
# Designing & Detailing Adhered Veneer Systems with Thin Brick and Stone

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Thin Brick & Installation Systems

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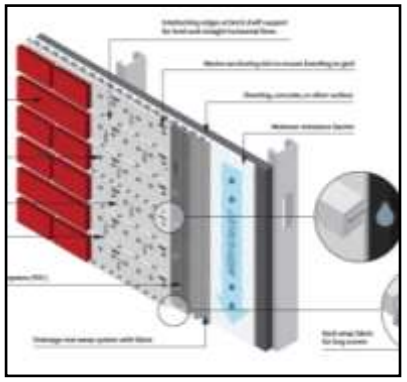
# Brick It™ - Company Profile

BRICK IT
Thin Brick & Installation Systems


- Thin Bricks
- Thin Stone
- Metal Grids
- Accessories


SIDING
PUTS ON A
NEW FACE



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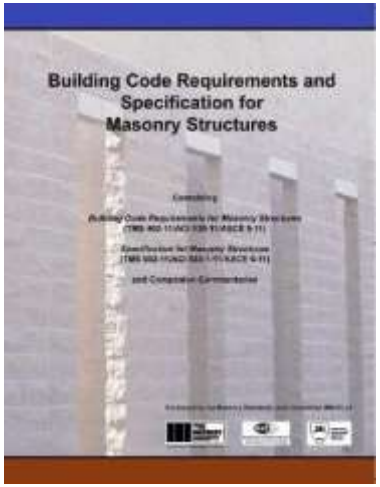
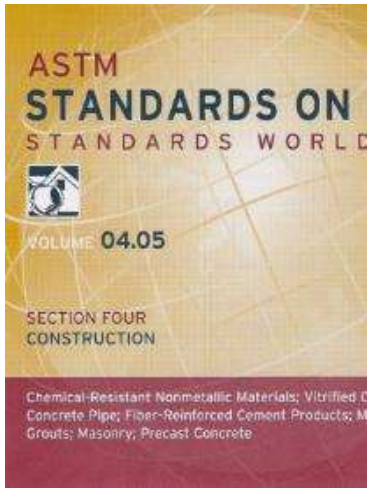
# CODES AND STANDARDS





# Codes and Standards

- Definitions
- IBC 2012
- IRC 2102
- Local Codes
- MSJC 530
- ASTM C216
- ASTM C1088
- Precast Stone AC51
- ASTM C15.11
- Others
- ICC Evaluation Reports
- Manufacturer’s Instructions

# Definition

## Adhered Veneer

IBC 2012, Chapter 2 – Definitions:
*Veneer* secured and supported through the adhesion of an approved bonding material applied to an *approved backing.*

# International Building Code – IBC 2012

## Chapter 14 – Exterior Walls

### SECTION 1401 GENERAL

**Section 1401.1 Scope.** The provisions of this chapter shall establish the minimum requirements for exterior walls; exterior wall coverings; exterior wall openings; …

**1403.1 General.** The provisions of this section shall apply to exterior walls, wall coverings and components thereof.

Adhered veneers is classified as a wall covering in Section 1405.10

# 2012 IBC

## Chapter 14 – Exterior Walls

1403.2 **Weather protection**.

1. Exterior walls shall provide the building with a weather-resistant *exterior wall envelope.*

2. The *exterior wall envelope* shall include flashing, as described in Section 1405.4.

3. The *exterior wall envelope* shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a *water-resistive barrier* behind the exterior veneer, as described in Section 1404.2,

# 2012 IBC

## Chapter 14 – Exterior Walls

1403.2 **Weather protection**.

4. and a means for draining water that enters the assembly to the exterior. Protection against condensation in the *exterior wall* assembly shall be provided in accordance with Section 1405.3.

Exceptions - Concrete & Masonry: See Chapter 19, 21 & MSJC – Code requirements still applicable

- Testing
- EIFS, see Chapter 1408.4.1

# 2012 IBC

## SECTION 1404 – MATERIALS

**1404.2 Water-resistive barrier**.

A minimum of one layer of No.15 asphalt felt, complying with ASTM D 226 for Type 1 felt or other *approved* materials, shall be attached to the studs or sheathing, with flashing as described in Section 1405.4 in such a manner as to provide a continuous *water-resistive barrier* behind the *exterior wall* veneer.

Comment: Consider high performance membrane air/moisture/vapor barriers

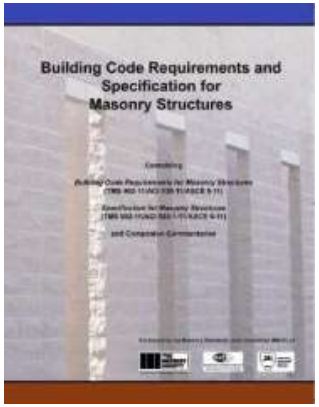
**1404.4 Masonry**.

Exterior walls of masonry construction shall be designed and constructed in accordance with this section and Chapter 21. Masonry units, mortar and metal accessories used in anchored and adhered veneer shall meet the physical requirements of Chapter 21. The backing of anchored and adhered veneer shall be of concrete, masonry, steel framing or wood framing.

# 2012 IBC

## SECTION 1405 – INSTALLATION OF WALL COVERINGS

**1405.10 Adhered masonry veneer.** Adhered masonry veneer shall comply with the applicable requirements in Section 1405.10 **and** Sections 6.1 and 6.3 of TMS 402/ACI 530 / ASCE 5.




**1405.10.1 Exterior adhered masonry veneer.** Exterior adhered masonry veneer shall be installed in accordance with Section 1405.10 and in accordance with the **manufacturer's instructions**.

**1405.10.1.1 Water-resistive barriers.** Water-resistive barriers shall be installed as required in Section 2510.6. (For wood based sheathing)

# 2012 IBC

**SECTION 1405 – INSTALLATION OF WALL COVERINGS**

**1405.10.1.2 Flashing at foundation.** A corrosion-resistant screed or flashing of a minimum 0.019-inch (0.48 mm) or 26 gauge galvanized or plastic with a minimum vertical attachment flange of 3½ inches (89 mm) shall be installed to extend a minimum of 1 inch (25 mm) below the foundation plate line on exterior stud walls in accordance with Section 1405.4. The water-resistive barrier shall lap over the exterior of the attachment flange of the screed or flashing.

**1405.10.1.3 Clearances.** On exterior stud walls, adhered masonry veneer shall be installed a minimum of 4 inches (102 mm) above the earth, or a minimum of 2 inches (51 mm) above paved areas, or a minimum of ½ inch (12 mm) above exterior walking surfaces which are supported by the same foundation that supports the exterior wall.

# 2012 IBC

CHAPTER 25 – GYPSUM BOARD AND PLASTER

SECTION 2510 - LATHING AND FURRING FOR CEMENT PLASTER STUCCO

**Section 2510.6 Water-resistive barriers.** *Water-resistive barriers* shall be installed as required in Section 1404.2 and, where applied over wood-based sheathing, shall include a water-resistive vapor-permeable barrier with a performance at least equivalent to two layers of Grade D paper. The individual layers shall be installed independently such that each layer provides a separate continuous plane and any flashing (installed in accordance with Section 1405.4) intended to drain to the water-resistive barrier is directed between the layers.

**Exception:** Where the *water-resistive barrier* that is applied over wood-based sheathing has a water resistance equal to or greater than that of 60-minute Grade D paper and is separated from the stucco by an intervening, substantially nonwater-absorbing layer or drainage space.

** Grade D paper is not asphalt felt.

# IBC & IRC Codes

IBC 1404.2 & IRC 702.3 Water Resistive Barrier (WRB)
Steel Stud / Non-Wood Based Sheathing

- Minimum one-layer of no. 15 asphalt felt complying with ASTM D 226 for Type 1 felt
- Industry / manufacturer recommendations
  - Combination of 2 layers (similar to 2510.6) or
  - An Air/Moisture/Vapor membrane (AMV) with equal properties or
  - A WRB or AMV with a drainage mat

