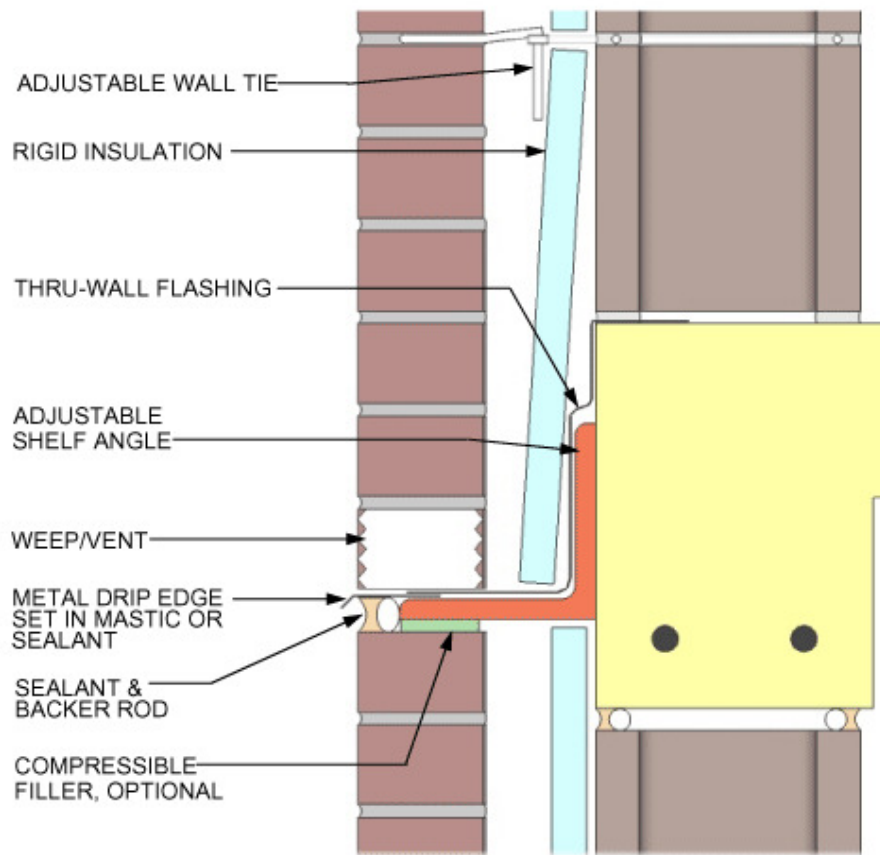
Masonry in high-traffic or high-maintenance areas



