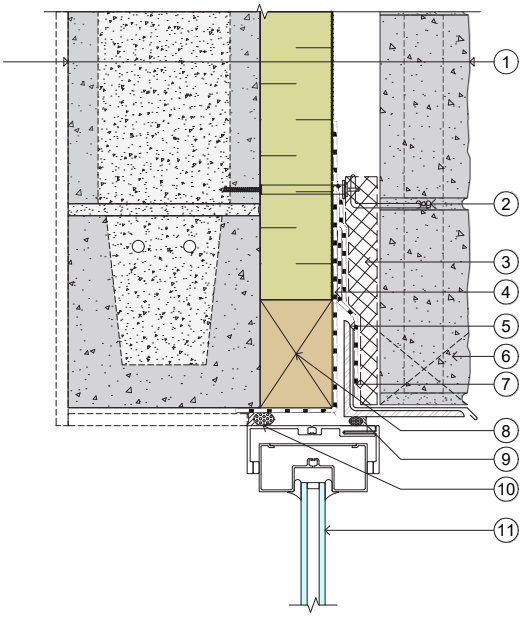
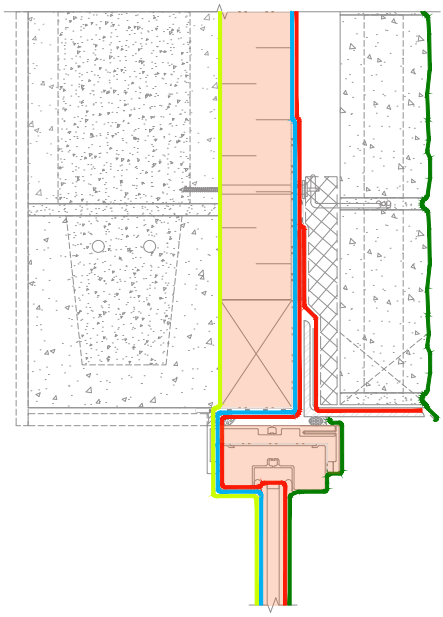
CMU BACKUP WALL: Window Head Detail



Detail 6-1 CMU Backup Wall: Window Head Detail



Water-Shedding Surface and Control Layers of Detail 6-1

Legend

1. Typical Assembly:
   - Single-wythe CMU wall
   - Faced rigid board insulation
   - Air cavity
   - Anchored masonry veneer
2. Masonry veneer anchor
3. Mortar collection mesh
4. Fluid-applied air barrier and WRB flashing membrane
5. Hot-dipped galvanized-steel loose lintel
6. Vent/weep at maximum 24 inches on-center
7. Self-adhered flashing lapping on a sheet metal flashing with end dams (beyond)
8. Continuous blocking anchored to structure for window support and attachment
9. Sealant over backer rod
10. Continuous air barrier sealant tied to continuous seal at window perimeter
11. Storefront window, align thermal break with rigid board insulation

Detail Discussion

The window in this series of details is aligned with the adjacent insulation to minimizing thermal bridging around the rough opening at the window-to-wall interface.

A self-adhered flashing membrane transitions from the face of the insulation to the sheet-metal flashing. This allows water at the face of the insulation (the water control layer) to drain to the exterior through the vent/weep. A self-adhered flashing is used in lieu of a sheet-metal flashing; a sheet-metal flashing would require additional blocking, and less insulation, at the rough opening head for attachment.

Water-Shedding Surface & Control Layers

Water-Shedding Surface

Control Layers:

Water

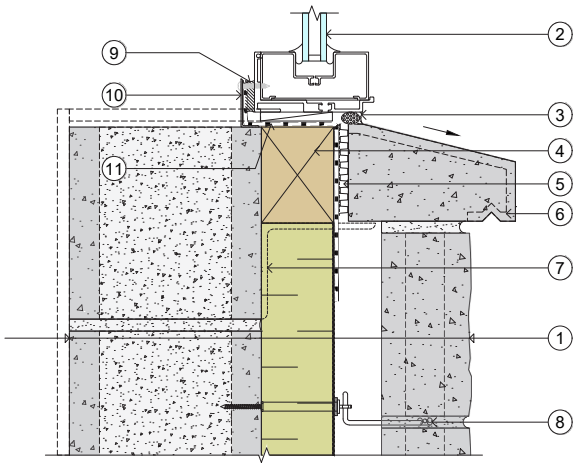
Air

Vapor

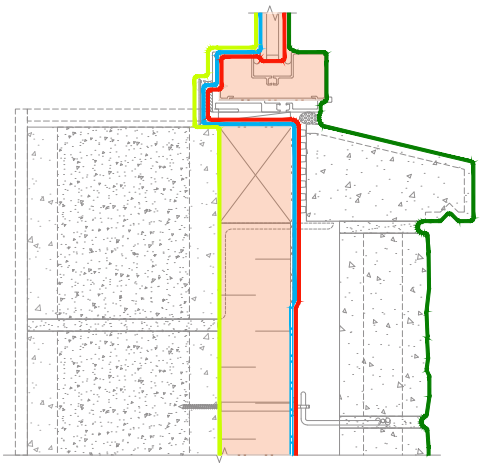
Thermal

Note: Control layers are shown for a Class I or II faced rigid insulation board product.

CMU BACKUP WALL: Window Sill Detail



Detail 6-2 CMU Backup Wall: Window Sill Detail



Water-Shedding Surface and Control Layers of Detail 6-2

Legend

1. Typical Assembly:
   - Single-wythe CMU wall
   - Faced rigid board insulation
   - Air cavity
   - Anchored masonry veneer
2. Storefront window, align thermal break with rigid board insulation
3. Sealant over backer rod
4. Continuous blocking anchored to structure for window support and attachment
5. Drainage matrix
6. Sloped precast sill with chamfered drip edge and sealant over backer rod at precast joints
7. Intermittent structural support for precast sill (beyond)
8. Masonry veneer anchor
9. Continuous air barrier sealant tied to continuous seal at window perimeter
10. Back dam angle at sill, minimum 1 inch tall, fasten window through back dam angle
11. Fluid-applied air barrier and WRB flashing membrane

Detail Discussion

Intermittent attachments back to the structure may be required to support the precast sill element. These attachments require detailing with a fluid-applied or self-adhered flashing membrane where they project through the insulation and facer. Intermittent attachments disrupt the insulation (thermal control layer) less than continuous attachments and are preferred.

The drainage matrix behind the precast sill element allows for a continuous pathway for water to drain from the window rough opening into the air cavity below where it can be redirected exterior of the masonry veneer. This allows for a backer rod and sealant joint at the window perimeter to maintain a continuous water-shedding surface.

Water-Shedding Surface & Control Layers

Water-Shedding Surface

Control Layers:

Water

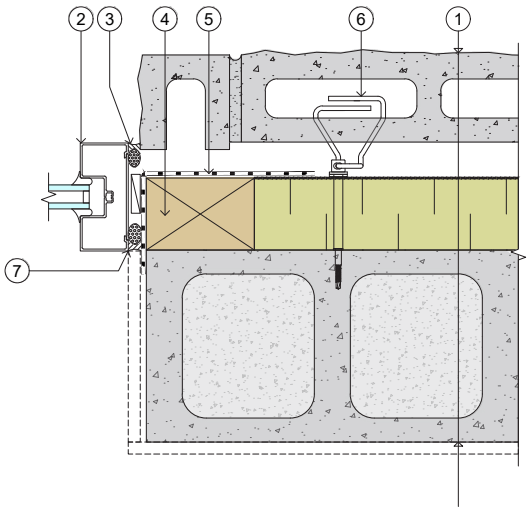
Air

Vapor

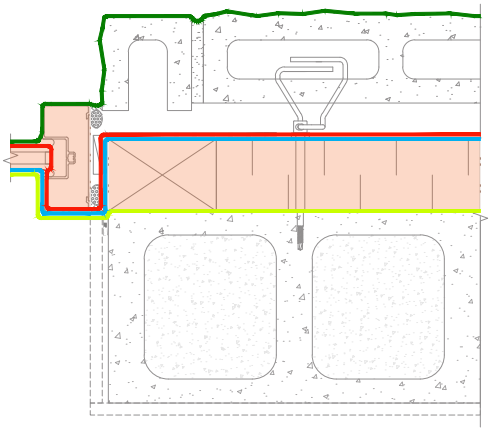
Thermal

Note: Control layers are shown for a Class I or II faced rigid insulation board product.

CMU BACKUP WALL: Window Jamb Detail



Detail 6-3 CMU Backup Wall: Window Jamb Detail



Water-Shedding Surface and Control Layers of Detail 6-3

Legend

1. Typical Assembly:
   - Single-wythe CMU wall
   - Faced rigid board insulation
   - Air cavity
   - Anchored masonry veneer
2. Storefront window, align thermal break with rigid board insulation
3. Sealant over backer rod
4. Continuous blocking anchored to structure for window support and attachment
5. Fluid-applied air barrier and WRB flashing membrane
6. Masonry veneer anchor
7. Continuous air barrier sealant tied to continuous seal at window perimeter

Detail Discussion

Wood blocking shown at the jamb serves as a nailer to attach the window. Air and water control layer continuity between the window and wall is provided by a continuous seal and the fluid applied flashing membrane at the window rough opening perimeter. A veneer return at the jamb may be needed to allow for the exterior backer rod and sealant to be installed. An air gap is to remain between the return brick and flashing membrane. It should not be packed with mortar.