# IRC Codes

International Residential Code

IRC – R 703
Exterior Wall Coverings

IBC Similar Requirements

# MSJC Adhered Veneer Codes

## 6.1.3 – Design of Adhered Veneer

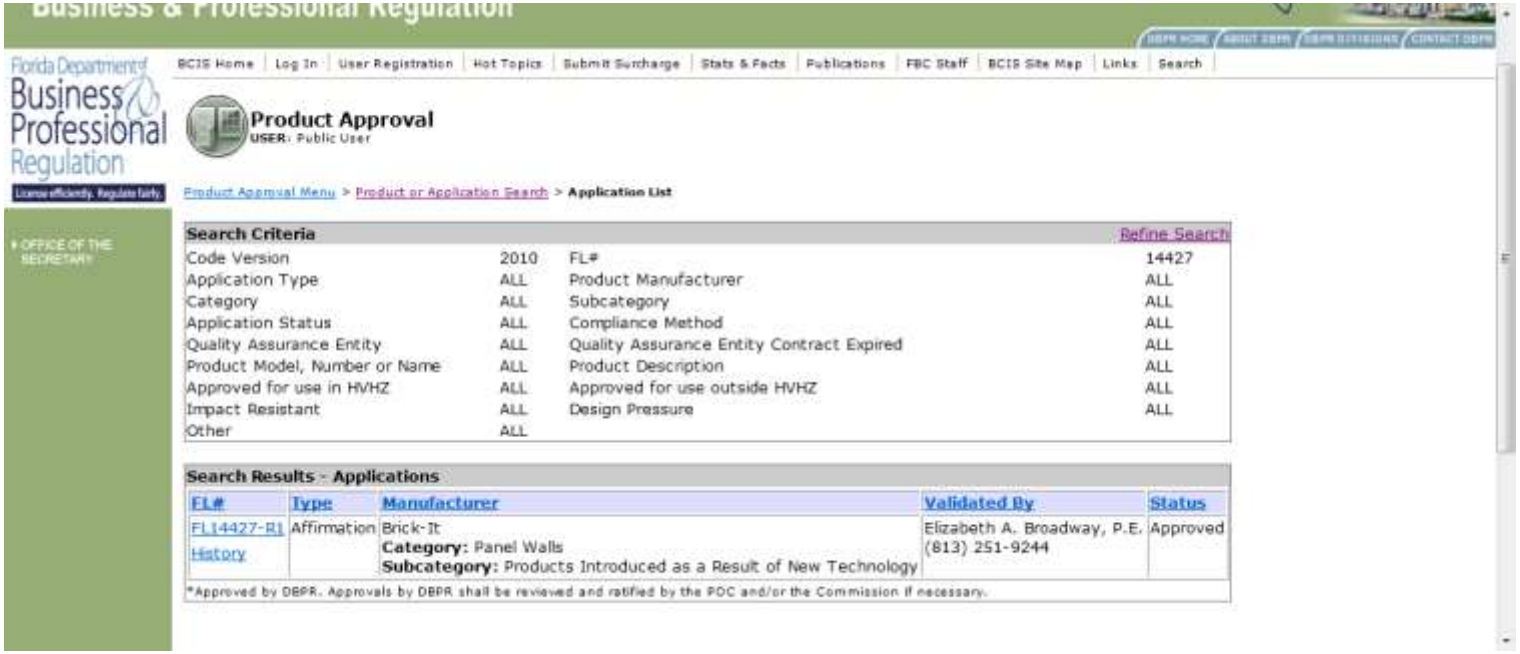
1. Meet requirements of 6.1.6 and
2. Rational design of 6.2.1 or
3. Prescriptive Section 6.3.2
4. 6.1.6 - General Design Requirements
5. Backing to resist water penetration
6. Weeps and flashing
7. Accommodate differential movement

# Other Standards

- Brick: ASTM C216 / ASTM C1088
- Mortar: ASTM C 270 (Proportion Specification for Type N / PCL Mortar
  - Manufacturer / air-entrained - modified for Thin Brick
- CMU / Concrete Brick: ASTM C-90
- Stone: Varies

# Manufacturer's Testing

## Dade County Florida Test



Business & Professional Regulation

Florida Department of Business Professional Regulation

BCIS Home | Log In | User Registration | Hot Topics | Submit Surcharge | Stats & Facts | Publications | FBC Staff | BCIS Site Map | Links | Search

**Product Approval**
USER: Public User

Product Approval Menu > Product or Application Search > **Application List**

| Search Criteria | | | | Refine Search |
|---|---|---|---|---|
| Code Version | 2010 | FL# | 14427 | |
| Application Type | ALL | Product Manufacturer | ALL | |
| Category | ALL | Subcategory | ALL | |
| Application Status | ALL | Compliance Method | ALL | |
| Quality Assurance Entity | ALL | Quality Assurance Entity Contract Expired | ALL | |
| Product Model, Number or Name | ALL | Product Description | ALL | |
| Approved for use in HVHZ | ALL | Approved for use outside HVHZ | ALL | |
| Impact Resistant | ALL | Design Pressure | ALL | |
| Other | ALL | | | |

**Search Results - Applications**

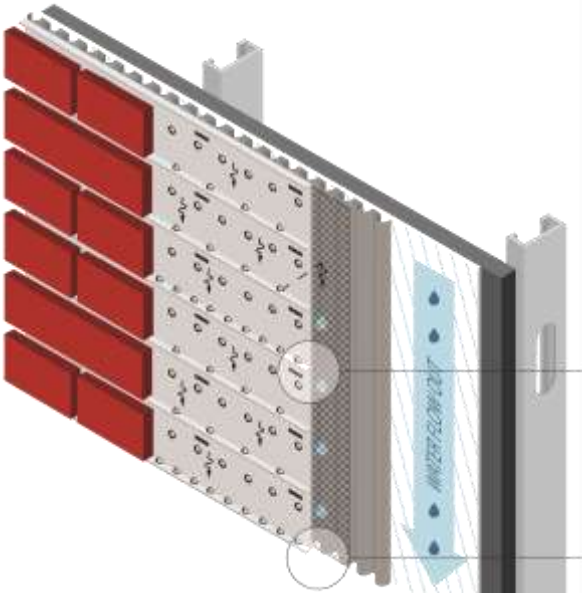
| FL# | Type | Manufacturer | Validated By | Status |
|---|---|---|---|---|
| FL14427-R1<br>History | Affirmation | Brick-It<br>**Category:** Panel Walls<br>**Subcategory:** Products Introduced as a Result of New Technology | Elizabeth A. Broadway, P.E.<br>(813) 251-9244 | Approved |

*Approved by DBPR. Approvals by DBPR shall be reviewed and ratified by the POC and/or the Commission if necessary.

# Adhesive Standards

- ASTM C297 / C297M - 04(2010) Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions - Shear Strength
- ASTM C794 - 10 Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants - Standard pull test
- ASTM D3498 - 03(2011) - Standard Specification for Adhesives for Field-Gluing Plywood to Lumber Framing for Floor Systems
- ASTM C557 - 03(2009)e1 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing
- APA 1984. AFG-01: Adhesives for Field-Gluing Plywood to Wood Framing. American Plywood Association - APA – The Engineered Wood Association

# DETAILS AND DESIGN



# Adhered Veneer System Advantages

- Thin & lightweight is sustainable
- Less weight for structure – no shelf angles
- Extended foundation not required
- Thin wall system – more rentable/useable space
- Save costs
- Saves time
- Uses same brick (ASTM C216 / C1088)
- Many types, sizes, colors & materials

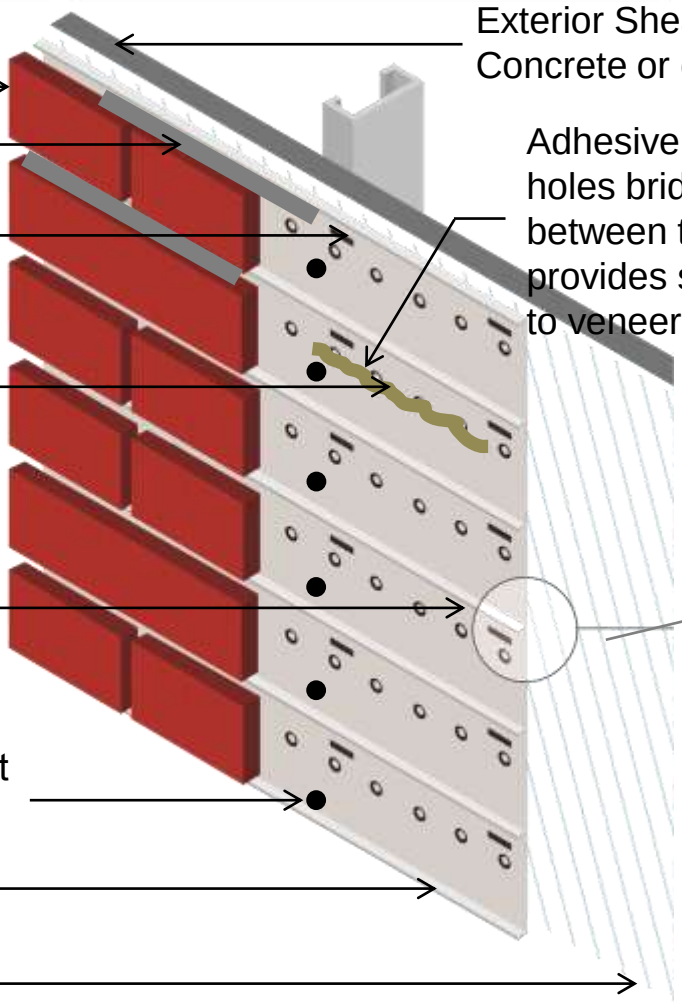
# Metal Grid Systems

- Ledge provides support and alignment
- Slots provide bonding of mortar and grid
- Holes allows adhesive to provide solid backing
- Create equal weight distribution
- Quick, fast and less expensive
- Installation (except jointing) – year round
- Interior & exterior applications
- Accepts many brick types and sizes
- Residential and commercial applications

# System Components

- Metal Grid Support Systems
- Thin Brick or Thin Stone
- Adhesive
- Mortar Joints
- Drainage Mat (Option)
- Air/Moisture/Vapor Barrier
- Warranties
- Accessories

# Designer Metal Grid Panel



Exterior Sheathing / CMU / Concrete or other back-up system

Thin Brick

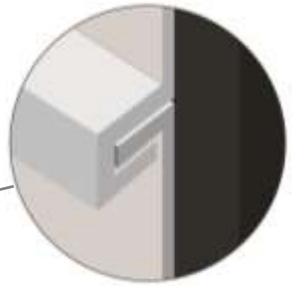
Mortar Joint

Adhesive that seeps through holes bridges any minor voids between the panel and substrate provides solid installation crucial to veneer longevity.

Linear slots provide bonding of mortar joint to metal grid

Linear row of holes provides additional mechanical bond between brick and grid, and some substrates when adhesive installed.

¼" metal ledge provides support for thin brick shelf and assures straight and level brick installation.