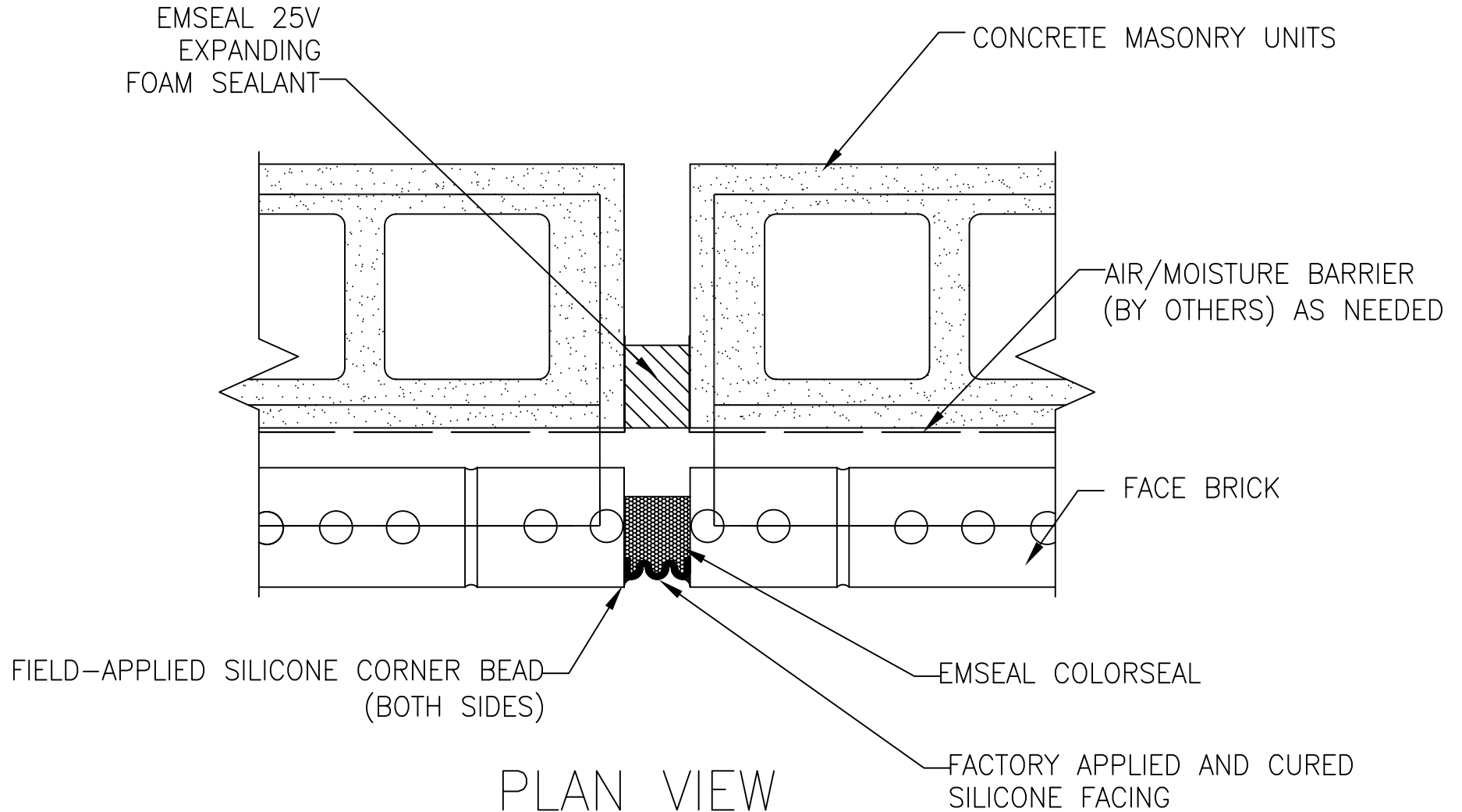
The Historical Tradition of Masonry



Masonry walls anticipated modern construction...



Masonry got there first...

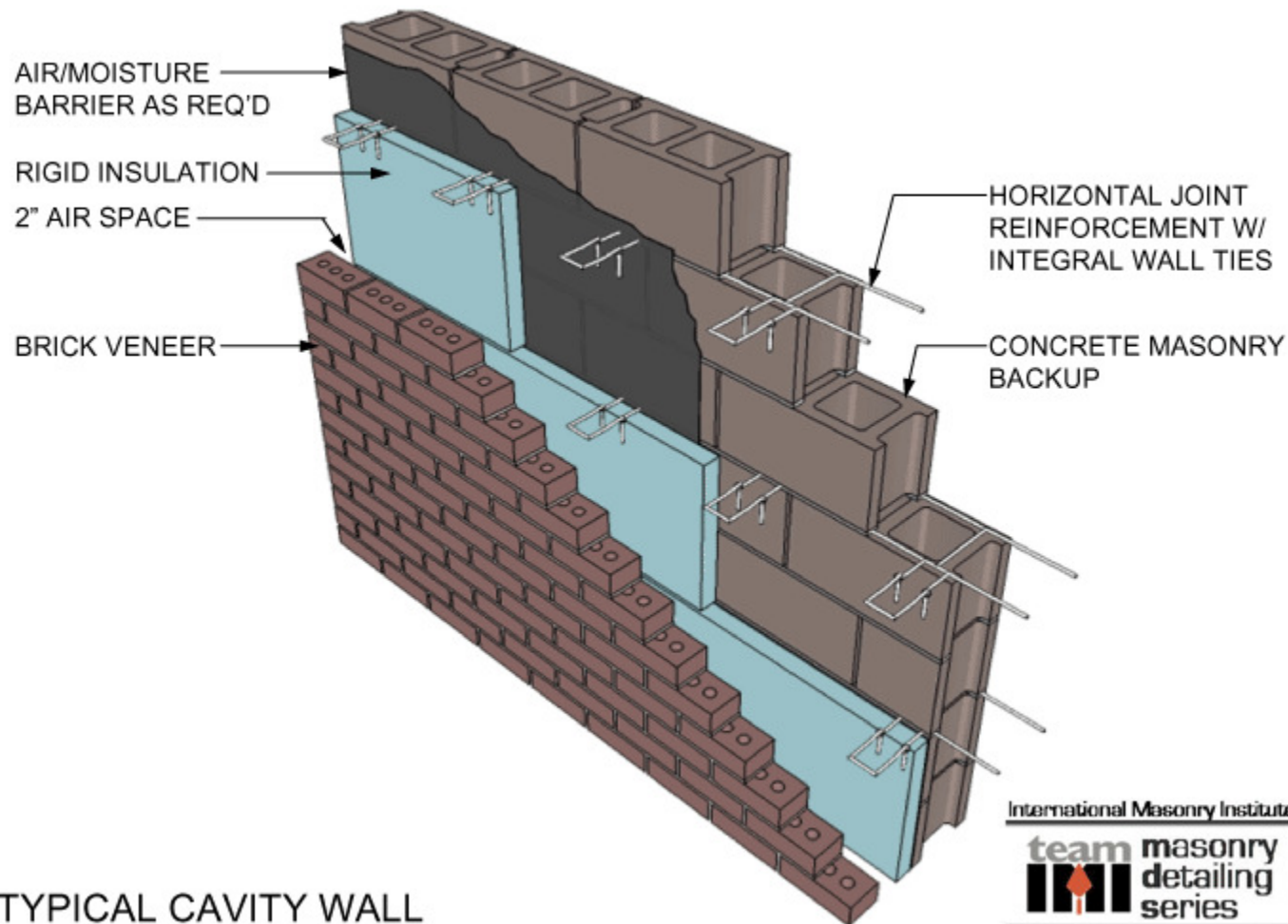


The purpose of a Masonry wall:

To support and resist structural & dynamic loads...

To resist water penetration and the transfer of heat;

To resist failure due to its own thermal expansion and contraction.