Water-Shedding Surface & Control Layers

Water-Shedding Surface

Control Layers:

Water

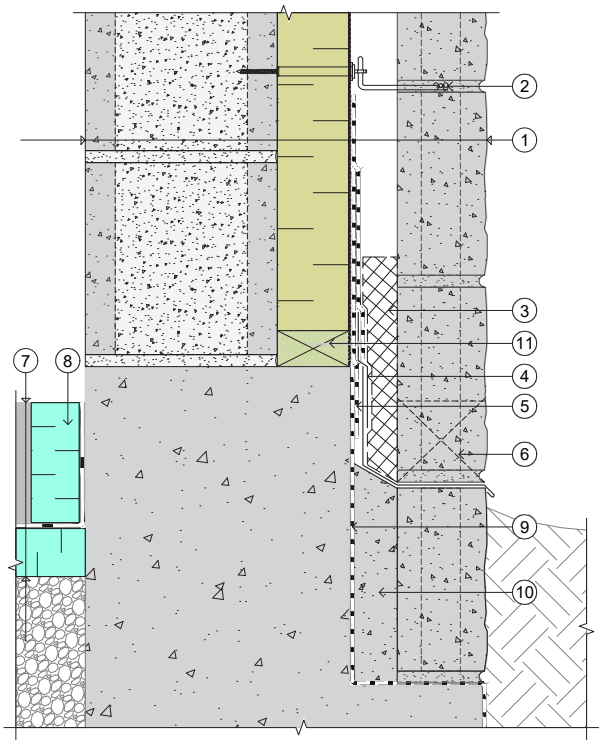
Air

Vapor

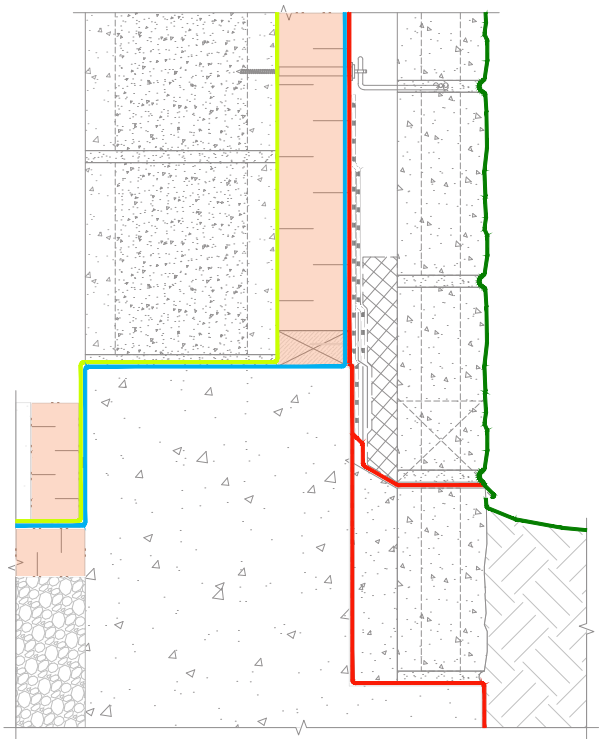
Thermal

Note: Control layers are shown for a Class I or II faced rigid insulation board product.

CMU BACKUP WALL: Base-of-Wall Detail



Detail 6-4 CMU Backup Wall: Base-of-Wall Detail



Water-Shedding Surface and Control Layers of Detail 6-4

Legend

1. Typical Assembly:
   - Single-wythe CMU wall
   - Faced rigid board insulation
   - Air cavity
   - Anchored masonry veneer
2. Masonry veneer anchor
3. Mortar collection mesh
4. Two-piece sheet-metal flashing with hemmed drip edge and end dams beyond, attached through the wood blocking
5. Fluid-applied air barrier and WRB flashing membrane
6. Vent/weep at maximum 24 inches on-center
7. Typical Assembly at Floor:
   - Concrete floor slab
   - Vapor barrier
   - Rigid XPS insulation
   - Capillary break
8. Rigid XPS insulation thermal break
9. Below-grade waterproofing or dampproofing with protection course where required
10. Continuous grout, sloped at top
11. Preservative treated wood blocking

Detail Discussion

In this detail, a thermal break is provided between the concrete floor slab and foundation element to minimize heat loss at the floor-to-wall interface.

The bottom courses of masonry are at or below-grade; continuous grout exists behind the veneer for support. The sheet-metal flashing shown drains the wall cavity above to the exterior and stops the transfer of any moisture between the above- and below-grade masonry.

Wood blocking shown serves as a nailer to attach the two-piece sheet-metal flashing.

Water-Shedding Surface & Control Layers

Water-Shedding Surface

Control Layers:

Water

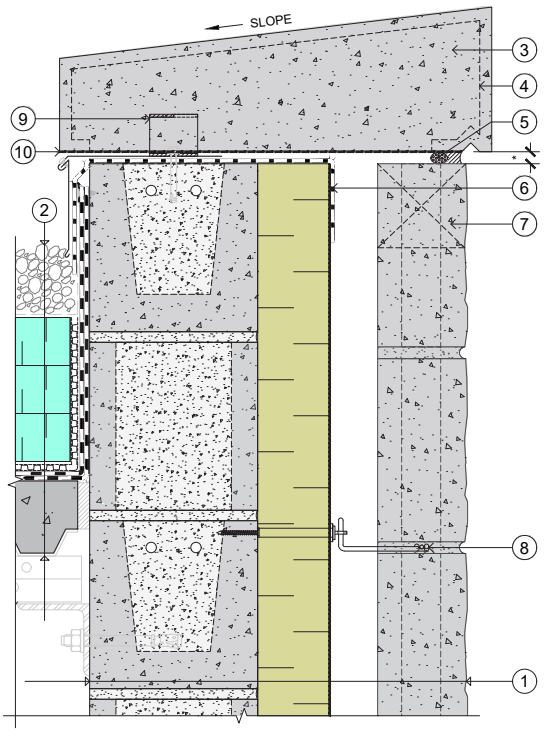
Air

Vapor

Thermal

Note: Control layers are shown for a Class I or II faced rigid insulation board product.

CMU BACKUP WALL: Roof Parapet Detail



Detail 6-5 CMU Backup Wall: Roof Parapet Detail

Water-Shedding Surface and Control Layers of Detail 6-5

Legend

1. Typical Assembly:
   - Single-wythe CMU wall
   - Faced rigid board insulation
   - Air cavity
   - Anchored masonry veneer
2. Inverted roof membrane assembly
3. Precast cornice with chamfered drip edge
4. Sealant over backer rod at precast joints beyond
5. Sealant over backer rod
6. Fully-reinforced fluid-applied roof flashing membrane
7. Vents at maximum 24 inches on-center (optional)
8. Masonry veneer anchor
9. Split-tail anchor
10. Cementitious-based waterproof coating

*Minimum 3/8-inch to allow for movement. Confirm dimension with Engineer of Record.

Detail Discussion

An application of cementitious-based waterproof coating is applied on the underside of the architectural precast concrete, cast stone, or limestone cap to minimize the migration of moisture below the cap area. This application can mitigate efflorescence in the wall below.

The drip edge at the underside of the parapet cap encourages water to shed away from the enclosure before it can run down the face of the masonry cladding. This application can minimize staining and efflorescence.

The thermal performance of this detail may be improved by framing and insulating the parapet as shown in Detail 6-13. The best approach for minimizing heat loss at the parapet is by insulating up and over the parapet structure.

Water-Shedding Surface & Control Layers

Water-Shedding Surface

Control Layers:

Water

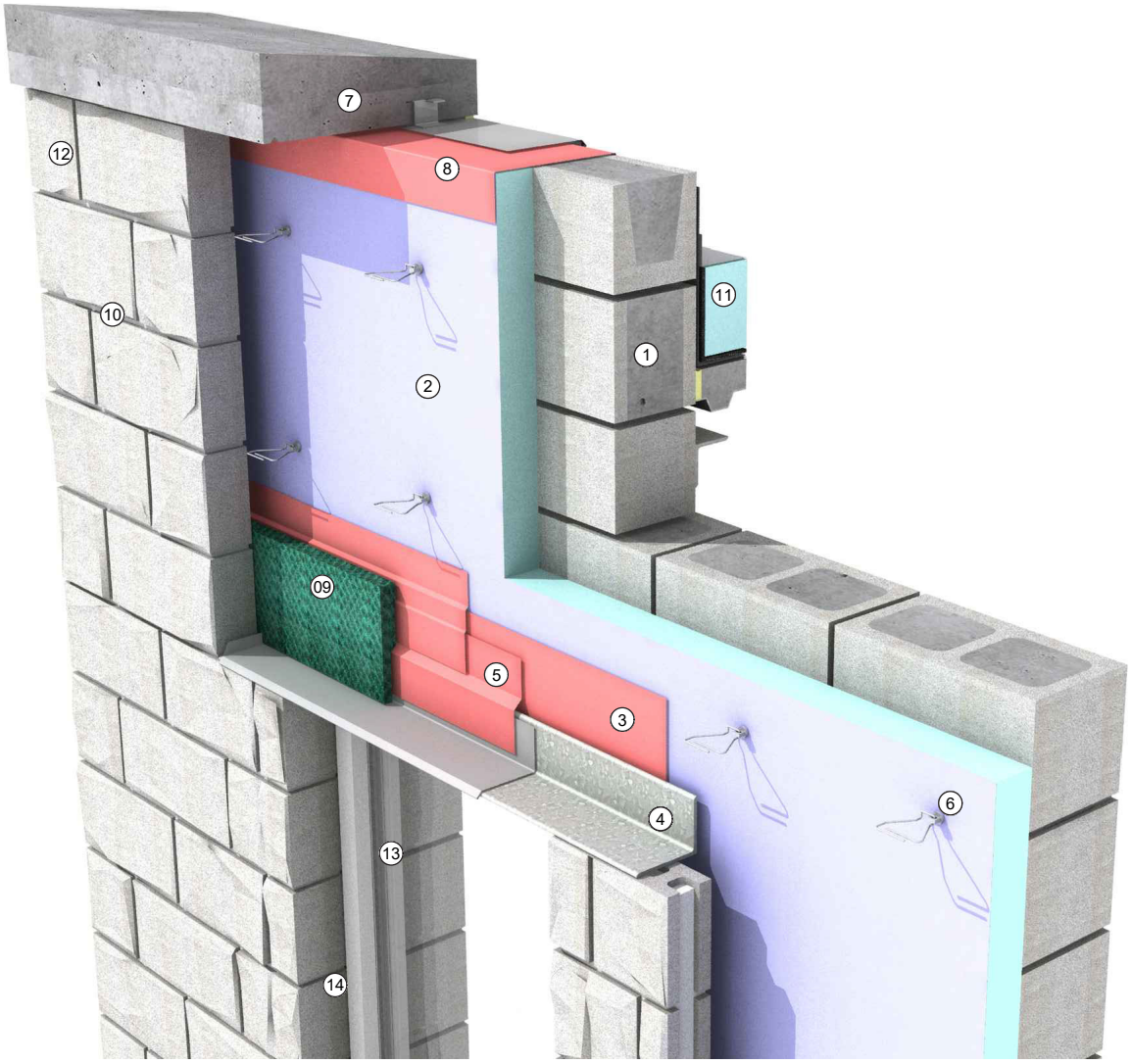
Air

Vapor

Thermal

Note: Control layers are shown for a Class I or II faced rigid insulation board product.