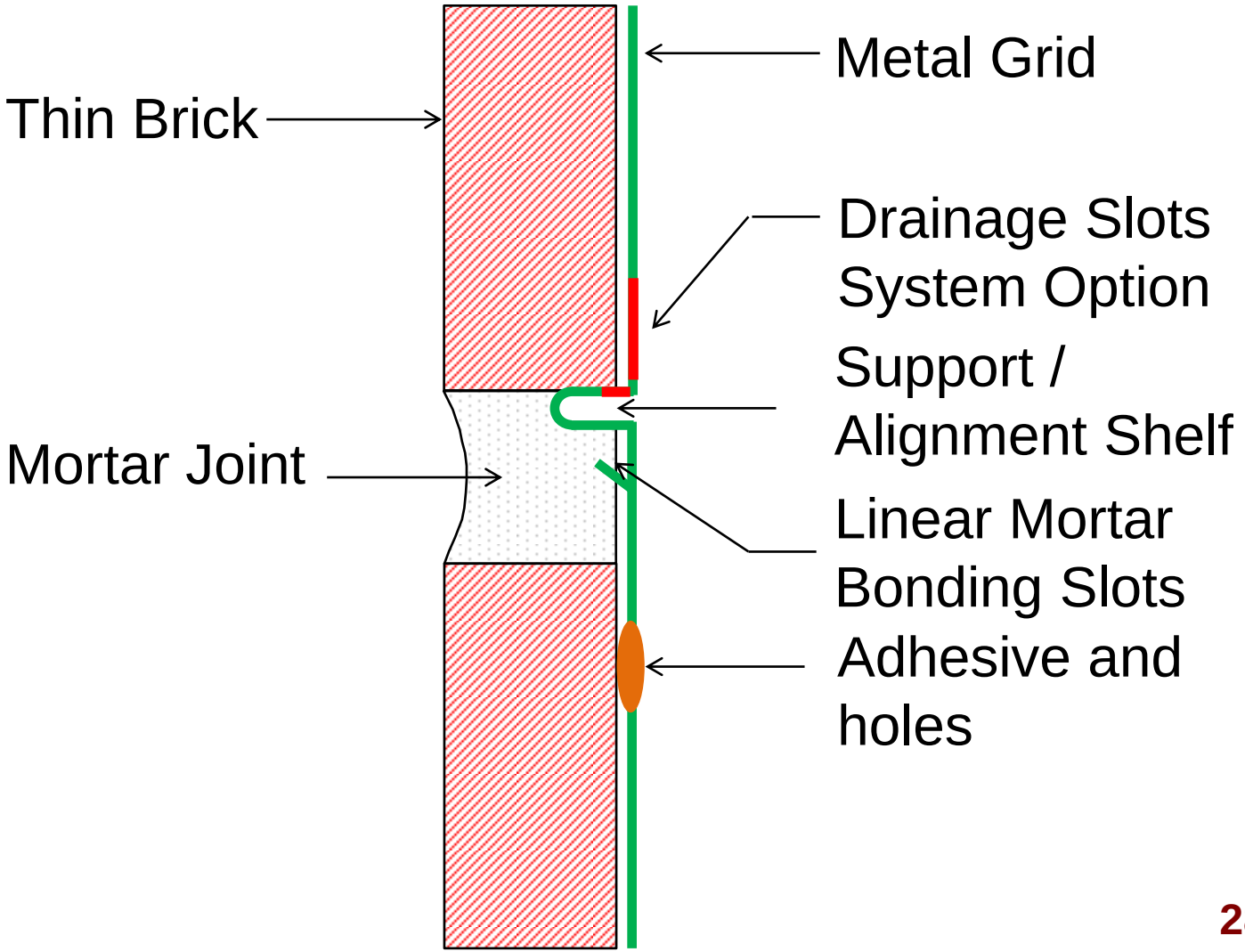
Fasteners – 16" o.c. horizontally into studs at very brick course – not less than 3 every 8".

Metal panels have a male and female end which provides an interlocking connection between panels.

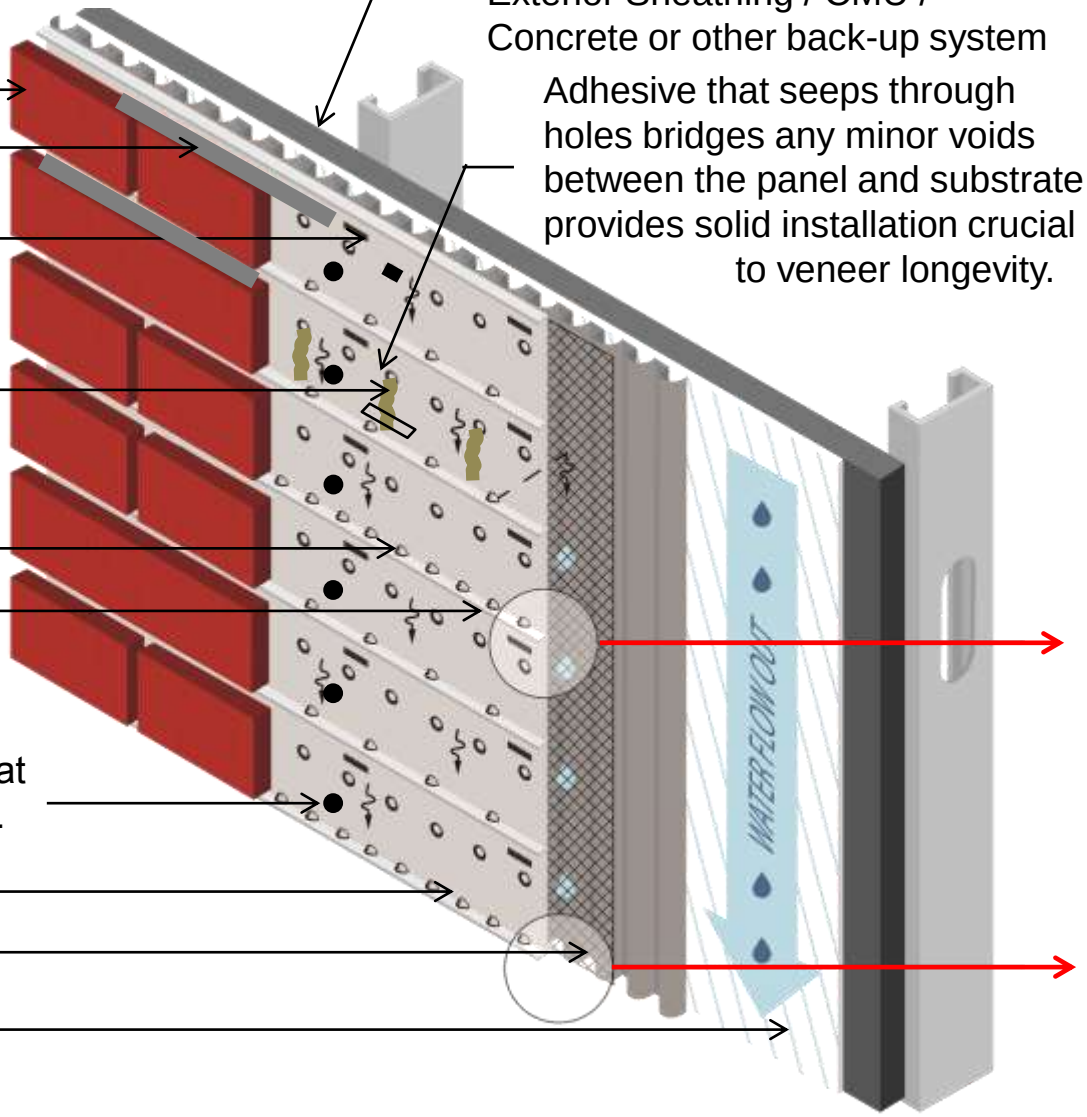
Designer Metal Grid Panel
8" High by 4' & 8' Long

Water-Resistive Barrier (WRB)