TYPICAL CAVITY WALL
DETAIL 01.01 REV. 01/19/07

Masonry Wall Types:

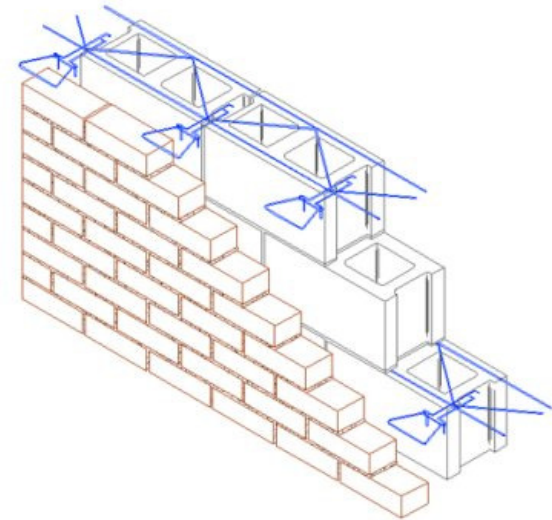
Reinforced or unreinforced;
Homogenous (a single type of masonry unit)
or Composite (two or more types of units);
Solid or Cavity.

Masonry Wall Ties: (See Figure 10.1)

Corrugated, Z-Tie, Adjustable,
Adjustable Stone Tie, Two-Wire Ladder Tie,
Ladder Loop Tie, Three-Wire Truss Tie,
Dovetail Anchors for Concrete Back-up,
Steel Column Anchor

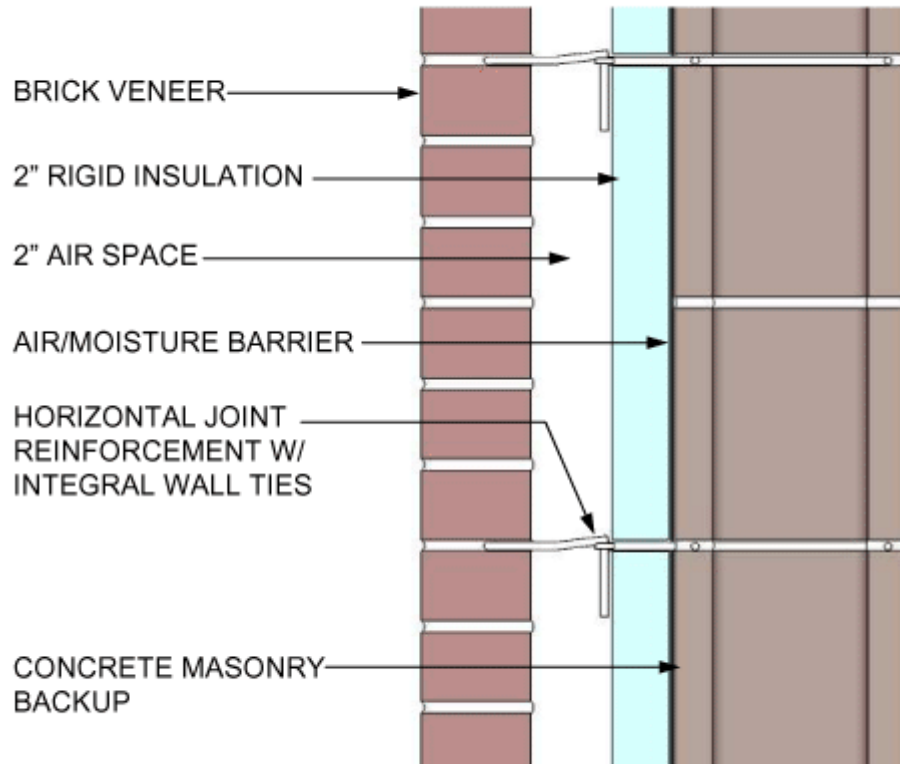


Corrugated tie...



Adjustable Ties
And Joint Reinforcing...

Cavity Wall “Classic”



Looking down into the Cavity...