CMU BACKUP WALL: Roof Parapet 3D Detail



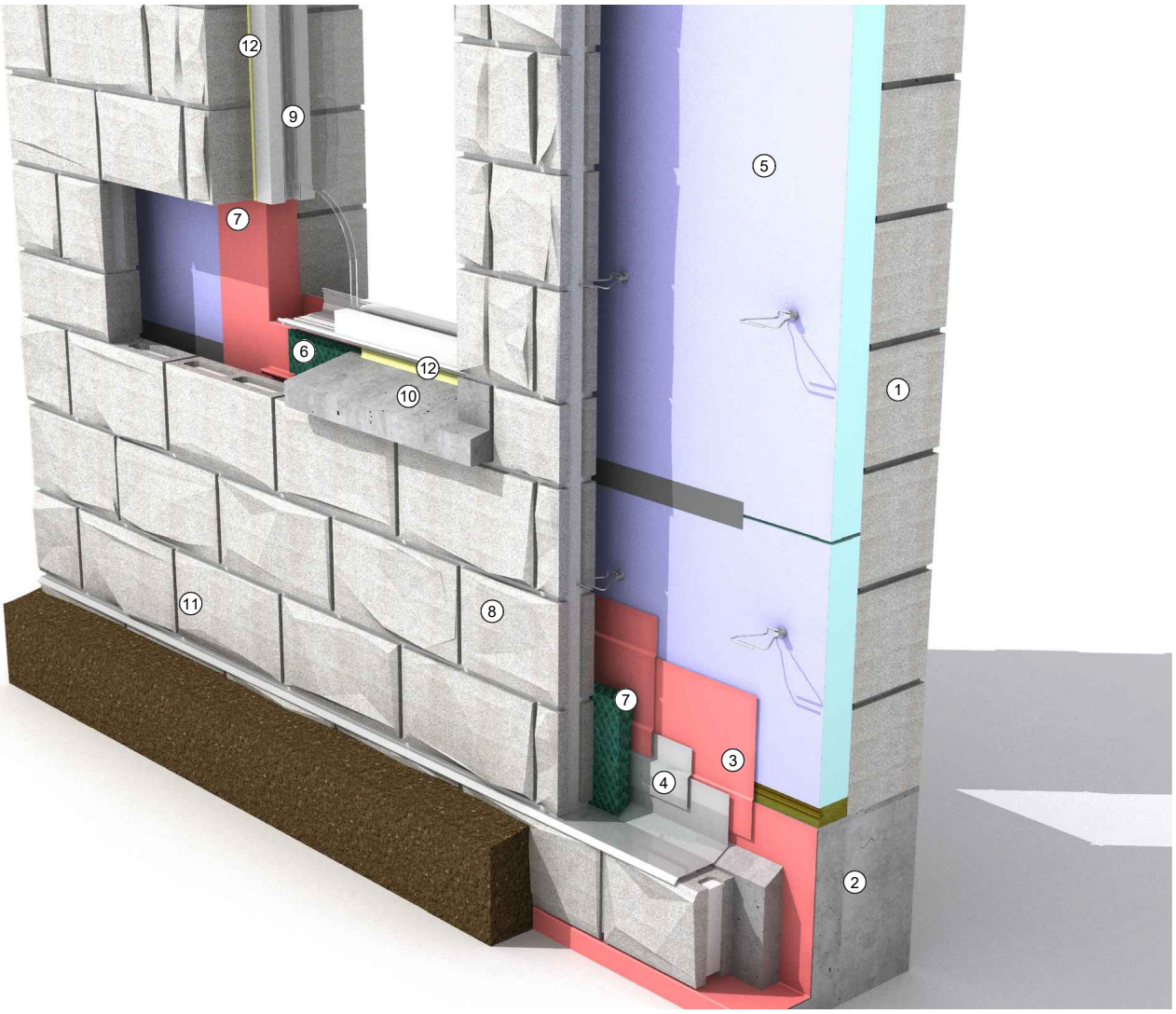
Detail 6-6 CMU Backup Wall: Roof Parapet 3D Detail

Legend

1. Single-wythe CMU wall
2. Faced rigid board insulation
3. Fluid-applied air barrier and WRB flashing membranes
4. Hot-dipped galvanized-steel loose lintel
5. Self-adhered flashing lapping on a sheet metal flashing with end dams (beyond)
6. Masonry veneer tie
7. Precast cornice with chamfered drip edge
8. High-temperature self-adhered membrane
9. Mortar collection mesh
10. Anchored masonry veneer
11. Inverted roof membrane assembly and roof structure
12. Vents at maximum 24-inches on-center (optional)
13. Storefront window
14. Sealant over backer rod

Refer to Detail 6-1, Detail 6-3, and Detail 6-5 for more information.

CMU BACKUP WALL: Base-of-Wall 3D Detail



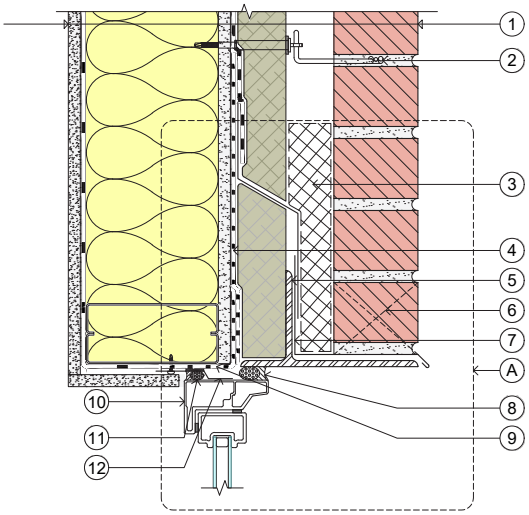
Detail 6-7 CMU Backup Wall: Base-of-Wall 3D Detail

Legend

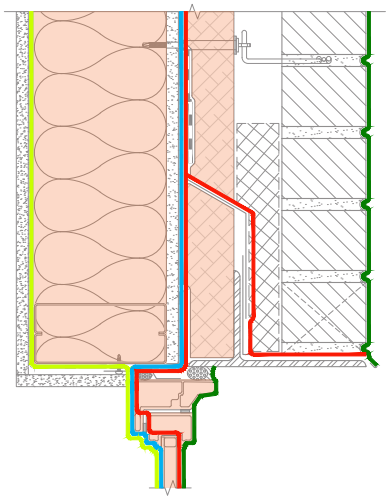
1. Single-wythe CMU wall
2. Concrete foundation element
3. Fluid-applied or self-adhered flashing membrane
4. Two-piece sheet-metal flashing with hemmed drip edge and end dams beyond, attached through the wood blocking
5. Faced rigid board insulation
6. Mortar collection mesh
7. Fluid-applied air barrier and WRB flashing membrane
8. Anchored masonry veneer
9. Storefront window
10. Sloped precast sill with chamfered drip edge and sealant over backer rod at precast joints
11. Vent/weep at maximum 24-inches on-center
12. Continuous sealant and backer rod

Refer to Detail 6-2, Detail 6-3, and Detail 6-4 for more information.

STEEL STUD-FRAMED BACKUP WALL: Window Head Detail



Detail 6-8 Steel Stud-Framed Backup Wall: Window Head Detail



Water-Shedding Surface and Control Layers of Detail 6-8

Legend

1. Typical Assembly:
   - Interior gypsum board
   - Vapor retarder
   - Steel stud-framed wall with batt insulation
   - Exterior sheathing
   - Self-adhered sheet- or fluid-applied air barrier and WRB field membrane
   - Semi-rigid exterior insulation
   - Air cavity
   - Anchored masonry veneer
2. Masonry veneer anchor
3. Mortar collection mesh
4. Self-adhered sheet- or fluid-applied air barrier and WRB field membrane
5. Hot-dipped galvanized-steel loose lintel
6. Vent/weep at maximum 24 inches on-center
7. Two-piece sheet-metal head flashing with hemmed drip edge and end dams (beyond)
8. Sealant over backer rod
9. Self-adhered sheet- or fluid-applied air barrier and WRB flashing membrane
10. Non-flanged window
11. Continuous air barrier sealant tied to continuous seal at window perimeter
12. Window strap anchor, bed in air barrier sealant at continuous air barrier sealant joint plane

A. See alternate shelf angle support detailing options on page 63

Detail Discussion

A non-flanged window is shown in the detail and facilitates future window replacement without the need to remove the anchored masonry veneer or window flanges.

The intermittent strap anchors used to attach the window to the structure are bed in sealant at the plane of the continuous air barrier sealant at the window perimeter. This allows the air and water control layer to be continuous between the window and rough opening flashing membrane behind strap anchors.

Water-Shedding Surface & Control Layers

Water-Shedding Surface

Control Layers:

Water

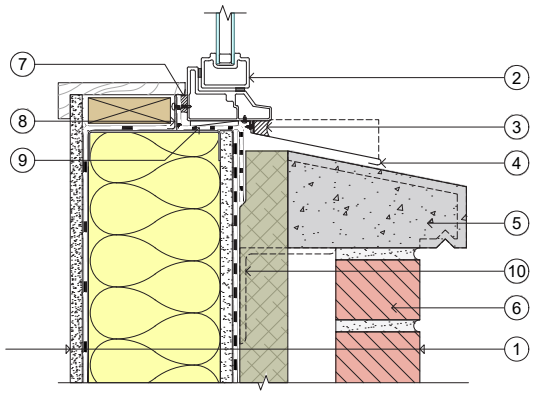
Air

Vapor

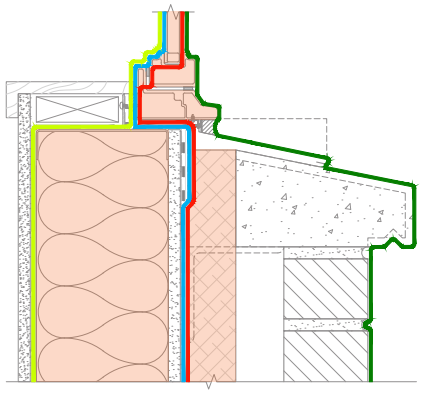
Thermal

Note: Control layers are shown for a Class IV permeance (and sometimes Class III permeance) air barrier and WRB field membrane and where a vapor retarder is located at the interior face of the framing.