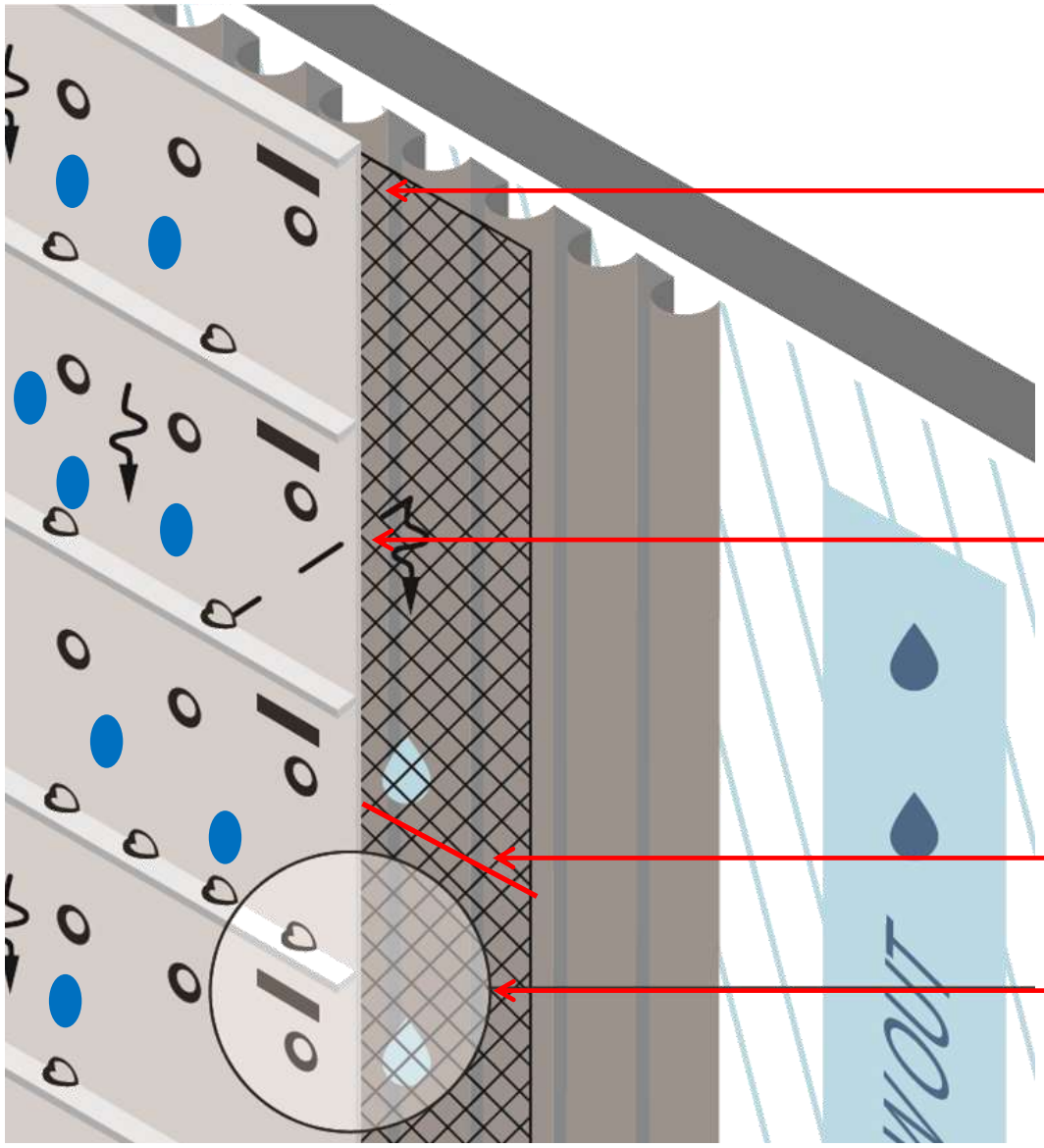
# Metal Grid Profile



# Drainage Metal Grid Panel



# Detail at Drainage Weeps



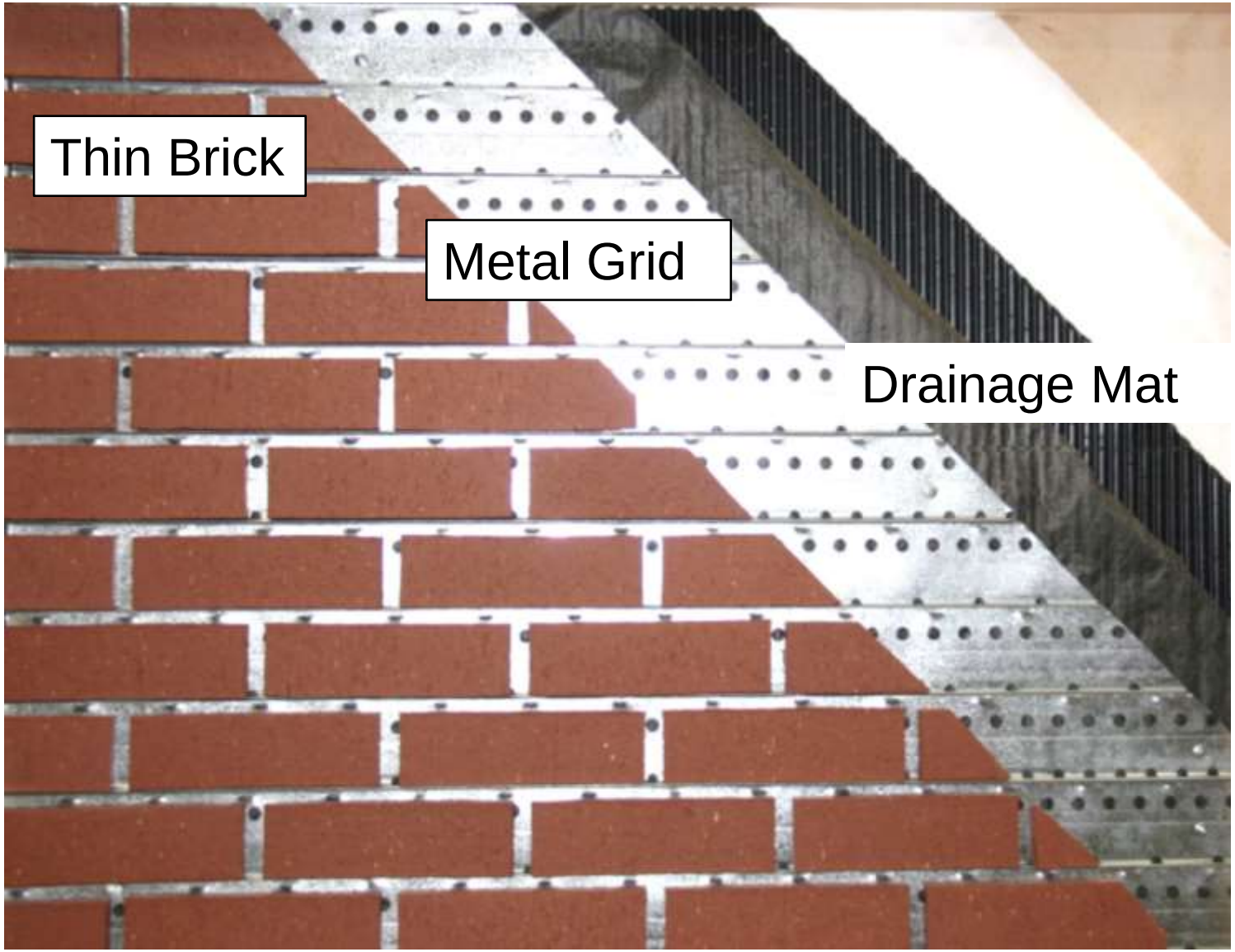
Fabric prevents mortar from penetrating into drainage slot

Offset 3/8” drainage holes at shelf direct water into drainage mat

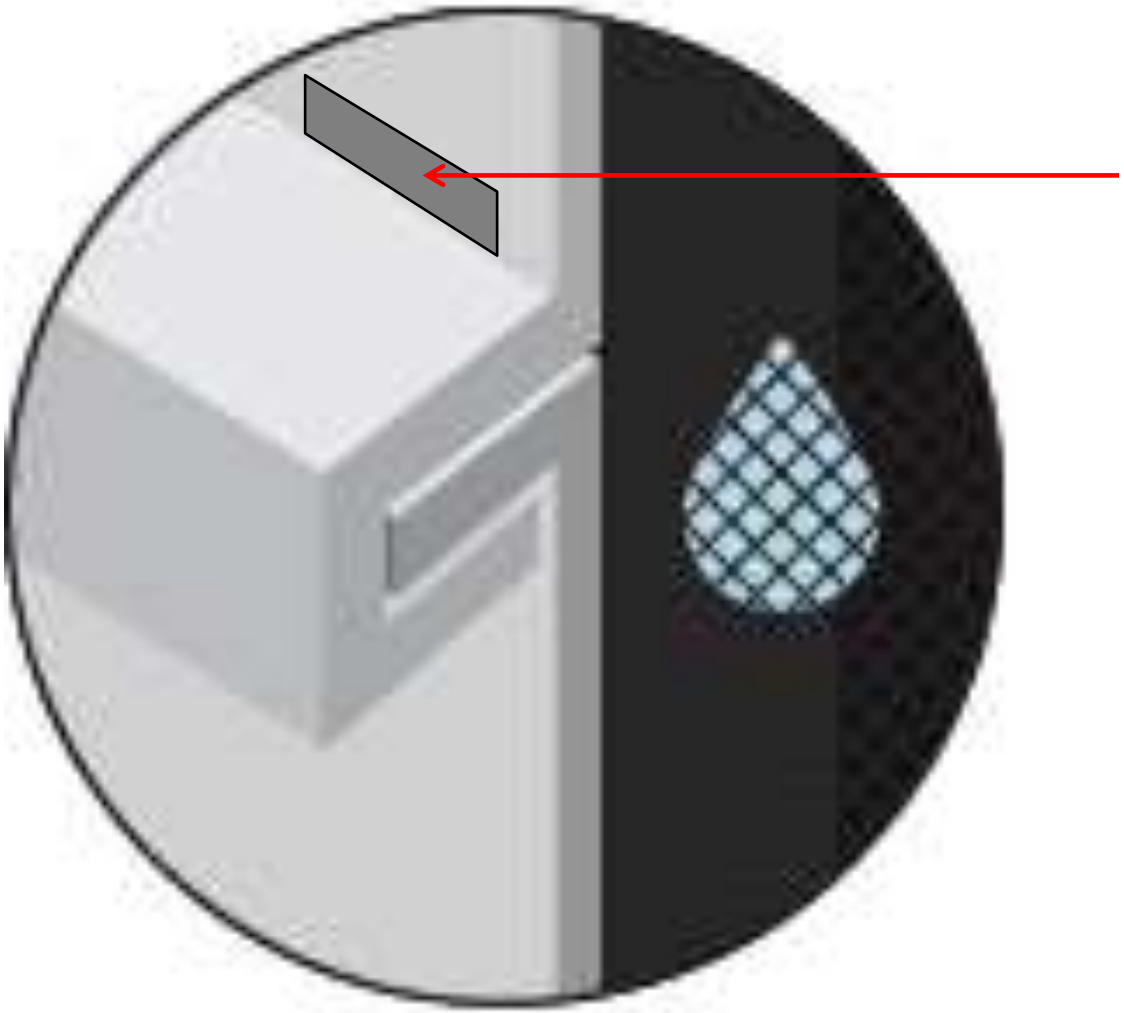
Drainage mat with fabric cover. Lap fabric per manufacturers instructions