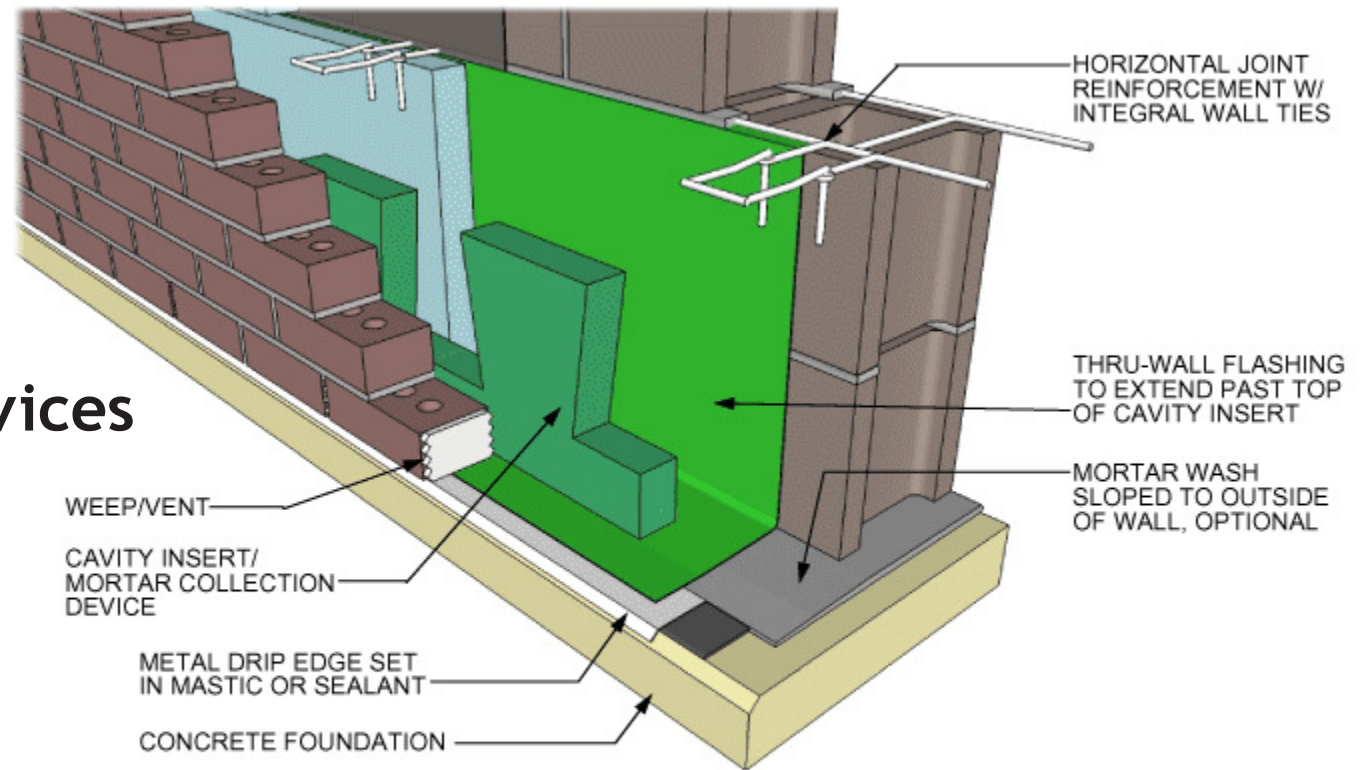


Other Components of a Cavity Wall

Reinforcement & Ties

Flashing

Mortar Control Devices



BASE FLASHING w/ CAVITY INSERT
DETAIL 04.02 REV. 02/13/07

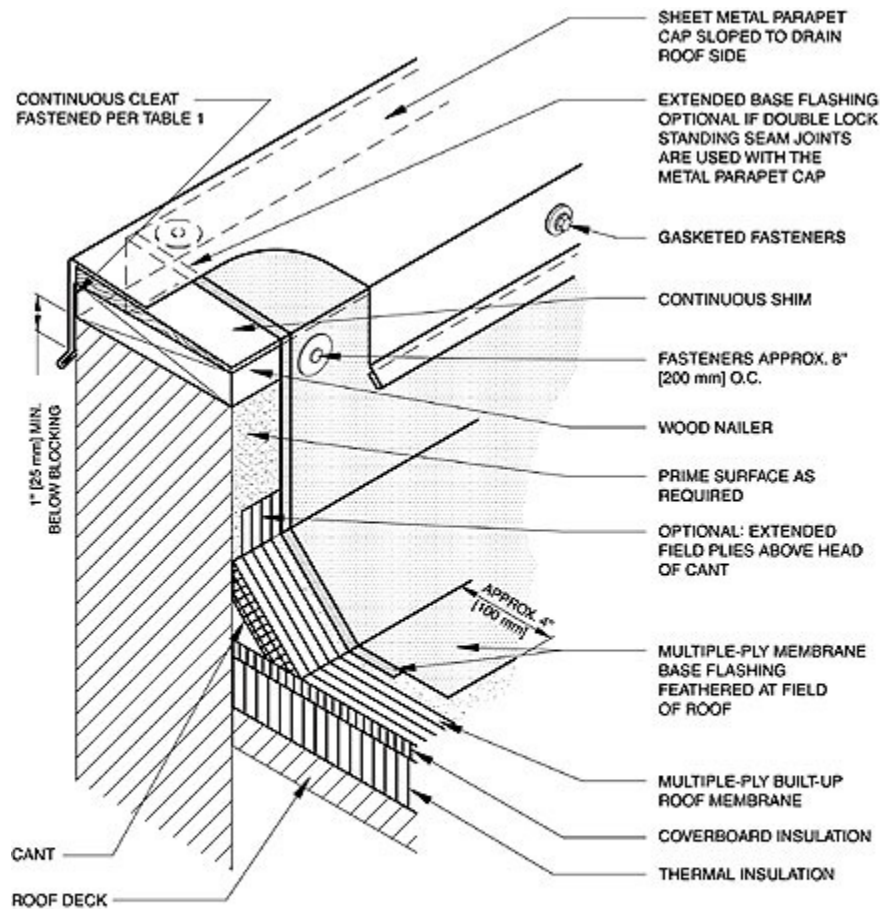
International Masonry Institute



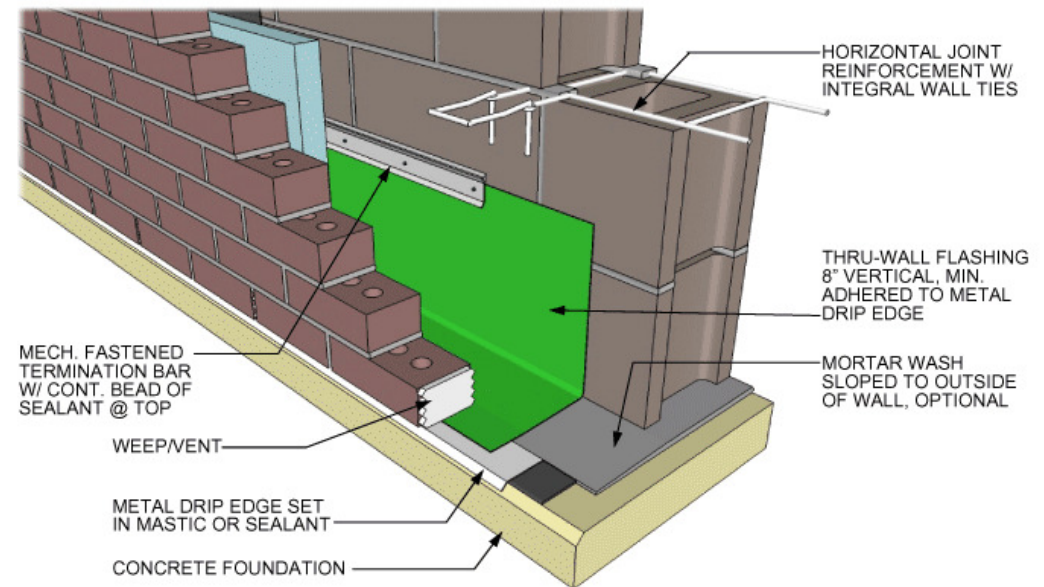
1-800-IMI-0988 www.imiweb.org

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Flashing: External...