STEEL STUD-FRAMED BACKUP WALL: Window Sill Detail



Detail 6-9 Steel Stud-Framed Backup Wall: Window Sill Detail



Water-Shedding Surface and Control Layers of Detail 6-9

Legend

1. Typical Assembly:
   - Interior gypsum board
   - Vapor retarder
   - Steel stud-framed wall with batt insulation
   - Exterior sheathing
   - Self-adhered sheet- or fluid-applied air barrier and WRB field membrane
   - Semi-rigid exterior insulation
   - Air cavity
   - Anchored masonry veneer
2. Non-flanged window on minimum ¼-inch thick intermittent plastic shims
3. Sealant over bond breaker
4. Sloped sheet-metal sill flashing with hemmed edge and end dams (beyond), attached to intermittent L-angle at window per window manufacturer recommendations
5. Sloped precast sill with chamfered drip edge and sealant over backer rod at precast joints
6. Anchored masonry veneer
7. Continuous air barrier sealant tied to continuous seal at window perimeter
8. Back dam angle at sill, minimum 1 inch tall, fasten window through back dam angle
9. Self-adhered sheet- or fluid-applied air barrier and WRB flashing membrane
10. Intermittent structural support for precast sill (beyond)

Detail Discussion

The sheet-metal sill flashing conceals the rainscreen cavity. End dams exist on the sheet-metal sill flashing and terminate within a bed joint of the brick return beyond. This provides continuity of the water-shedding surface at the jamb to sill interface, minimizing the opportunity for water to enter the air cavity behind the brick.

This guide recommends against placing a sheet-metal flashing below the precast sill. It can prematurely degrade the mortar bed beneath the precast sill.

A chamfer is shown in the underside of the precast sill to form a drip. This encourages water to shed from the sill before reaching the masonry veneer below.

Water-Shedding Surface & Control Layers

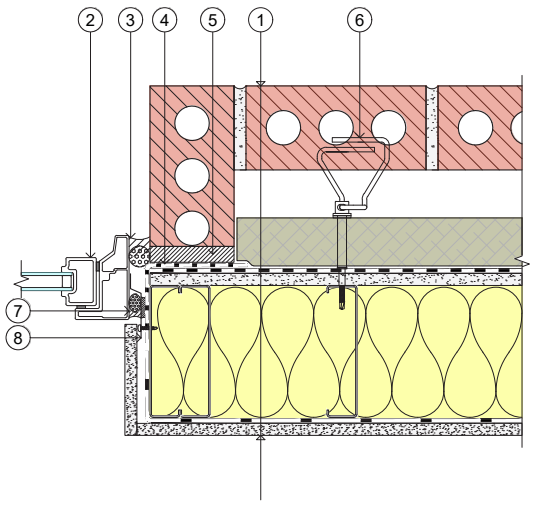
Water-Shedding Surface

Control Layers:

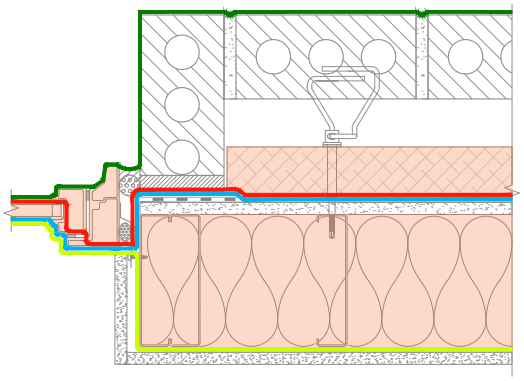
Water
Air
Vapor
Thermal

Note: Control layers are shown for a Class IV permeance (and sometimes Class III permeance) air barrier and WRB field membrane and where a vapor retarder is located at the interior face of the framing.

STEEL STUD-FRAMED BACKUP WALL: Window Jamb Detail



Detail 6-10 Steel Stud-Framed Backup Wall: Window Jamb Detail



Water-Shedding Surface and Control Layers of Detail 6-10

Legend

1. Typical Assembly:
   - Interior gypsum board
   - Vapor retarder
   - Steel stud-framed wall with batt insulation
   - Exterior sheathing
   - Self-adhered sheet- or fluid-applied air barrier and WRB field membrane
   - Semi-rigid exterior insulation
   - Air cavity
   - Anchored masonry veneer
2. Non-flanged window
3. Sealant over backer rod
4. Self-adhered sheet- or fluid-applied air barrier and WRB flashing membrane
5. Minimum ½-inch drainage path, fill with free draining compressible filler
6. Masonry veneer anchor
7. Continuous air barrier sealant tied to continuous seal at window perimeter
8. Window strap anchor, bed in air barrier sealant at continuous air barrier sealant joint plane

Detail Discussion

The backer rod and sealant joint at the interior side of the window provides air and water control layer continuity from the window to the air barrier and WRB flashing membrane at the rough opening. Strap anchors, which interrupt this sealant joint, are bed in sealant to maintain continuity of the air and water control layer.

In this detail the brick return at the jamb prevents the exterior insulation from extending up to the window. To improve the thermal performance of this interface, the exterior insulation can extend up to the window rough opening and a shallower brick return may be used. A sheet-metal jamb flashing (typically attached to the window with small clips) can be used to conceal the air cavity and insulation and provide continuity of the water-shedding surface.

Water-Shedding Surface & Control Layers

Water-Shedding Surface

Control Layers:

Water

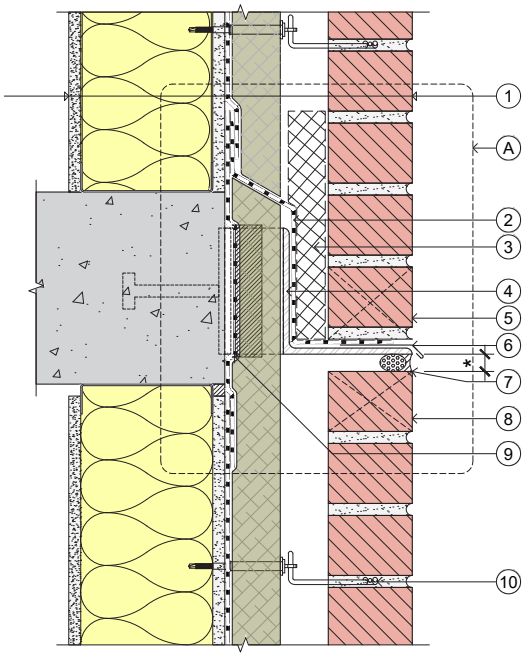
Air

Vapor

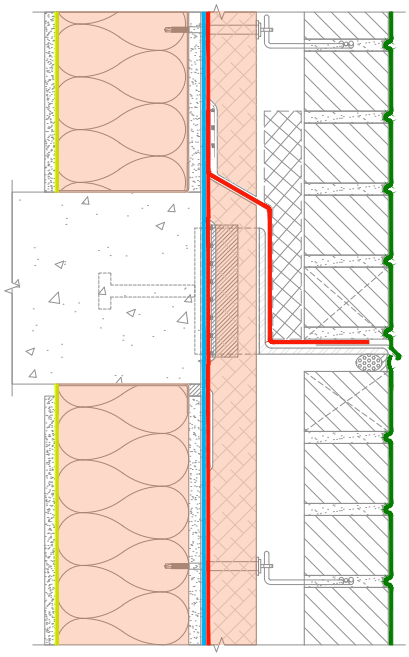
Thermal

Note: Control layers are shown for a Class IV permeance (and sometimes Class III permeance) air barrier and WRB field membrane and where a vapor retarder is located at the interior face of the framing.

STEEL STUD-FRAMED BACKUP WALL: Floor Line Detail



Detail 6-11 Steel Stud-Framed Backup Wall: Floor-Line Detail



Water-Shedding Surface and Control Layers of Detail 6-11

Legend

1. Typical Assembly:
   - Interior gypsum board
   - Vapor retarder
   - Steel stud-framed wall with batt insulation
   - Exterior sheathing
   - Self-adhered sheet- or fluid-applied air barrier and WRB field membrane
   - Semi-rigid exterior insulation
   - Air cavity
   - Anchored masonry veneer
2. Self-adhered flashing membrane
3. Mortar collection mesh
4. Hot-dipped galvanized-steel standoff shelf angle support anchored on intermittent structural support
5. Vent/weep at maximum 24 inches on-center
6. Sheet-metal flashing with hemmed drip edge
7. Sealant over backer rod
8. Vent at maximum 24 inches on-center (optional)
9. Self-adhered sheet- or fluid-applied air barrier and WRB flashing membrane, extend onto intermittent structural support
10. Masonry veneer anchor

A. See alternate shelf angle support detailing options on page 63

*Minimum ⅜-inch to allow for movement. Confirm dimension with Engineer of Record.

Detail Discussion

See Shelf Angle Flashing Options on page 63 and page 64 for alternative flashing solutions that may be used at the floor line.

The use of a standoff shelf angle to support the anchored masonry veneer allows insulation to run continuously across the floor line and minimize thermal bridging. This minimizes heat loss at the floor line and can improve thermal comfort; it is more thermally efficient than a continuous shelf angle support as discussed in Chapter 8.