See Next Slide

# Drainage System

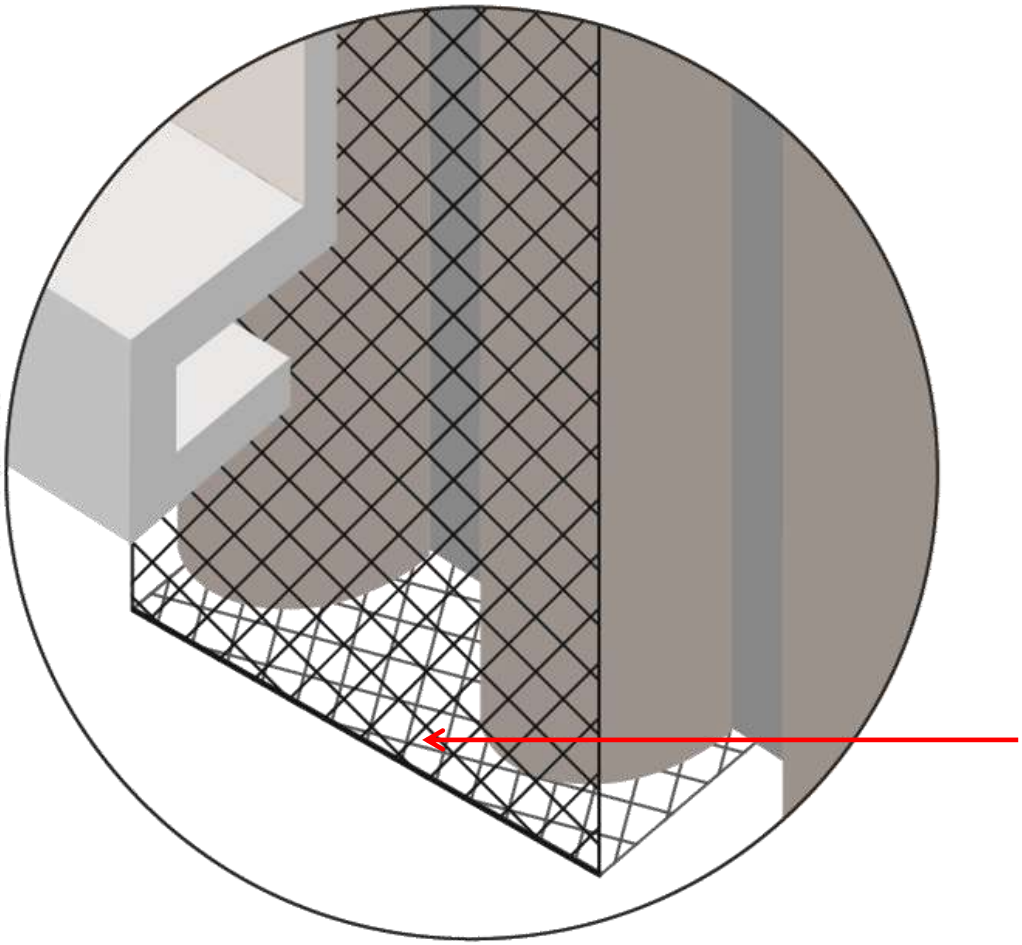


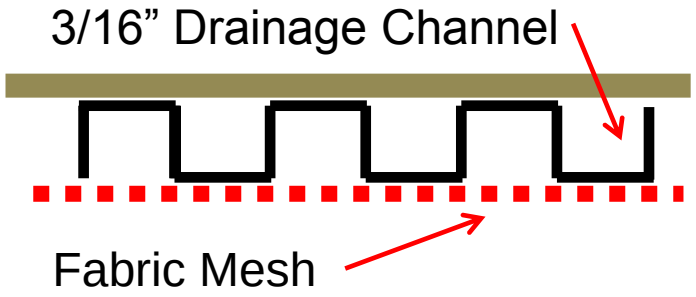
# Drainage Hole at Lap



Vertical section of" drainage hole permits water to drain into drainage mat.

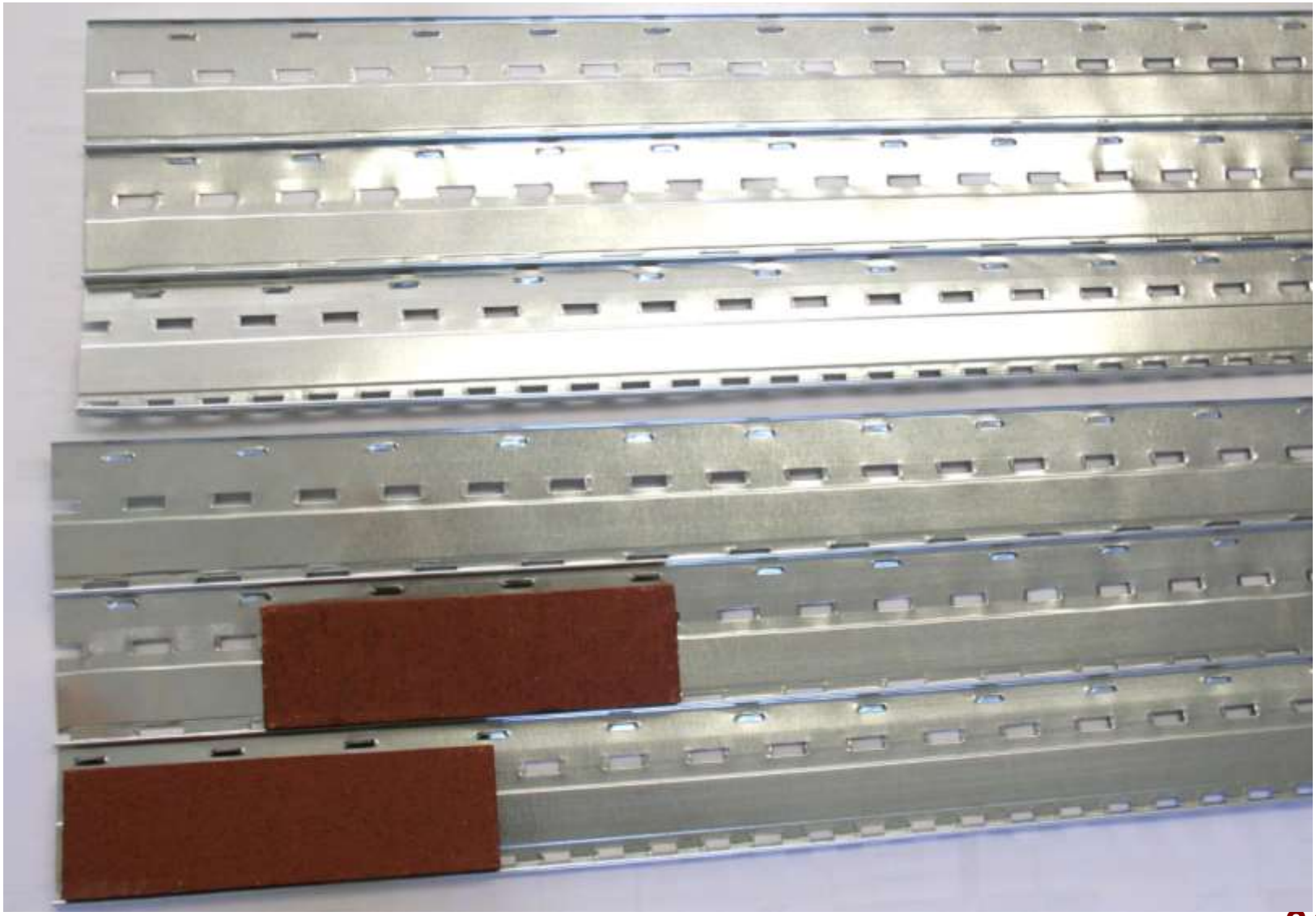
# Drainage Mat Detail



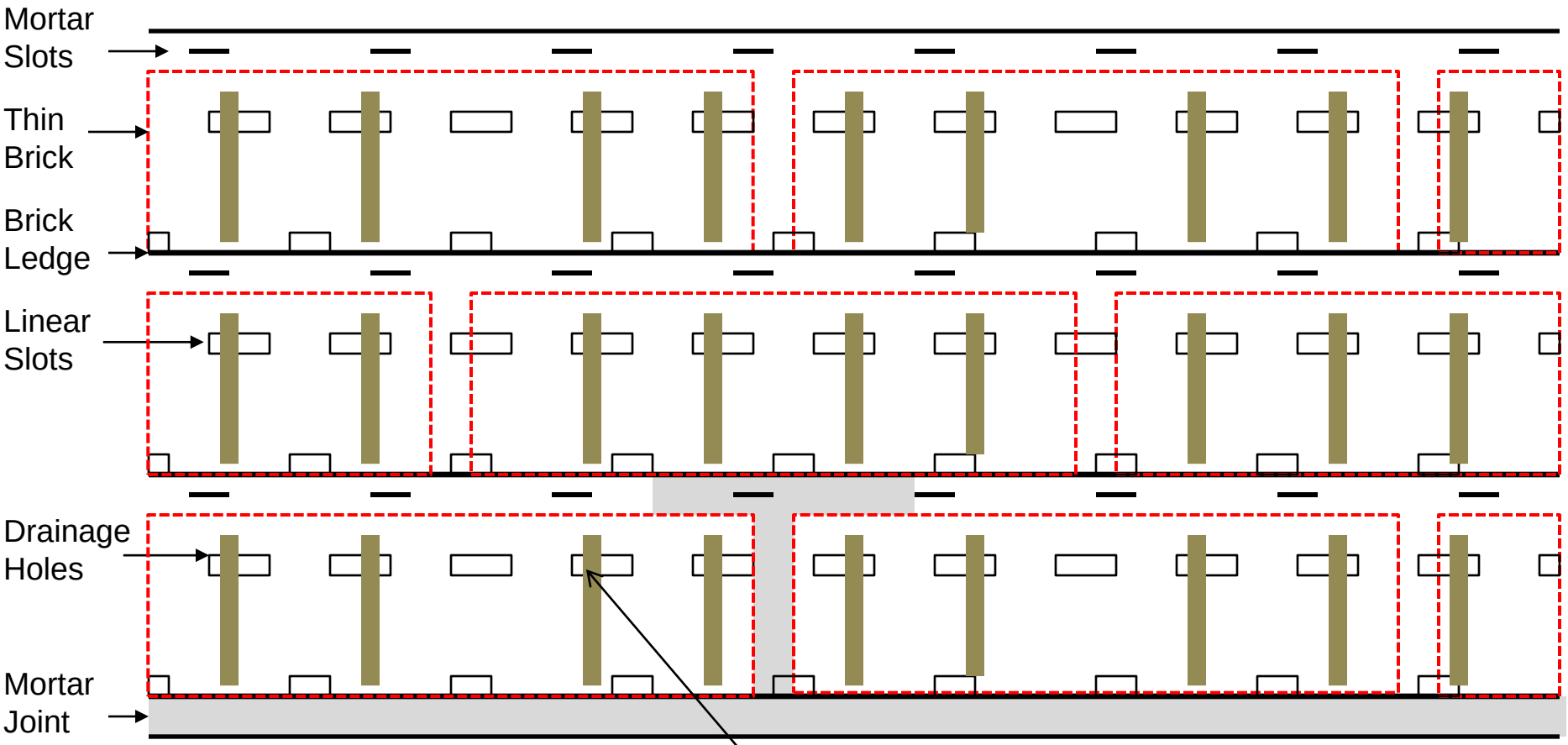



Drainage mat with fabric cover. Lap fabric per manufacturers instructions. Fold fabric at base of wall and at other terminations for insect screen option.