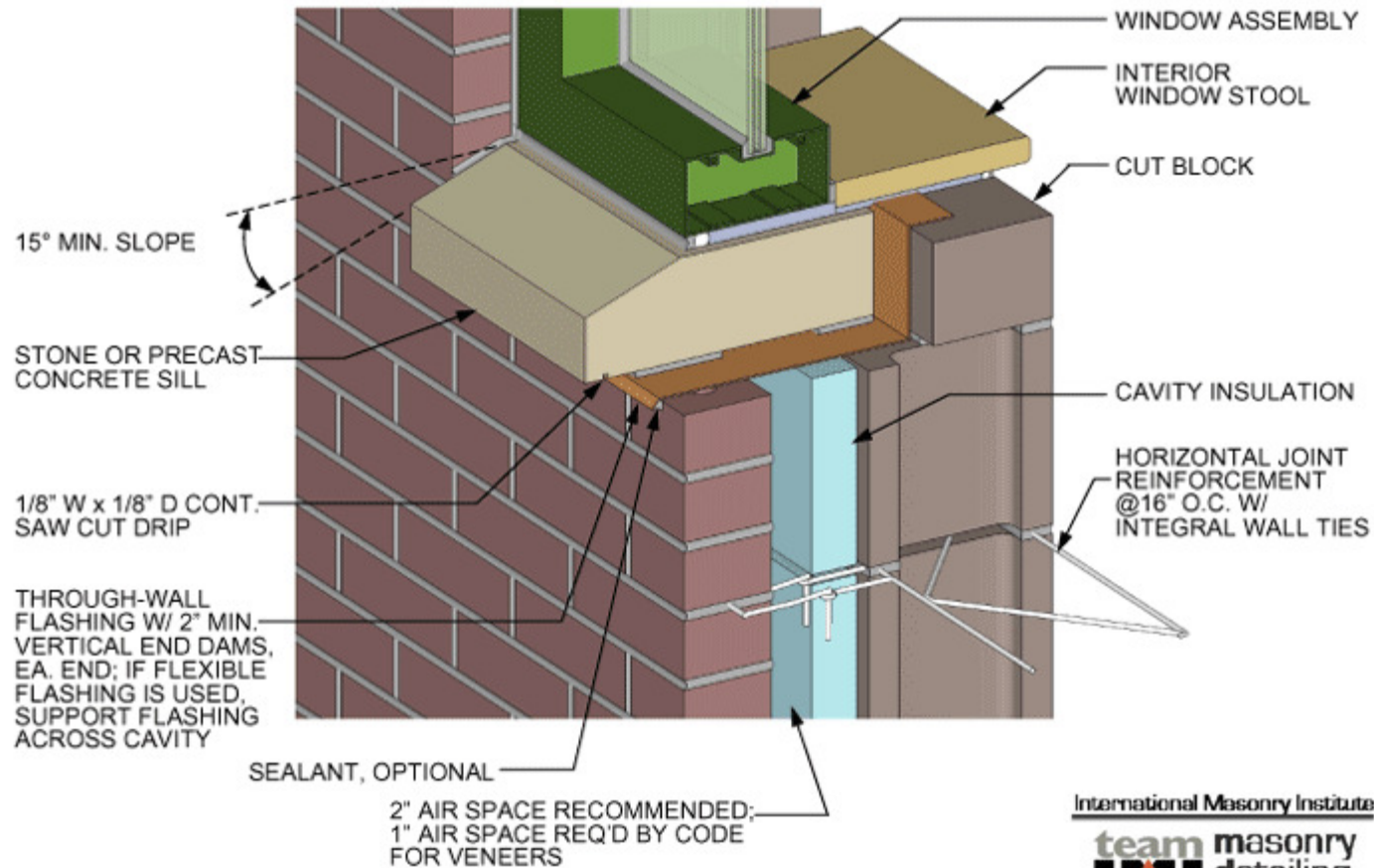
...and Internal



NOTES :

1. THIS DETAIL SHOULD BE USED ONLY WHEN THE ROOF DECK IS SUPPORTED BY THE WALL. DETAIL BUR-6 SHOULD BE USED FOR NON-WALL SUPPORTED DECK.
2. IN LIEU OF EXTENDED BASE FLASHING, INSTALL CONTINUOUS SHEET MEMBRANE LINER.
3. REFER TO THE SHEET METAL SECTION OF THE METAL ROOFING MANUAL FOR JOINERY AND SECUREMENT OPTIONS FOR SHEET METAL.
4. REFER TO INTRODUCTION FOR ADDITIONAL INFORMATION.