Water-Shedding Surface & Control Layers

Water-Shedding Surface

Control Layers:

Water

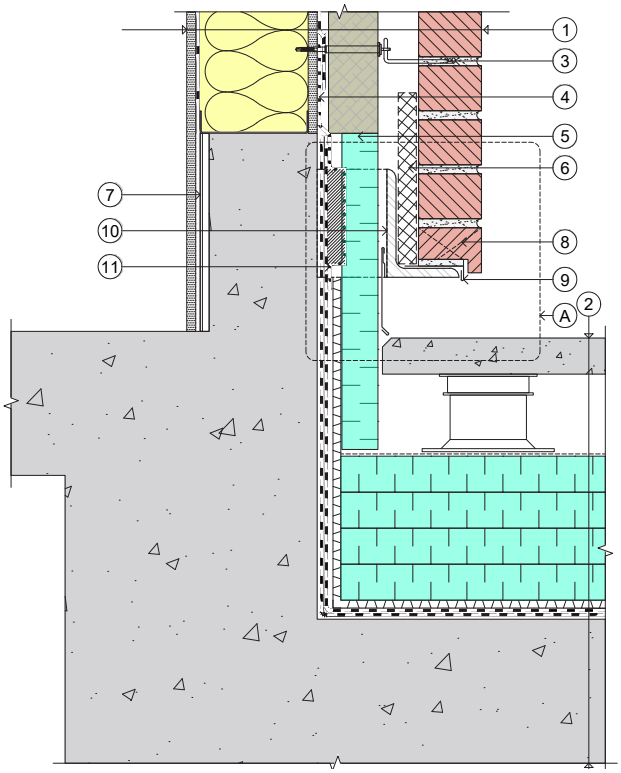
Air

Vapor

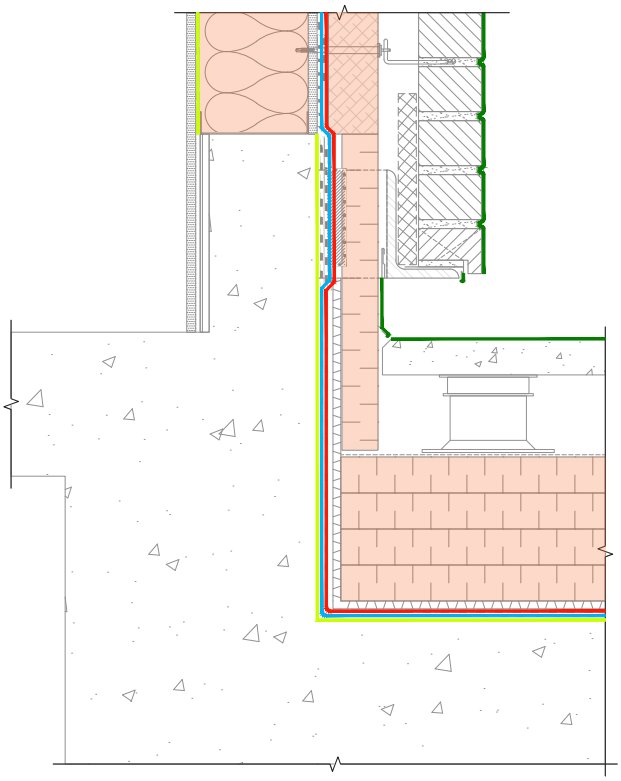
Thermal

Note: Control layers are shown for a Class IV permeance (and sometimes Class III permeance) air barrier and WRB field membrane and where a vapor retarder is located at the interior face of the framing.

STEEL STUD-FRAMED BACKUP WALL: Roof-to-Wall Detail



Detail 6-12 Steel Stud-Framed Backup Wall: Roof-to-Wall Detail



Water-Shedding Surface and Control Layers of Detail 6-12

Legend

1. Typical Assembly:
   - Interior gypsum board
   - Vapor retarder
   - Steel stud-framed wall with batt insulation
   - Exterior sheathing
   - Self-adhered sheet- or fluid-applied air barrier and WRB field membrane
   - Semi-rigid exterior insulation
   - Air cavity
   - Anchored masonry veneer
2. Inverted roof assembly
3. Masonry veneer anchor
4. Self-adhered sheet- or fluid-applied air barrier and WRB flashing membrane, lapped over roof membrane termination and roof penetration flashing membrane
5. Continuous rigid or semi-rigid exterior insulation over drainage composite
6. Mortar collection mesh
7. Interior furring for finish attachment
8. Vent/weep at maximum 24 inches on-center
9. Sheet-metal flashing with hemmed drip edge
10. Hot-dipped galvanized-steel standoff shelf angle support anchored on intermittent structural support
11. Roof penetration flashing membrane (per roof membrane manufacturer), extend onto structural support

A. See alternate shelf angle support detailing options on page 63

Detail Discussion

The standoff shelf angle support at this transition allows for continuous thermal insulation across the roof and wall assemblies.

Masonry wall system installation often precedes roof membrane installation and restricts future access for installation of the roof membrane and flashing components behind the standoff shelf angle. As a result, installation of a roof membrane prestrip and roof penetration flashing membrane at the concrete wall is needed prior to masonry wall system installation. The roof membrane manufacturer can provide recommended prestrip detailing.

Water-Shedding Surface & Control Layers

Water-Shedding Surface

Control Layers:

Water

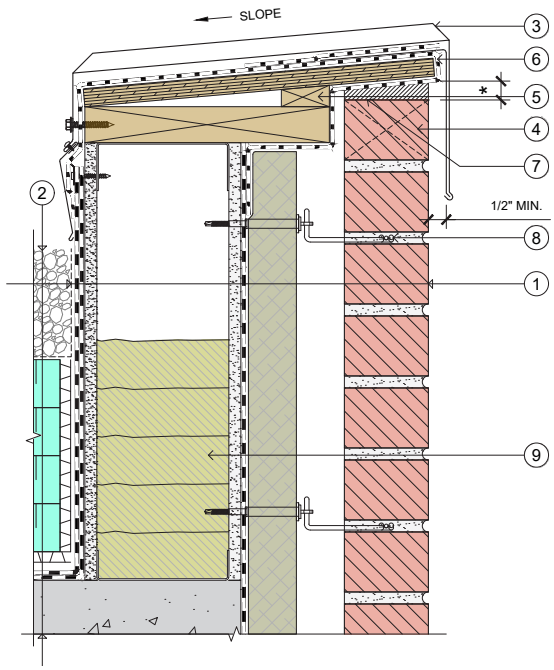
Air

Vapor

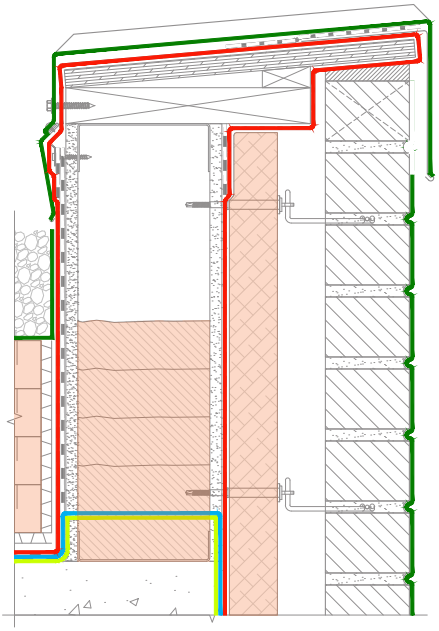
Thermal

Note: Control layers are shown for a Class IV permeance (and sometimes Class III permeance) air barrier and WRB field membrane and where a vapor retarder is located at the interior face of the framing.

STEEL STUD-FRAMED BACKUP WALL: Roof Parapet Detail



Detail 6-13 Steel Stud-Framed Backup Wall: Roof Parapet Detail



Water-Shedding Surface and Control Layers of Detail 6-13

Legend

1. Parapet Assembly:
   - Roof membrane
   - Exterior sheathing
   - Vented steel stud-framed wall
   - Exterior sheathing
   - Self-adhered sheet- or fluid-applied air barrier and WRB field membrane
   - Air cavity
   - Anchored masonry veneer
2. Inverted roof membrane assembly
3. Standing-seam sheet-metal coping with gasketed washer fasteners
4. Vent at maximum 24 inches on-center (optional)
5. Preservative-treated wood blocking
6. High-temperature self-adhered membrane
7. Compressible filler
8. Masonry veneer anchor
9. Closed-cell spray foam insulation

*Minimum ⅜-inch to allow for movement. Confirm dimension with Engineer of Record.

Detail Discussion

The vents shown in the top course of the anchored masonry veneer are optional and may be used to increase ventilation of air behind the brick cavity. As shown in this detail, the sheet-metal coping is held away from the face of the masonry so as not to block the vent.

A compressible filler is used between the masonry veneer and parapet blocking to allow for a separation between the blocking and anchor masonry veneer while preventing insects and debris from entering the cavity behind the masonry veneer.

Parapet cavity insulation provides continuity of the thermal control layer at the roof-to-wall transition.

Water-Shedding Surface & Control Layers

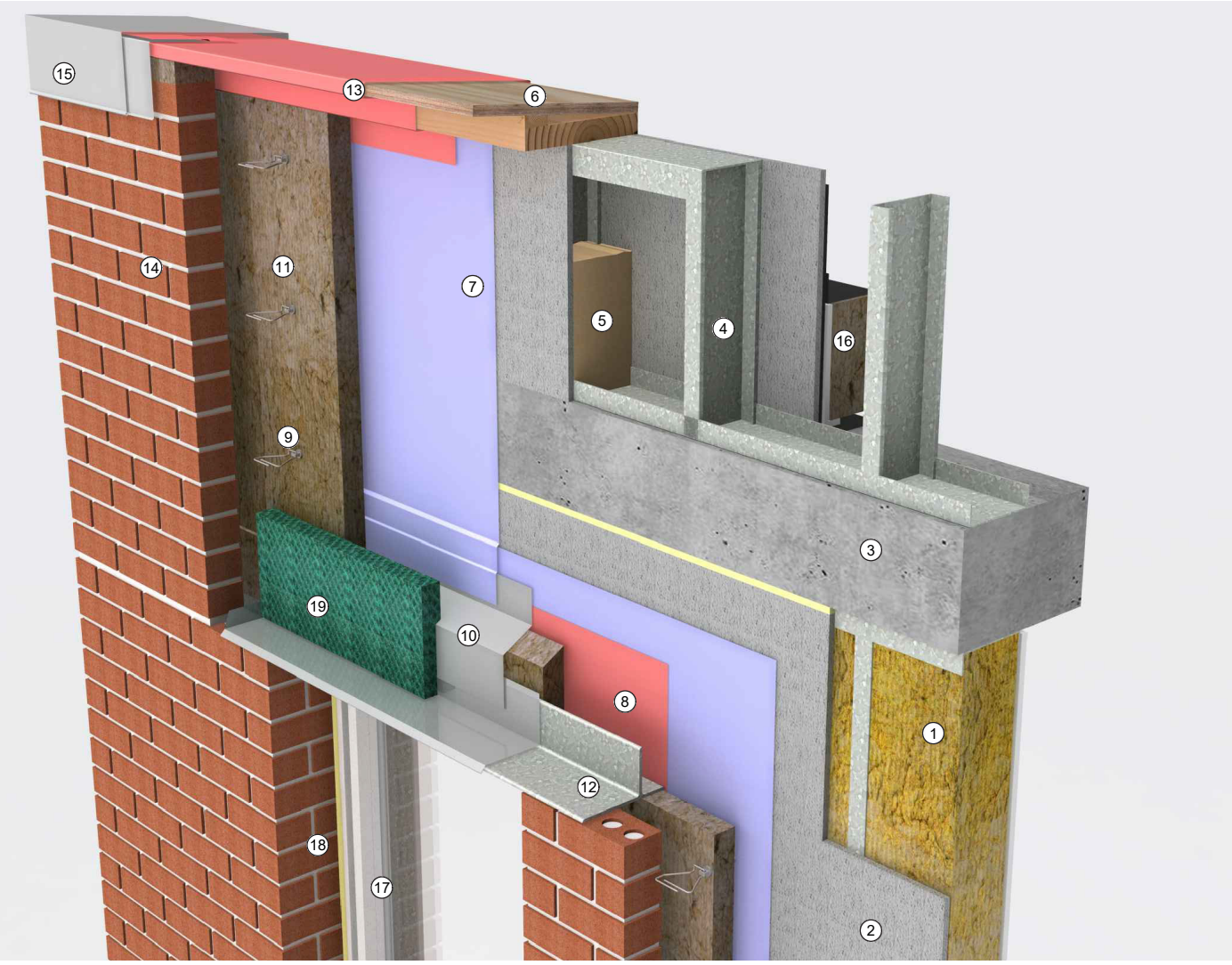
Water-Shedding Surface

Control Layers:

Water
Air
Vapor
Thermal

Note: Control layers are shown for a Class IV permeance (and sometimes Class III permeance) air barrier and WRB field membrane and where a vapor retarder is located at the interior face of the framing.