# New Metal Panel Drainage System



# New Metal Panel Drainage System



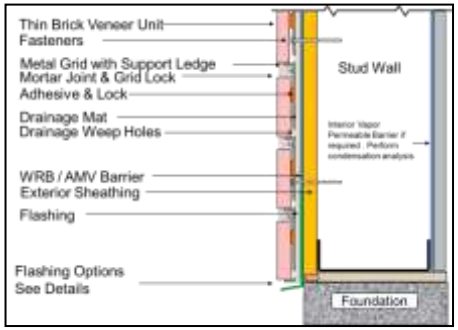

Area of adhesive = about ½" wide by 8" or 4 sq. in per brick.

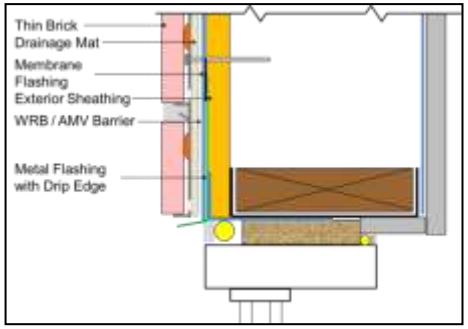
Adhesive at holes bridges any minor voids between the panel and substrate provides solid installation crucial to veneer longevity.

# DETAILS

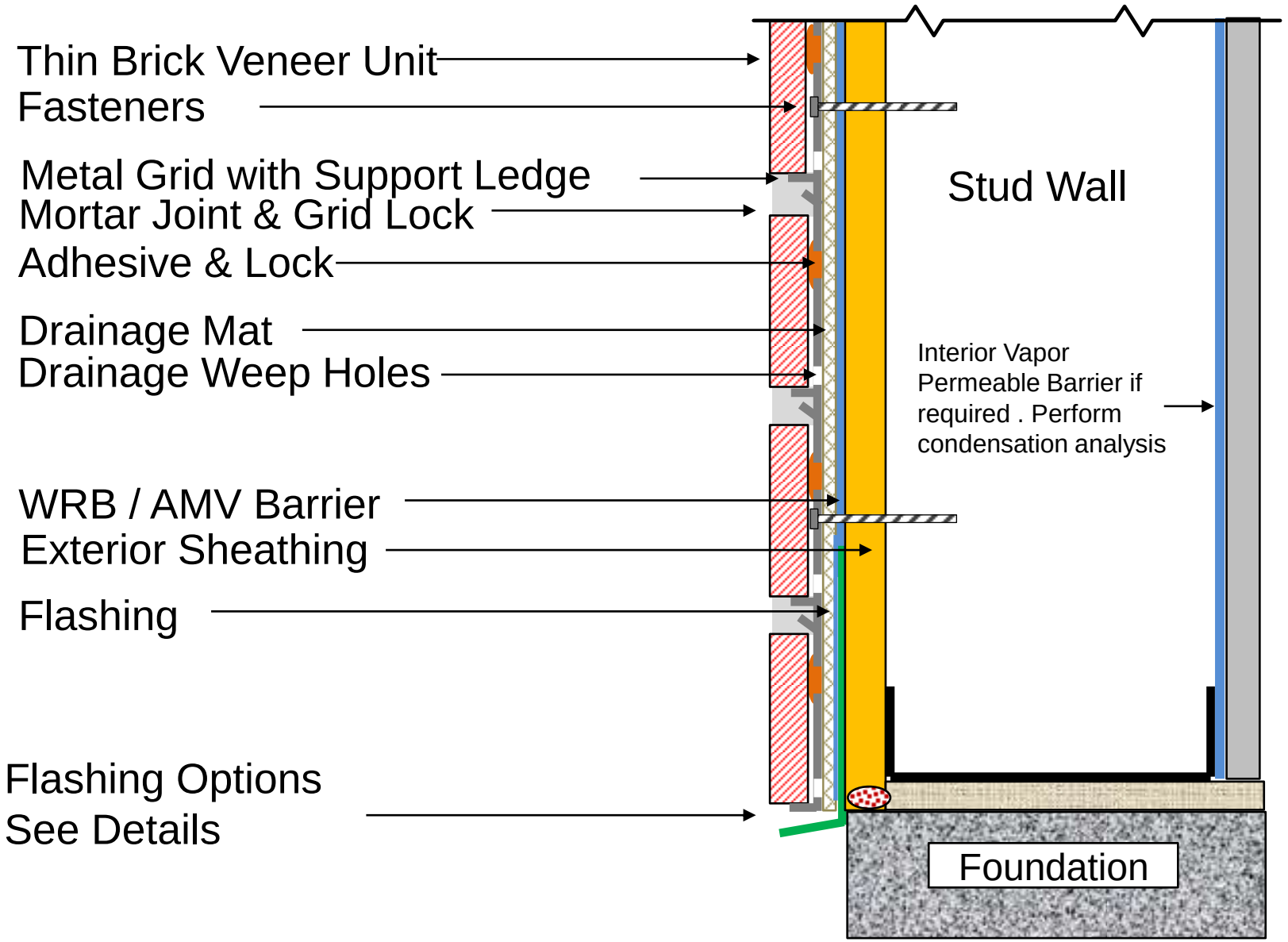
There are many acceptable details at the base of walls, at windows, doors, soffits and other locations. Each project will vary and the designer should always modify standard details to accommodate various window frames, curtain wall configurations and other design features.

*The following details are only a guide and are intended for use by professional architects and designers and should be modified to meet design and code requirements. Brick It disclaims all legal responsibility for applying the information.*