Window Flashing (Looking Down At Sill)



STONE SILL AT CAVITY WALL

DETAIL 13.01

REV. 02/14/07

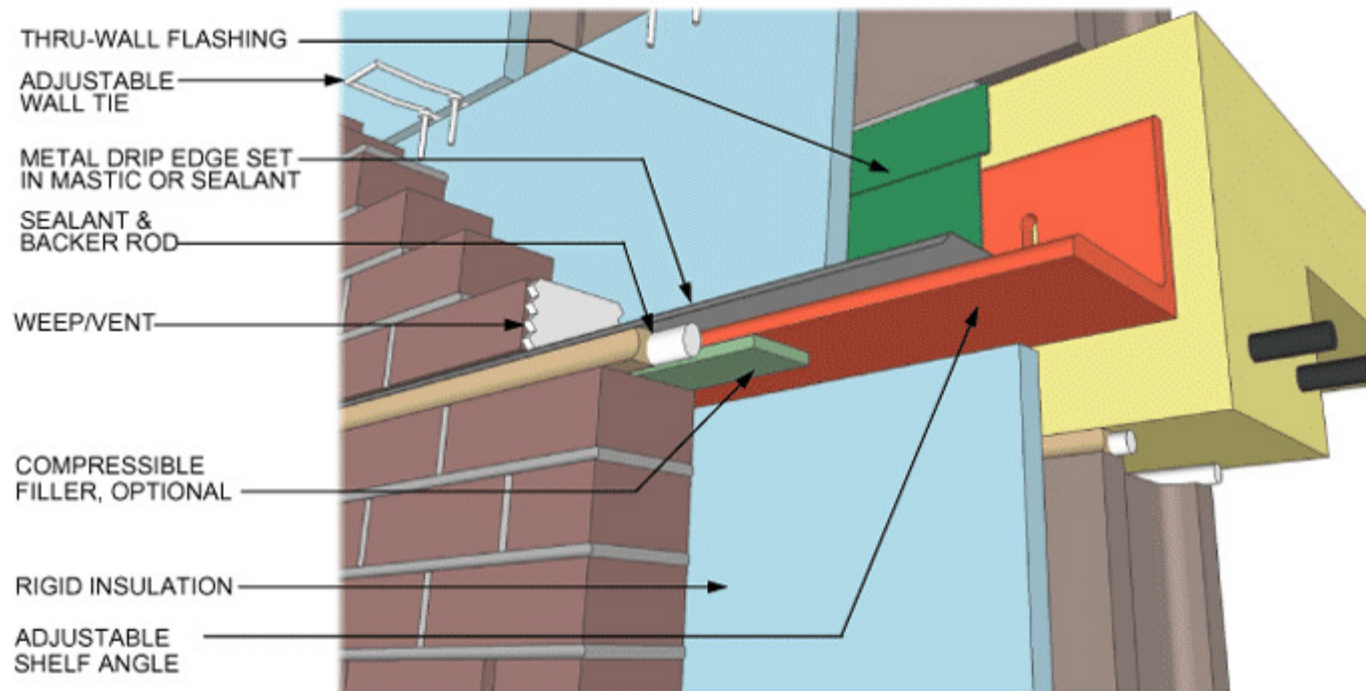
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Window Flashing (Looking Up at Head)



SHELF ANGLE DETAIL

DETAIL 05.01

REV. 02/13/07

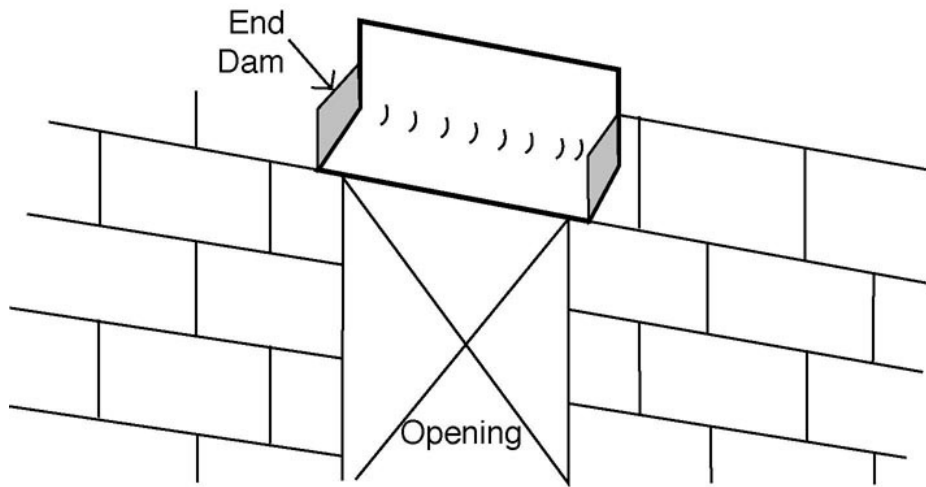
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detailed series

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Turned-up Flashing at Jambs

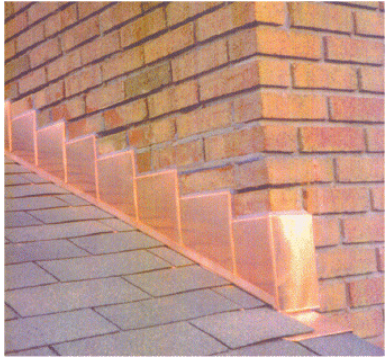


Schematic (Above Lintel)



In Real Life (At flashing termination)

Flashing is a sheet-formed material made from sheet metal, plastic, elastomeric compounds, or composite materials such as rubberized fabric.