STEEL STUD-FRAMED BACKUP WALL: Parapet 3D Detail



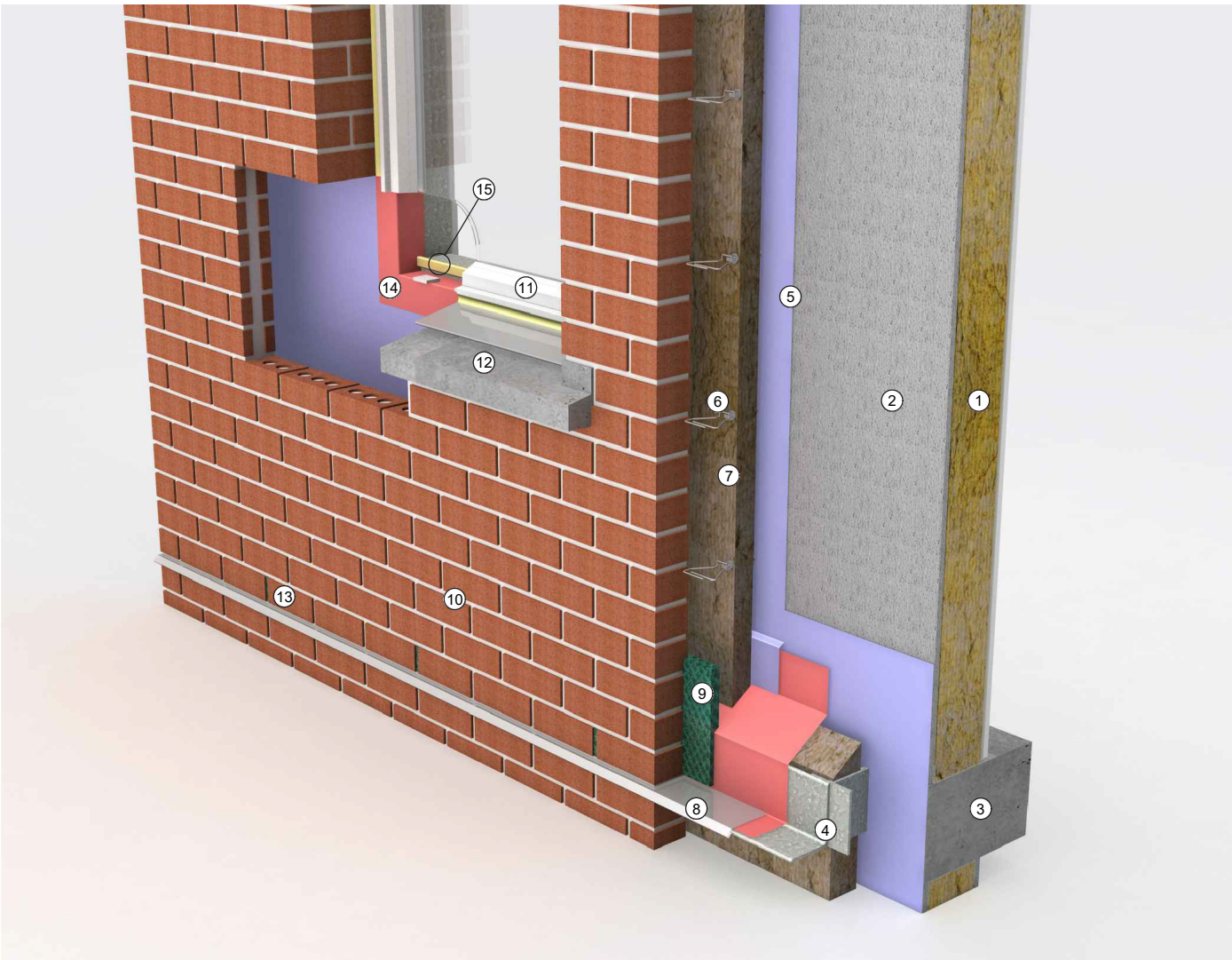
Detail 6-14 Steel Stud-Framed Backup Wall: Parapet 3D Detail

Legend

1. Steel stud-framed wall with batt insulation
2. Exterior sheathing
3. Concrete roof structure
4. Steel stud parapet framing
5. Closed-cell spray foam insulation plug
6. Sloped preservative-treated blocking
7. Self-adhered sheet- or fluid-applied air barrier and WRB field membrane
8. Self-adhered sheet- or fluid-applied air barrier and WRB flashing membranes
9. Masonry veneer anchor, fastened through air barrier sealant, fluid-applied flashing membrane, or self-adhered membrane patch per WRB system manufacturer recommendations
10. Two-piece sheet-metal head flashing with hemmed drip edge and end dams
11. Semi-rigid exterior insulation
12. Hot-dipped galvanized-steel loose lintel
13. High-temperature self-adhered membrane
14. Anchored masonry veneer
15. Sloped standing-seam sheet-metal coping with gasketed washer fasteners
16. Inverted roof membrane assembly
17. Non-flanged window
18. Anchored masonry veneer
19. Mortar collection mesh

Refer to Detail 6-8, Detail 6-10, and Detail 6-13 for more information.

STEEL STUD-FRAMED BACKUP WALL: Base-of-Wall 3D Detail



Detail 6-15 Steel Stud-Framed Backup Wall: Base-of-Wall 3D Detail

Legend

1. Steel stud-framed wall with batt insulation
2. Exterior sheathing
3. Concrete floor slab
4. Hot-dipped galvanized-steel standoff shelf angle support anchored on intermittent structural support
5. Self-adhered sheet- or fluid-applied air barrier and WRB field membrane
6. Masonry veneer anchor, fastened through air barrier sealant, fluid-applied flashing membrane, or self-adhered membrane patch per WRB system manufacturer recommendations
7. Semi-rigid exterior insulation
8. Sheet-metal flashing with hemmed drip edge
9. Mortar collection mesh
10. Anchored masonry veneer
11. Non-flanged window
12. Sloped precast concrete sill with sloped sheet-metal sill flashing
13. Vent/weep at maximum 24-inches on-center
14. Self-adhered sheet- or fluid-applied air barrier and WRB flashing membrane
15. Continuous air barrier sealant tied to continuous seal at window perimeter

Refer to Detail 6-9, Detail 6-10, and Detail 6-11 for more information.

STEEL STUD-FRAMED BACKUP WALL: Saddle Flashing 3D Detail

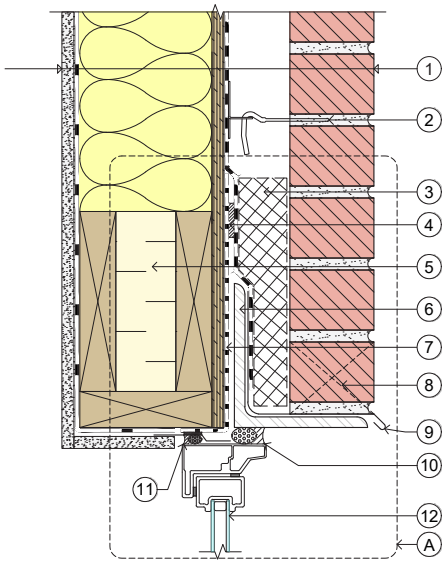
Detail 6-16 Steel Stud-Framed Backup Wall: Saddle Flashing 3D Detail

Legend

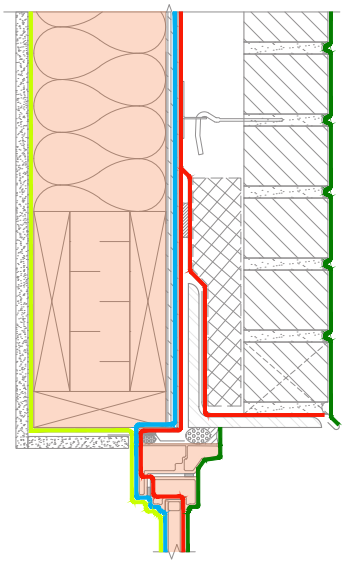
1. Inverted roof membrane assembly over concrete roof structure
2. Inverted roof membrane
3. Self-adhered or fluid-applied flashing membrane, lap over roof membrane termination, roof penetration flashing membrane, and parapet saddle flashing membrane
4. Self-adhered sheet- or fluid-applied air barrier and WRB field membrane
5. Parapet saddle flashing membrane, extend onto sloped parapet blocking beyond anchored masonry veneer wall face (above)
6. Semi-rigid mineral fiber exterior insulation
7. Hot-dipped galvanized-steel standoff shelf angle support on intermittent knife plates
8. Shelf angle knife plate support with roof penetration flashing membrane (per roof membrane manufacturer)
9. Mortar collection mesh
10. Sheet-metal flashing with hemmed drip edge
11. Anchored masonry veneer
12. High-temperature self-adhered membrane, lap membrane over parapet saddle flashing membrane and roof membrane termination
13. Exterior sheathing
14. Closed-cell spray foam insulation within framed parapet
15. Sloped standing-seam sheet-metal coping, end dam at anchored masonry veneer face beyond
16. Sheet-metal counterflashing with spring lock inserted into mortar bed beyond, seal with a sanded sealant over backer rod

Refer to Detail 6-12 and Detail 6-13 for more information.