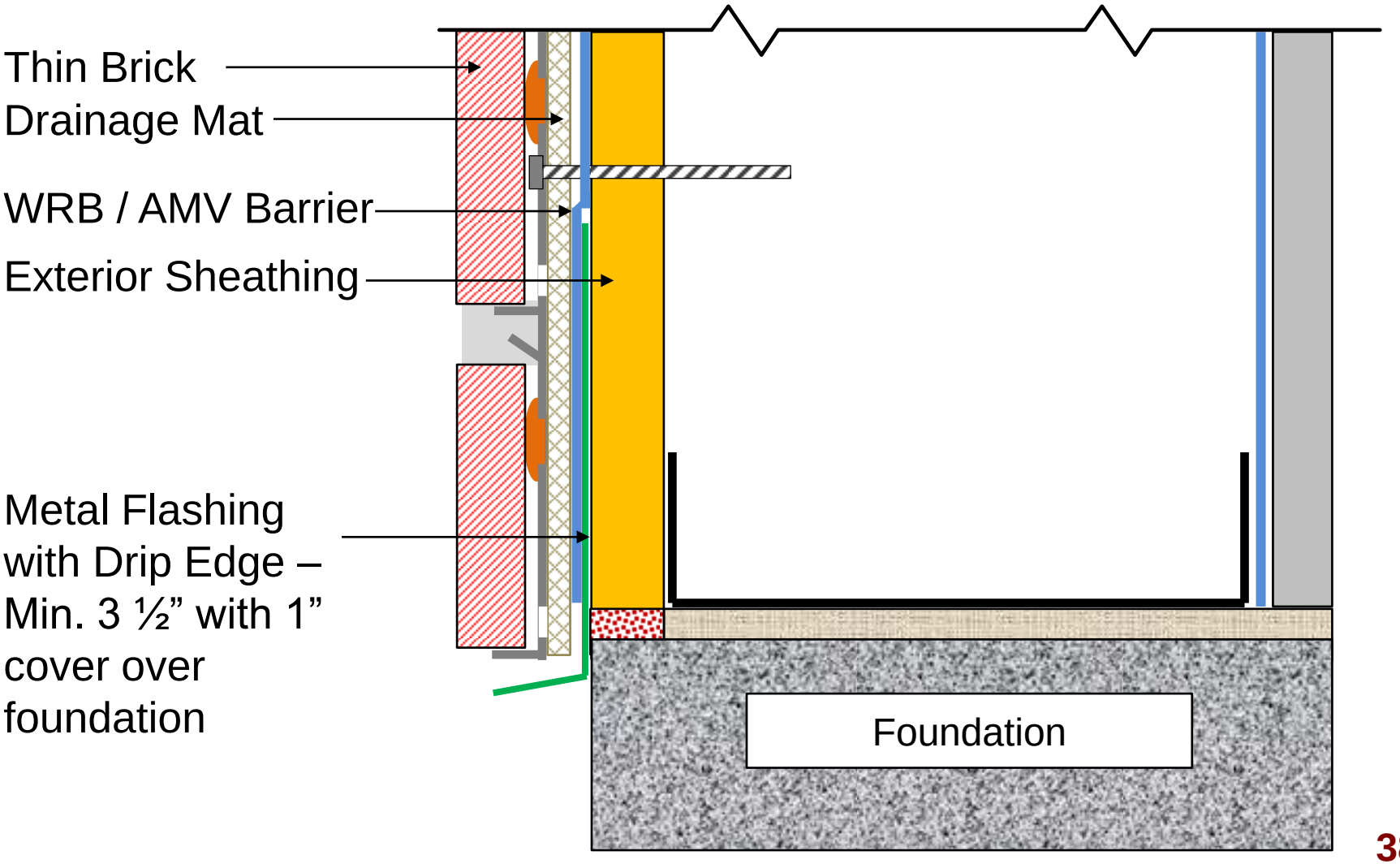


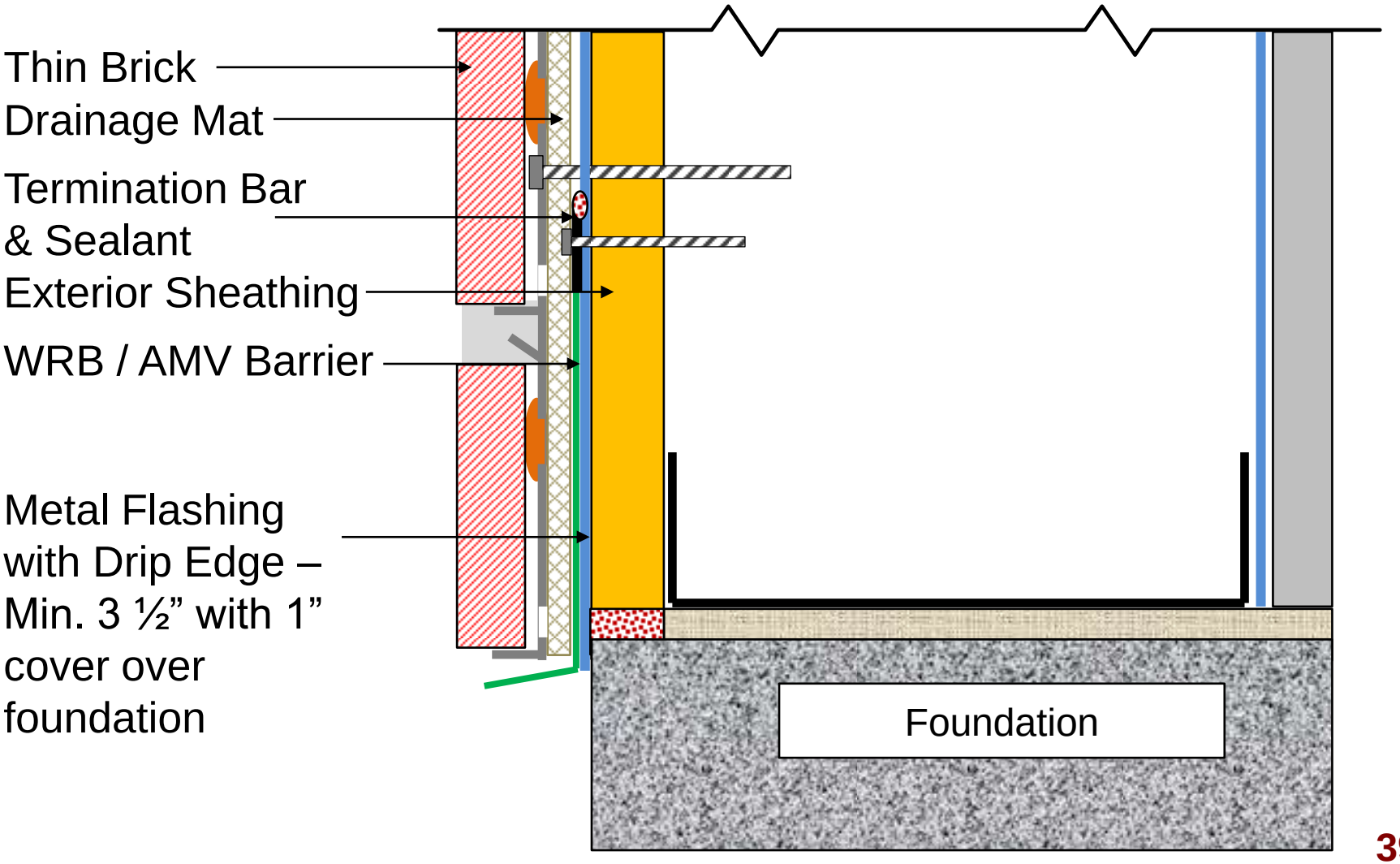
# Wall Section Metal Grid & Drainage Mat



