Moisture Management for Single Wythe Masonry
Purpose of a Wall

Keep the outside out and the inside in
Masonry Wall Systems
Reinforced/Unreinforced
Loadbearing/Nonloadbearing

- Single Wythe
- Multi-Wythe
  - Solid
  - Composite
  - Non-Composite
- Veneer
  - Wood
  - Steel
  - Masonry
  - Concrete
- Diaphragm
Essential for Single Wythe Moisture Performance

- Flashing & weepholes
- Proper tooling
- Integral admixtures
- Surface applied coatings
- Proper cleaning
Flashings & Weepholes

A membrane, installed in a masonry wall system, which collects water that has penetrated the exterior wythe and facilitates its drainage back to the exterior.
Types of Flashing

- Sheet Metals
- Flexible Composites
- Plastics
Base flashing

1. Base Detail
2. Reinforced Cell Picture
Sill Flashing

- Precast or Stone Sill
- Flexible Membrane Flashing
- Drip
- 1" Min. Ladder-Type Horizontal Joint Reinforcement Spaced @ 16" O.C.
- 8" CMU (Solid)
- Insulation (Loose Fill or Inserts)
- Turn Up Flexible Membrane Flashing As End Dams (Beyond)

5B. Precast or Stone Sill
A-1
Head Flashing

12" CMU

LADDER-TYPE HORIZONTAL JOINT REINFORCEMENT SPACED @ 16" O.C.

INSULATION (LOOSE FILL OR INSERTS)

DRAINAGE MATERIAL

PAN FLASHING SYSTEM

GROUT CORES AND HEAD JOINTS SOLID

GALVANIZED DOUBLE ANGLE STEEL LINTEL

3B DOUBLE ANGLE STEEL LINTEL

A-1
Head Flashing

12" CMU

LADDER-TYPE HORIZONTAL JOINT REINFORCEMENT SPACED @ 16" O.C.

PAN FLASHING SYSTEM

BOND BEAM UNIT (W/ REINF, PER STRUCTURAL DESIGN) GROUTED SOLID

INSULATION (LOOSE FILL OR INSERTS)

DRAINAGE MATERIAL

NOTE: MASONRY LINTEL MAY BE PRECAST OR FIELD ASSEMBLED

3A MASONRY LINTEL (PREFERRED)
Head Flashing

12” CMU

PAN FLASHING SYSTEM

DRAINAGE MATERIAL

NOTE: WITH THIS DETAIL SOAPS REQUIRE MINIMAL OR NO NOTCHING

INSULATION (LOOSE FILL OR INSERTS)

SOAPS (BOTH SIDES)

FLEXIBLE MEMBRANE FLASHING, FULLY ADHERED

TWO-PIECE FLEXIBLE ANCHOR IN EACH HEAD JOINT IN EACH SOAP COURSE RECEIVER COMPONENT MECHANICALLY FASTENED THROUGH FULLY ADHERED MEMBRANE FLASHING ON EXTERIOR SIDE OF LINTEL

STEEL BEAM LINTEL ASSEMBLY (CORROSION RESISTANT)

STEEL PLATE

NARROW FLANGE

16” STEEL LINTEL

4C

A-1
Head Flashing

NOTE: THIS DETAIL PERTAINS TO STEEL LINTELS W/ FLANGE WIDTHS APPROXIMATELY 10". FOR NARROW FLANGE WIDTHS, SEE DETAIL 6A.

(CMU NOT SHOWN FOR CLARITY)

ENLARGED FLASHING DETAIL AT WIDE FLANGE STEEL LINTELS

68
A-5

1 1/2" MINIMUM LAP

METAL Drip w/ HEMMED EDGE

SEALANT

FLEXIBLE MEMBRANE FLASHING, FULLY ADHERED

RECEIVER COMPONENT OF TWO-PIECE FLEXIBLE ANCHOR MECHANICALLY FASTENED THROUGH FULLY ADHERED MEMBRANE FLASHING ON EXTERIOR FACE

Anchor (shown on this side only for clarity)

1 1/2" MINIMUM LAP

METAL Drip w/ HEMMED EDGE

SEALANT

ENLARGED FLASHING DETAIL AT NARROW FLANGE STEEL LINTELS

6A
A-5
Parapet Flashing

- Extend roofing membrane to exterior, underside of the sheet metal coping
- 12" smooth face CMU
- Sealant
- 12" CMU
- Sloping sheet metal coping cap with cont. cleat, ea. side
- Wood nailer with anchor bolts
- Grout cores solid at anchor bolts and vertical reinforcement, otherwise include insulation
- Vertical reinforcement
- Drainage material

Note: At joist bearing locations only, move pan flashing and drainage material up one course as shown.

Pan flashing system

12" bond beam (w/ reinf.)

Ladder-type horizontal joint reinforcement spaced @ 16" O.C.

Integral water repellant (in CMU and mortar) and a post-cleaning field-applied water repellant

Tool mortar joint to a concave profile

7 PARAPET DETAIL
A-2
Types of Flashing
Weepholes
(industry recommended spacing)

Open Head Joints
- max. 24” o.c.

Vents/Grids
- max. 24” o.c.

Oiled Ropes (removed)
- max. 16” o.c.

Wicks (100% cotton)
- max. 16” o.c.

Plastic Tubes (not recommended)
- max. 16” o.c.

Code requires 33 in. o.c. max
Mortar

A good rule of thumb is to select the lowest strength mortar required for structural and durability considerations.
# Mortar Selection

<table>
<thead>
<tr>
<th>Location</th>
<th>Building Segment</th>
<th>Mortar Type</th>
<th>Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exterior, above grade</td>
<td>Load-bearing wall</td>
<td>N</td>
<td>S or M</td>
</tr>
<tr>
<td></td>
<td>Non-load bearing wall</td>
<td>O</td>
<td>N or S</td>
</tr>
<tr>
<td></td>
<td>Parapet wall</td>
<td>N</td>
<td>S</td>
</tr>
<tr>
<td>Exterior, at or below grade</td>
<td>Foundation wall, retaining wall, manholes, sewers, pavements, walks, and patios</td>
<td>S</td>
<td>M or N</td>
</tr>
<tr>
<td>Interior</td>
<td>Load-bearing wall</td>
<td>N</td>
<td>S or M</td>
</tr>
<tr>
<td></td>
<td>Non-bearing partitions</td>
<td>O</td>
<td>N</td>
</tr>
<tr>
<td>Interior or Exterior</td>
<td>Tuckpointing</td>
<td>See Appendix X3</td>
<td>See Appendix X3</td>
</tr>
</tbody>
</table>
Concave or V-shaped joints are recommended.
Tooling

- Raked, flush, struck, beaded, or extruded joints are **not recommended**
Surface Applied Water Repellents

- Proper selection and application can greatly enhance water resistive properties of masonry
- Provide resistance to wind-driven rain.
Integral Water Repellents

- Incorporated into the concrete mix
- Added to the mortar mix on the jobsite.