WOOD-FRAMED BACKUP WALL: Window Head Detail



Detail 6-17 Wood-Framed Backup Wall: Window Head Detail



Water-Shedding Surface and Control Layers of Detail 6-17

Legend

1. Typical Assembly:
   - Interior gypsum board
   - Vapor retarder
   - Wood-framed wall with batt insulation
   - Exterior sheathing
   - Mechanically attached air barrier and WRB field membrane
   - Air cavity
   - Anchored masonry veneer
2. Masonry veneer anchor
3. Mortar collection mesh
4. Continuous air barrier sealant
5. Insulated window header
6. Hot-dipped galvanized-steel loose lintel
7. Self-adhered sheet- or fluid-applied air barrier and WRB flashing membrane
8. Vent/weep at maximum 24 inches on-center
9. Sheet-metal head flashing with hemmed drip edge and end dams (beyond)
10. Sealant over backer rod
11. Continuous air barrier sealant tied to continuous seal at window perimeter
12. Non-flanged window

A. See alternate shelf angle support detailing options on page 63

Detail Discussion

A loose lintel is depicted in this detail; however, the structure support for the anchored masonry above the window could also be a shelf angle support attached back to the wood-framed structure. In this case, the shelf angle would be detailed similar to Detail 6-20.

A continuous bead of air barrier sealant exists between the rough opening flashing and the mechanically attached air barrier and WRB field membrane to maintain air control layer continuity.

Water-Shedding Surface & Control Layers

Water-Shedding Surface

Control Layers:

Water

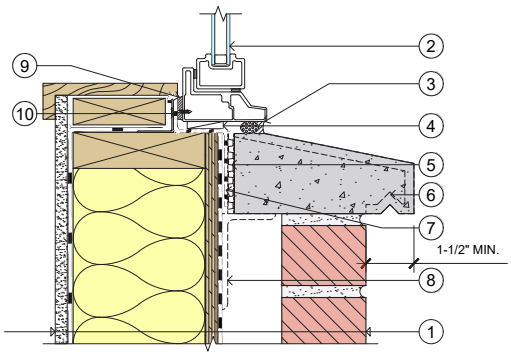
Air

Vapor

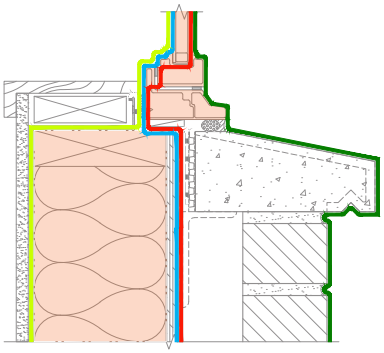
Thermal

Note: Control layers are shown for a Class IV permeance (and sometimes Class III permeance) air barrier and WRB field membrane and where a vapor retarder is located at the interior face of the framing.

WOOD-FRAMED BACKUP WALL: Window Sill Detail



Detail 6-18 Wood-Framed Backup Wall: Window Sill Detail



Water-Shedding Surface and Control Layers of Detail 6-18

Legend

1. Typical Assembly:
   - Interior gypsum board
   - Vapor retarder
   - Wood-framed wall with batt insulation
   - Exterior sheathing
   - Mechanically attached air barrier and WRB field membrane
   - Air cavity
   - Anchored masonry veneer
2. Non-flanged window on minimum ¼-inch thick intermittent plastic shims
3. Sealant over backer rod
4. Minimum ⅛-inch thick intermittent shims behind sill flange for drainage
5. Drainage matrix behind precast sill for drainage
6. Sloped precast sill with chamfered drip edge and sealant over backer rod at precast joints
7. Self-adhered sheet- or fluid-applied air barrier and WRB flashing membrane
8. Intermittent structural support for precast sill (beyond), detail anchor through air barrier and WRB membrane per membrane manufacturer requirements
9. Continuous air barrier sealant tied to continuous seal at window perimeter
10. Back dam angle at sill, minimum 1 inch tall, fasten window through back dam angle

Detail Discussion

This guide recommends that a sheet-metal flashing is not placed below the precast sill. It can prematurely degrade the mortar bed beneath the precast sill.

Air and water control layer continuity in this detail is achieved by sealing the window frame against the flashing membrane at the sill back dam. The flashing membrane is adhered to the field membrane.

Intermittent structural supports may be needed to support the sloped precast sill. Air and water control layer continuity should be considered at these supports; additional sealant and/or flashing membranes may be required.

Water-Shedding Surface & Control Layers

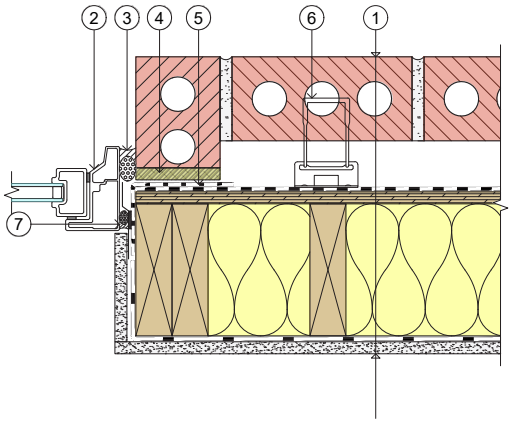
Water-Shedding Surface

Control Layers:

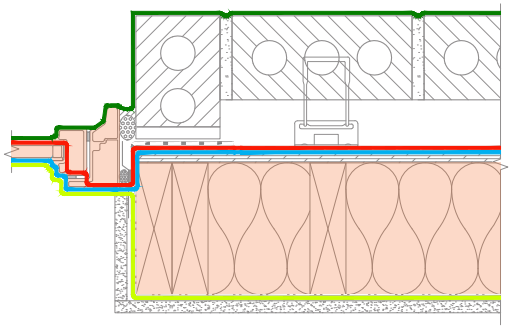
Water
Air
Vapor
Thermal

Note: Control layers are shown for a Class IV permeance (and sometimes Class III permeance) air barrier and WRB field membrane and where a vapor retarder is located at the interior face of the framing.

WOOD-FRAMED BACKUP WALL: Window Jamb Detail



Detail 6-19 Wood-Framed Backup Wall: Window Jamb Detail



Water-Shedding Surface and Control Layers of Detail 6-19

Legend

1. Typical Assembly:
   - Interior gypsum board
   - Vapor retarder
   - Wood-framed wall with batt insulation
   - Exterior sheathing
   - Mechanically attached air barrier and WRB field membrane
   - Air cavity
   - Anchored masonry veneer
2. Non-flanged window
3. Sealant over backer rod
4. Minimum ½-inch drainage path, fill with free-draining compressible filler
5. Self-adhered sheet- or fluid-applied air barrier and WRB flashing membrane
6. Masonry veneer anchor
7. Continuous air barrier sealant tied to continuous seal at window perimeter

Detail Discussion

A drainage pathway is maintained between the brick return and the flashing membrane at the rough opening. This pathway may be filled with a free-draining material such as semi-rigid mineral fiber insulation or drainage matrix. Avoid packing this cavity with mortar, which can transfer moisture from the masonry veneer to the flashing membrane and possibly the sheathing beneath.

A non-flanged window is depicted in this set of details. Flanged windows may be used with masonry veneer but non-flanged window are often considered for the ease of future window removal and replacement.

Where exterior insulation is used with a wood-framed backup wall condition, refer to the steel stud-framed details for similar detailing.

Water-Shedding Surface & Control Layers

Water-Shedding Surface

Control Layers:

Water

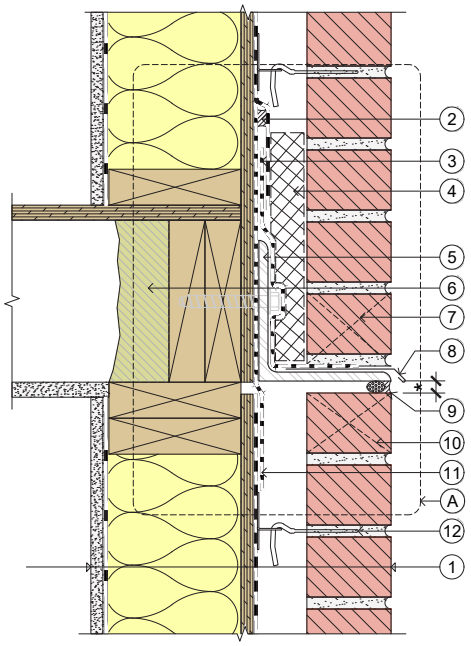
Air

Vapor

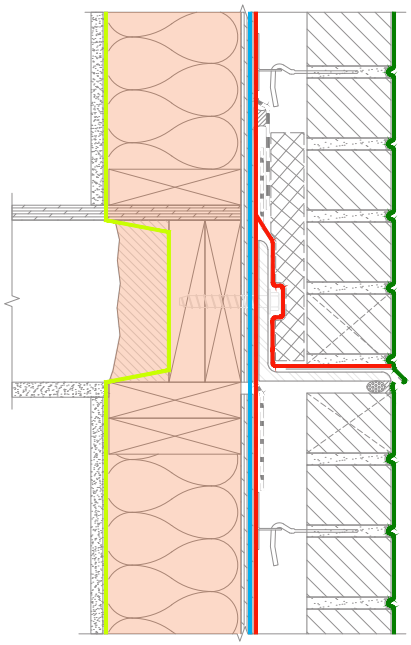
Thermal

Note: Control layers are shown for a Class IV permeance (and sometimes Class III permeance) air barrier and WRB field membrane and where a vapor retarder is located at the interior face of the framing.

WOOD-FRAMED BACKUP WALL: Floor Line Detail



Detail 6-20 Wood-Framed Backup Wall: Floor Line Detail



Water-Shedding Surface and Control Layers of Detail 6-20

Legend

1. Typical Assembly:
   - Interior gypsum board
   - Vapor retarder
   - Wood-framed wall with batt insulation
   - Exterior sheathing
   - Mechanically attached air barrier and WRB field membrane
   - Air cavity
   - Anchored masonry veneer
2. Continuous air barrier sealant
3. Self-adhered sheet- or fluid-applied air barrier and WRB flashing membrane
4. Mortar collection mesh
5. Hot-dipped galvanized-steel standoff shelf angle
6. Closed-cell spray foam insulation
7. Vent/weep at maximum 24 inches on-center
8. Sheet-metal flashing with hemmed drip edge
9. Sealant over backer rod
10. Vent/weep at maximum 24 inches on-center (optional)
11. Self-adhered sheet- or fluid-applied air barrier and WRB flashing membrane
12. Masonry veneer anchor

A. See alternate shelf angle support detailing options on page 63

*Minimum ⅜-inch to allow for movement. Confirm dimension with Engineer of Record.