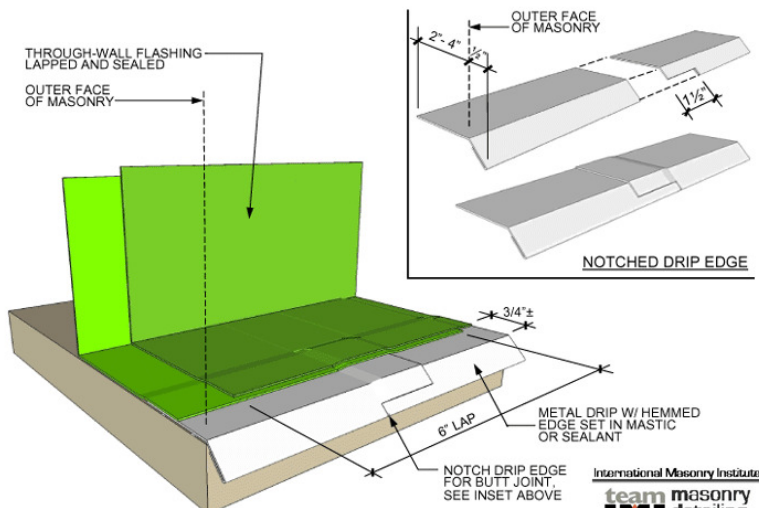
Copper Flashing



Elastomeric Flashing



Fabric Flashing



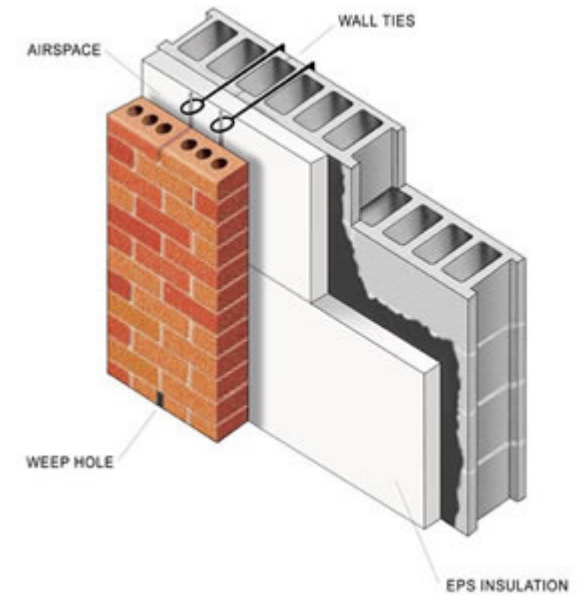
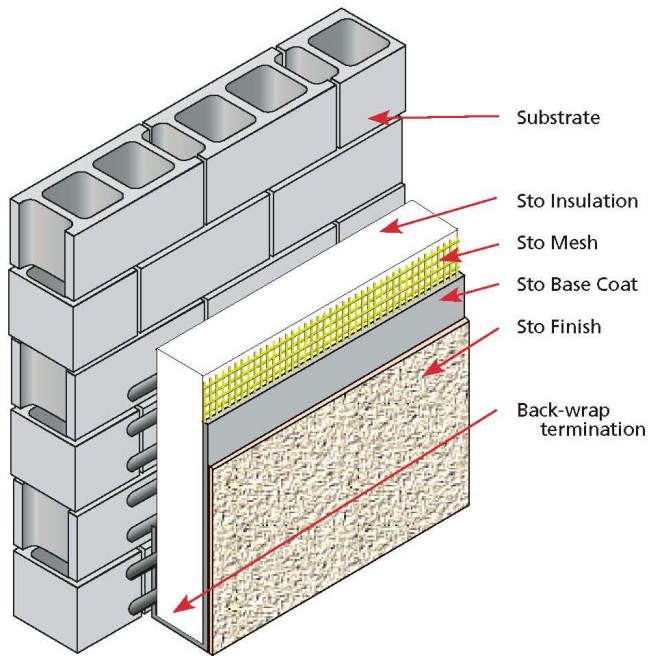
DRIP EDGE DETAIL
DETAIL 03.01 REV. 02/13/07

Flashing Drip edge:

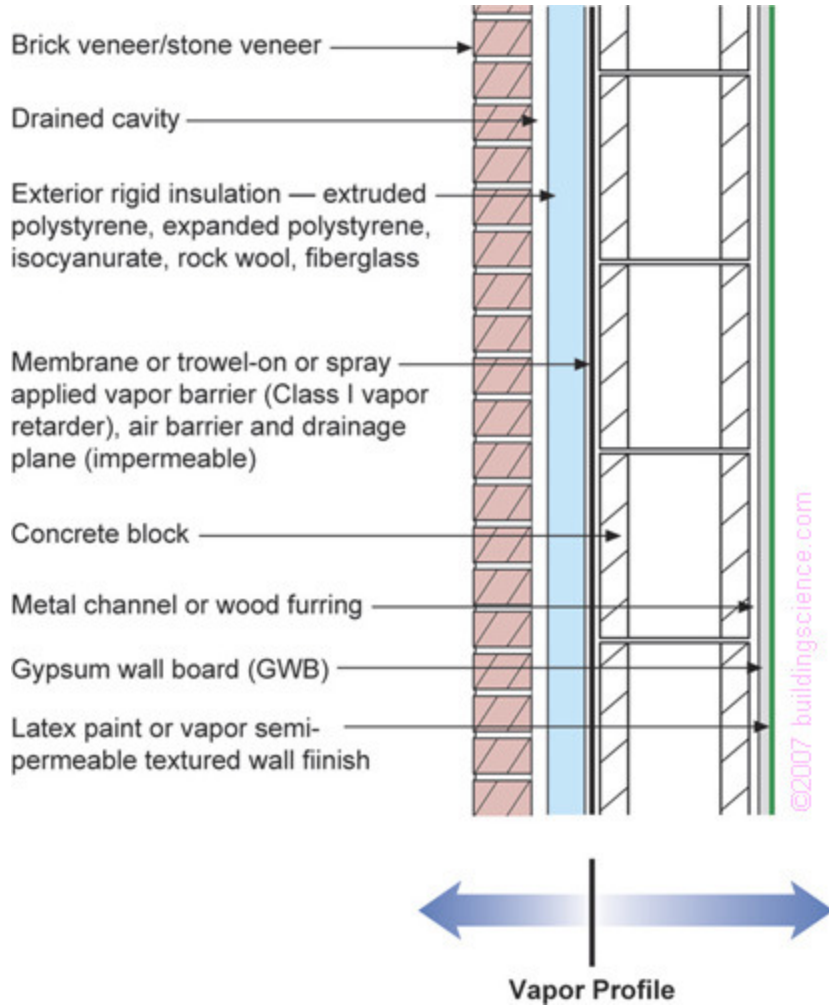
When using UV-unstable membrane flashing, hold flashing back from exposed edge of metal drip edge approximately 3/4-inch so the flashing will not heat up and drool out of wall to stain the masonry and weaken the flashing.

Metal drip edge should be wide enough to accommodate project variances and to allow approximately 2-inch bonding surfaces with flashing. Metal drip edges are typically 2-inch to 4-inches wide.

Three methods of insulating Masonry Walls: Outside... Inside... Cavity



Introduction of Membrane Air Barrier



Self-applied Air Barrier



Insulation and Finish Masonry at Exterior



Cavity-Fill Insulation at Masonry Units

Foam Insert



Loose Vericulite (Perlite or Zonolite) Fill



Insulating the inside face of masonry walls

Thermal Break boarding; Studs for interior finish and additional insulation



Building Joints

Non-movement Joints... Examples?

Movement Joints

Working Construction Joints

Structure/Enclosure Joints

Surface Divider Joints

Abutment Joints

Control Joints

Expansion Joints

Building Separation Joints

Volume Change Joints

Settlement Joints

Seismic Separation Joints

Abutment/Control Joint



PVC Expansion Joint Cover



Spanning Systems for Masonry Bearing Construction

Ordinary, Joisted Construction / Heavy Timber Construction

Steel Joist/Decking

Concrete Decking

Special Considerations for Masonry Construction

Expansion/Contraction

Efflorescence

Mortar Joint Deterioration

Moisture Resistance

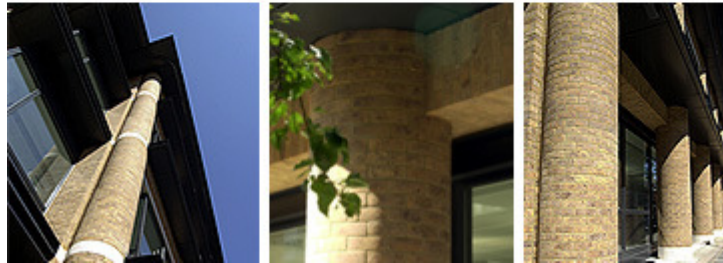
Cold and Hot Water Construction

Architectural Technology V

23



Haberdasher's Hall, Michael Hopkins



200 Hammersmith Road, Hamilton Associates



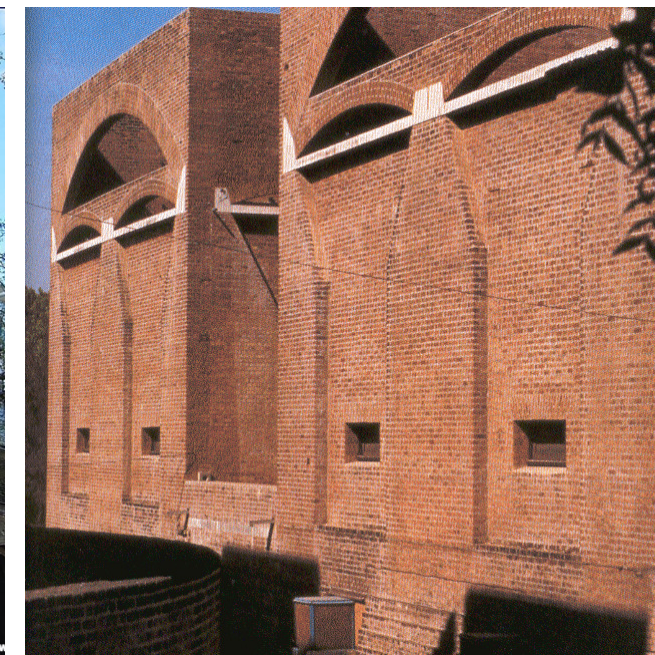
Thames Valley Park, Sidell Gibson



Procession House, RHWL Architects



The Mound Stand, Michael Hopkins



School of Management, Louis Kan