Detail Discussion

See Shelf Angle Flashing Options on page 63 for alternative flashing that may be used at the window head condition.

A continuous bead of air barrier sealant exists between the flashing membrane and the mechanically attached air barrier and WRB field membrane to maintain air control layer continuity.

Water-Shedding Surface & Control Layers

Water-Shedding Surface

Control Layers:

Water

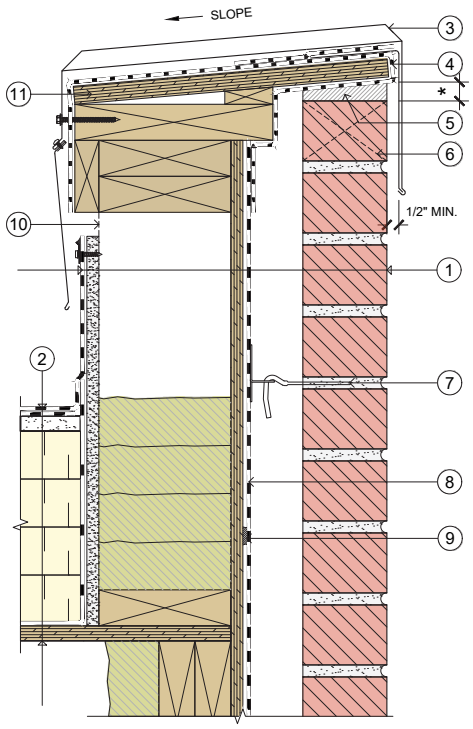
Air

Vapor

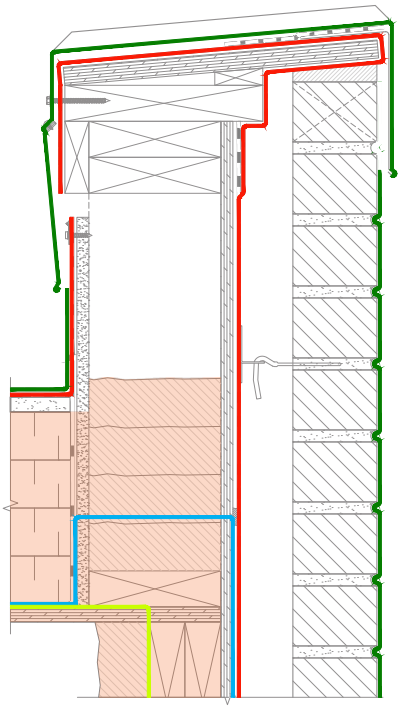
Thermal

Note: Control layers are shown for a Class IV permeance (and sometimes Class III permeance) air barrier and WRB field membrane and where a vapor retarder is located at the interior face of the framing.

WOOD-FRAMED BACKUP WALL: Parapet Detail



Detail 6-21 Wood-Framed Backup Wall: Parapet Detail



Water-Shedding Surface and Control Layers of Detail 6-21

Legend

1. Parapet Assembly:
   - Roof membrane
   - Exterior sheathing
   - Vented wood-framed parapet
   - Exterior sheathing
   - Mechanically attached air barrier and WRB field membrane
   - Air cavity
   - Anchored masonry veneer
2. Conventional roof assembly
3. Standing-seam sheet-metal coping with gasketed washer fasteners
4. High-temperature self-adhered membrane
5. Compressible filler
6. Vents at maximum 24 inches on-center (optional)
7. Masonry veneer anchor
8. Closed-cell spray foam insulation
9. Continuous air-barrier sealant between sheathing and mechanically attached air barrier and WRB field membrane
10. Insect screen
11. Preservative-treated wood blocking

*Minimum ⅜-inch to allow for movement. Confirm dimension with Engineer of Record.

Detail Discussion

At the roof parapet transition, the closed-cell spray foam insulation and the continuous bead of air barrier sealant provide continuity of the air control layer. Additionally, the closed-cell spray foam assists with vapor control at this transition. An alternative to the use of closed-cell spray foam insulation within the parapet is to provide a prestrip membrane below the parapet framing to transition the air control layer from the wall to the roof assembly. This requires the exterior sheathing to be broken at the parapet and the membrane installation to be coordinated with framing.

A compressible filler is used between the masonry veneer and parapet blocking to allow for differential movement between the backup wall and masonry veneer while preventing insects and debris from entering the cavity behind the masonry veneer.

Water-Shedding Surface & Control Layers

Water-Shedding Surface

Control Layers:

Water
Air
Vapor
Thermal

Note: Control layers are shown for a Class IV permeance (and sometimes Class III permeance) air barrier and WRB field membrane and where a vapor retarder is located at the interior face of the framing.

WOOD-FRAMED BACKUP WALL: Parapet 3D Detail

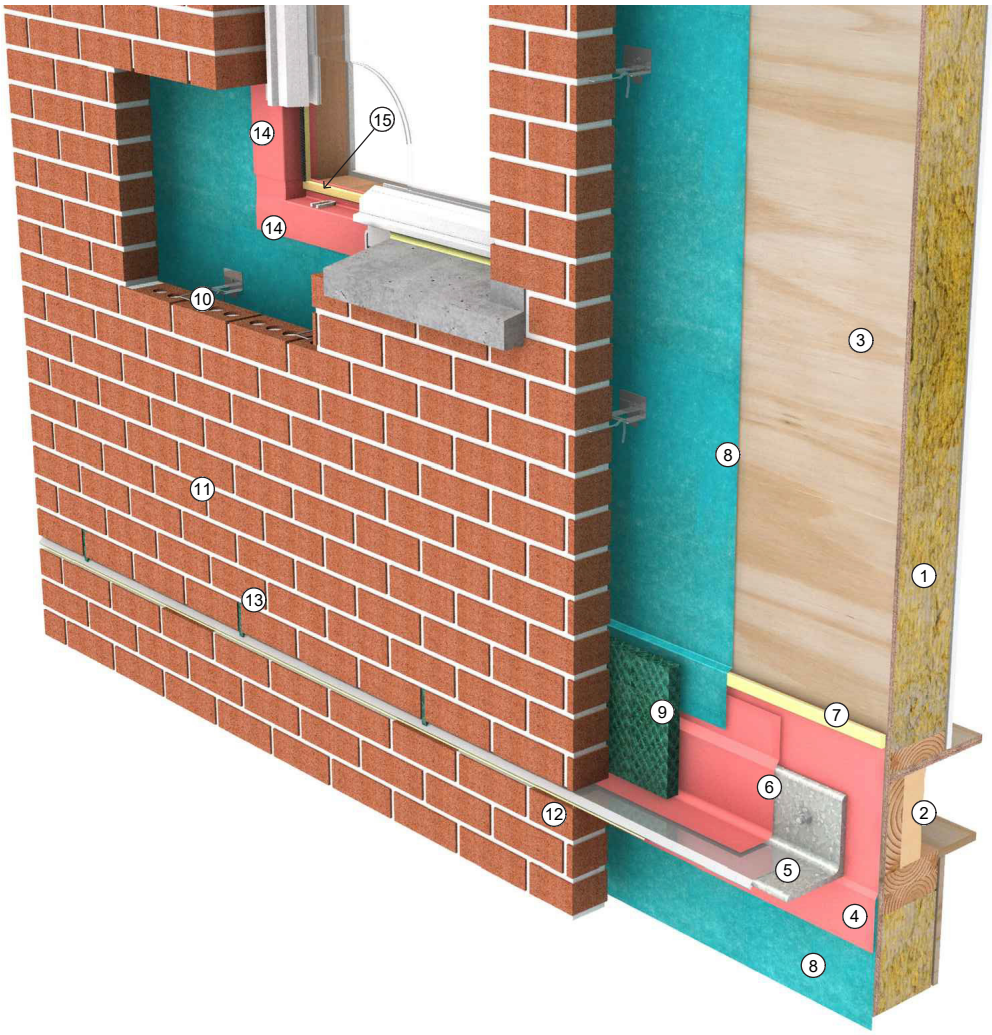
Detail 6-22 Wood-Framed Backup Wall: Parapet 3D Detail

Legend

1. Wood-framed wall with batt insulation
2. Exterior sheathing
3. Vented wood-framed parapet
4. Closed-cell spray foam insulation
5. Sloped preservative-treated blocking
6. Mechanically attached air barrier and WRB field membrane
7. Sheet-applied or fluid-applied air barrier and WRB flashing membrane
8. Masonry veneer anchor, fastened through air barrier sealant, fluid-applied flashing membrane, or self-adhered membrane patch per WRB system manufacturer recommendations
9. Anchored masonry veneer
10. Hot-dipped galvanized-steel loose lintel
11. Sheet-metal head flashing with hemmed drip edge and end dams beyond
12. Continuous air barrier sealant
13. Conventional roof assembly
14. High-temperature self-adhered membrane
15. Sloped standing-seam sheet-metal coping with gasketed washer fasteners
16. Closed-cell spray foam insulation
17. Flanged window

Refer to Detail 6-17, Detail 6-19, and Detail 6-21 for more information.

WOOD-FRAMED BACKUP WALL: Base-of-Wall 3D Detail



Detail 6-23 Wood-Framed Backup Wall: Base-of-Wall 3D Detail

Legend

1. Wood-framed wall with batt insulation
2. Closed-cell spray foam insulation
3. Exterior sheathing
4. Self-adhered or fluid-applied flashing membrane
5. Sheet-metal flashing with hemmed drip edge over hot-dipped galvanized-steel angle
6. Self-adhered or fluid-applied flashing membrane
7. Continuous air barrier sealant
8. Mechanically attached air barrier and WRB field membrane
9. Mortar collection mesh
10. Masonry veneer anchor, fastened through air barrier sealant, fluid-applied flashing membrane or self-adhered membrane patch per WRB system manufacturer recommendations
11. Anchored masonry veneer
12. Sealant over backer rod
13. Weep/vent at maximum 24-inches on-center
14. Self-adhered sheet- or fluid-applied air barrier and WRB flashing membrane
15. Continuous air barrier sealant tied to continuous seal at window perimeter