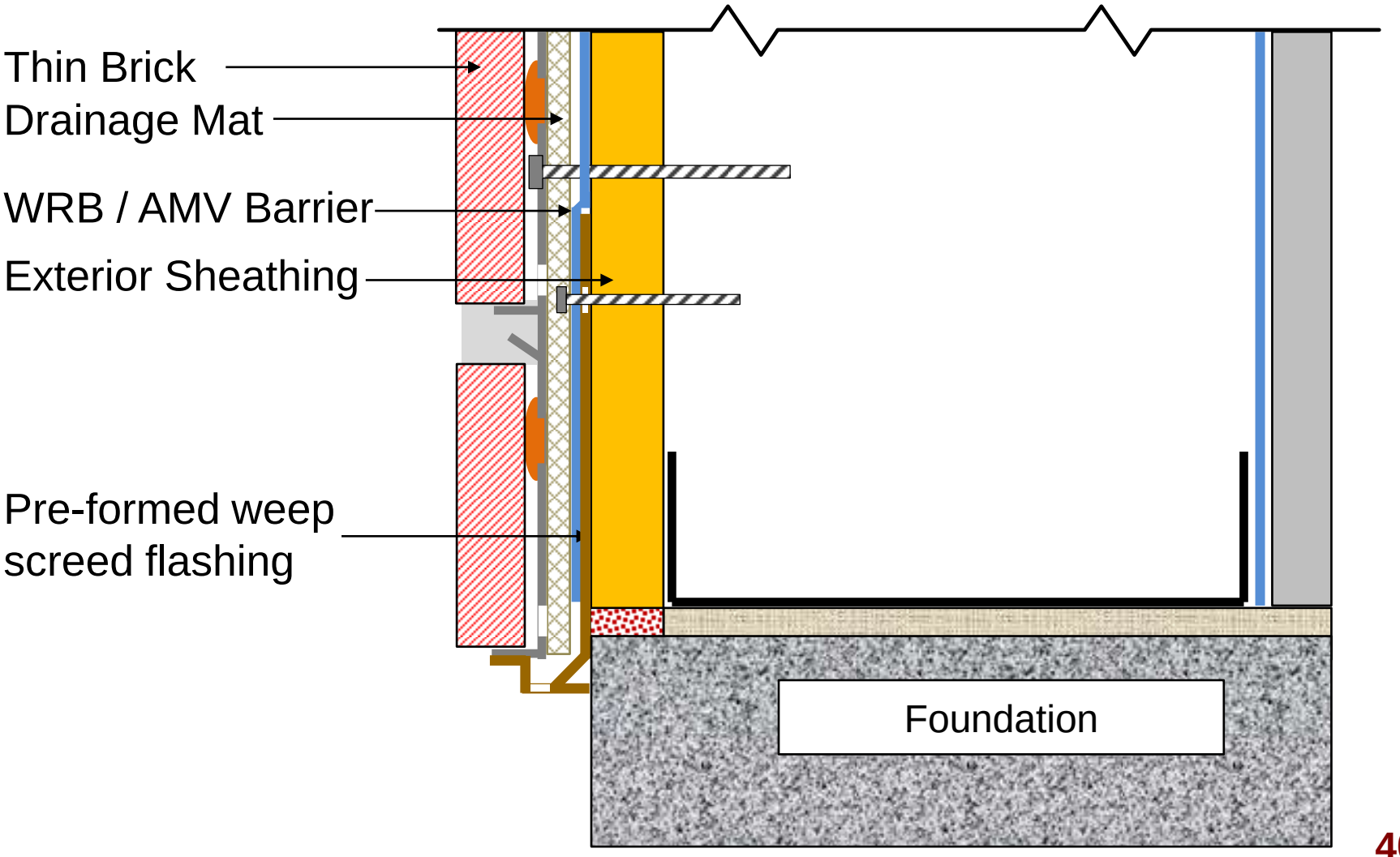
# Base of Wall - Flashing Option 1



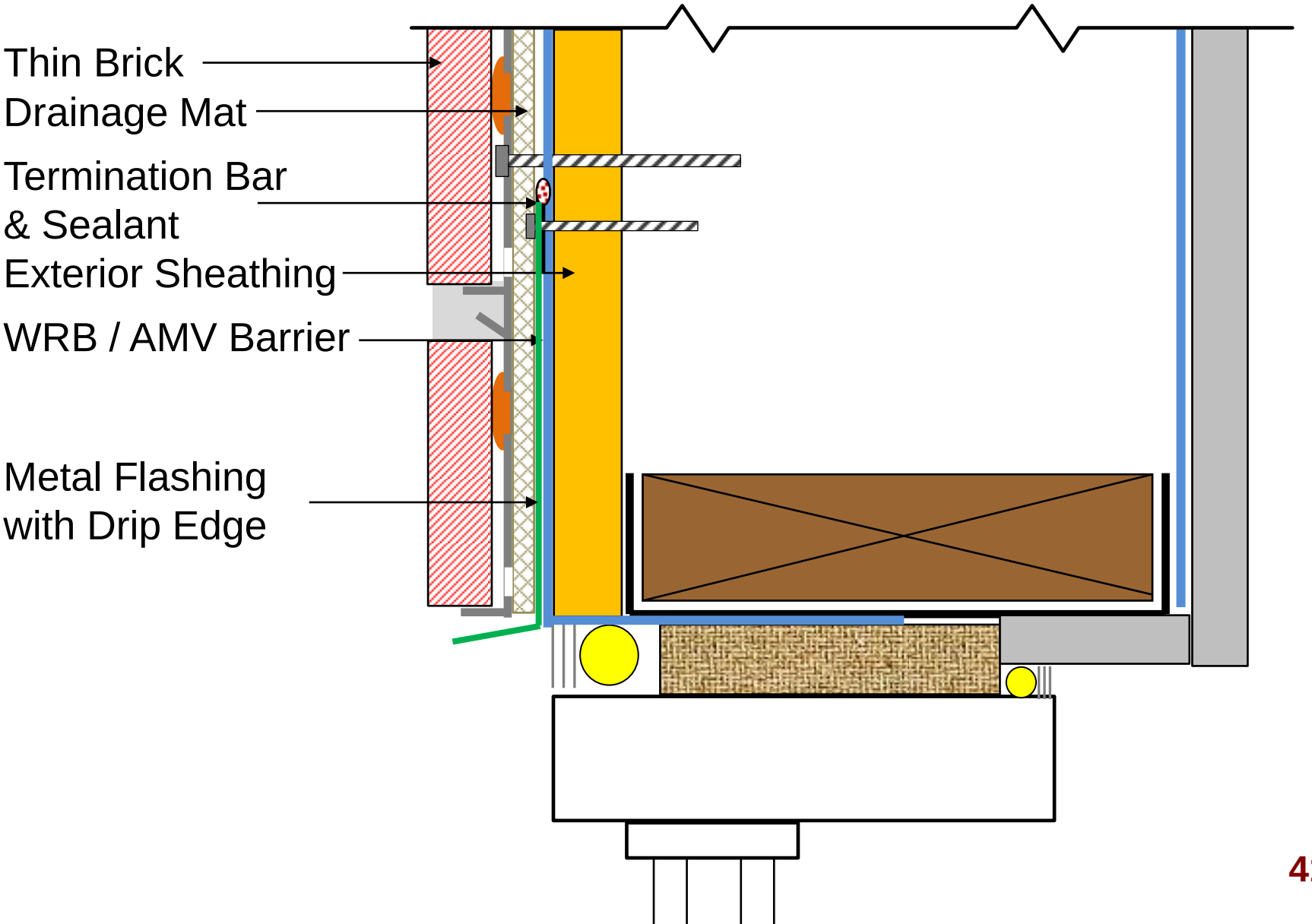
# Base of Wall - Flashing Option 2



# Base of Wall - Flashing Option 3



# Window Head 1



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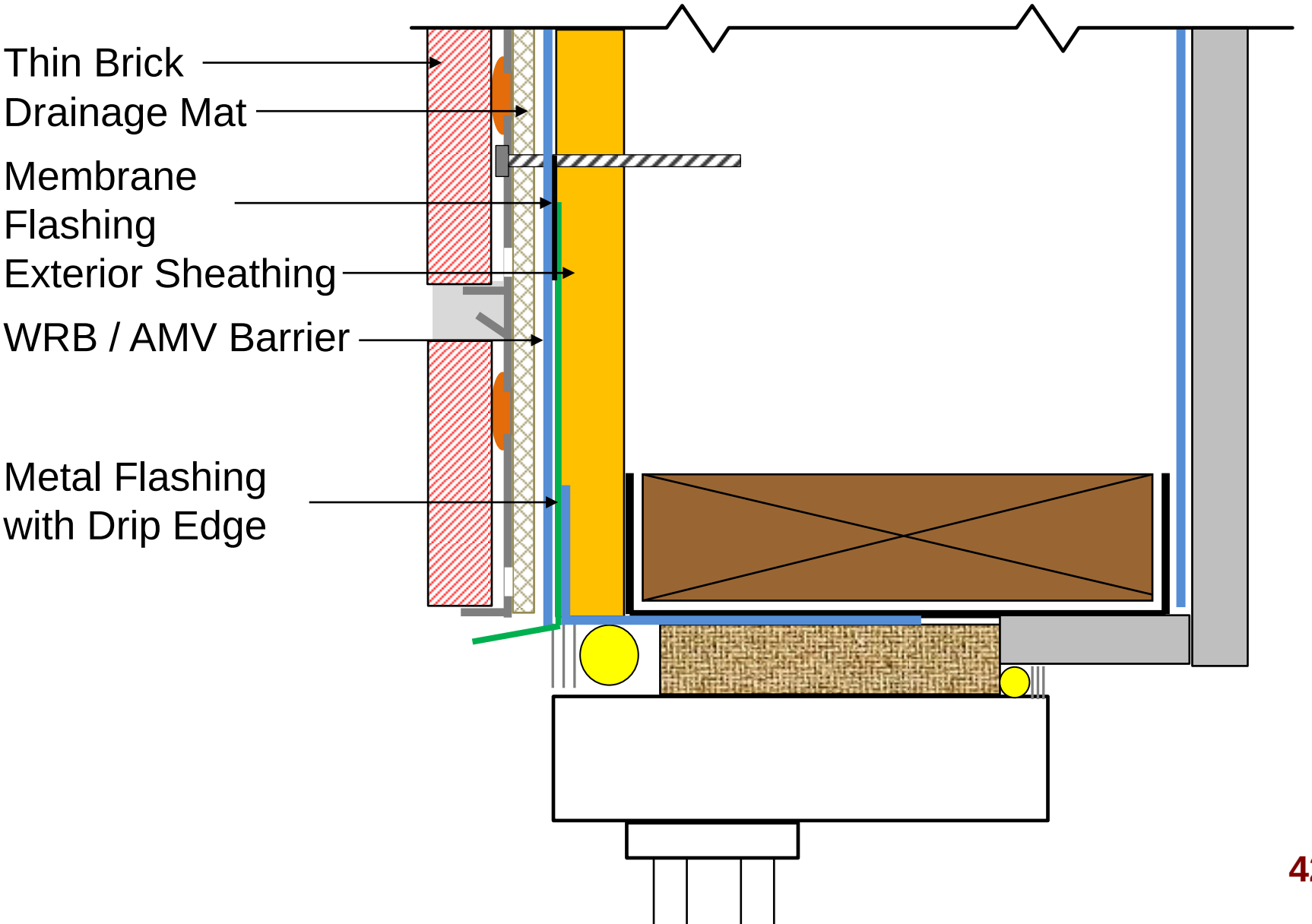

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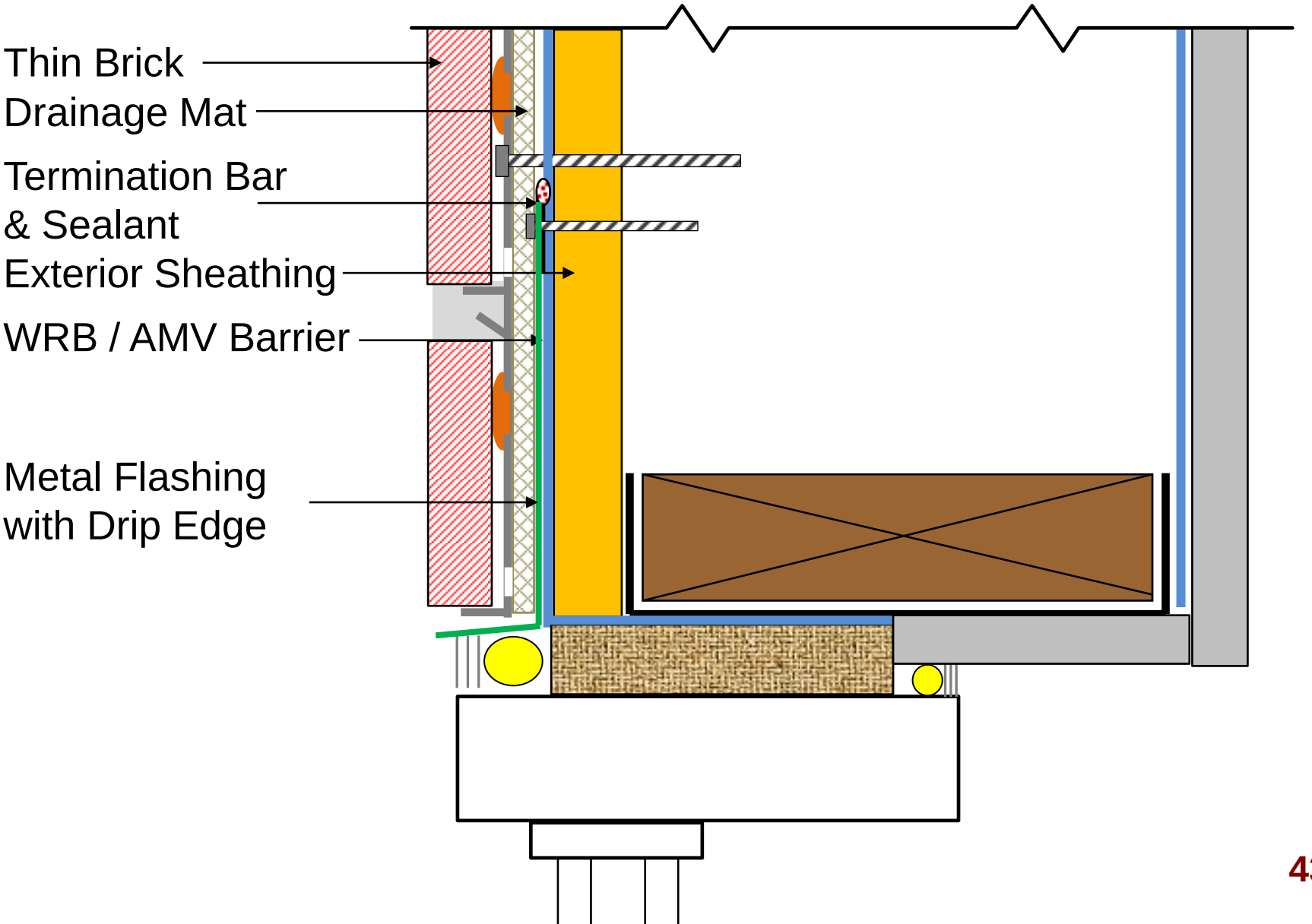
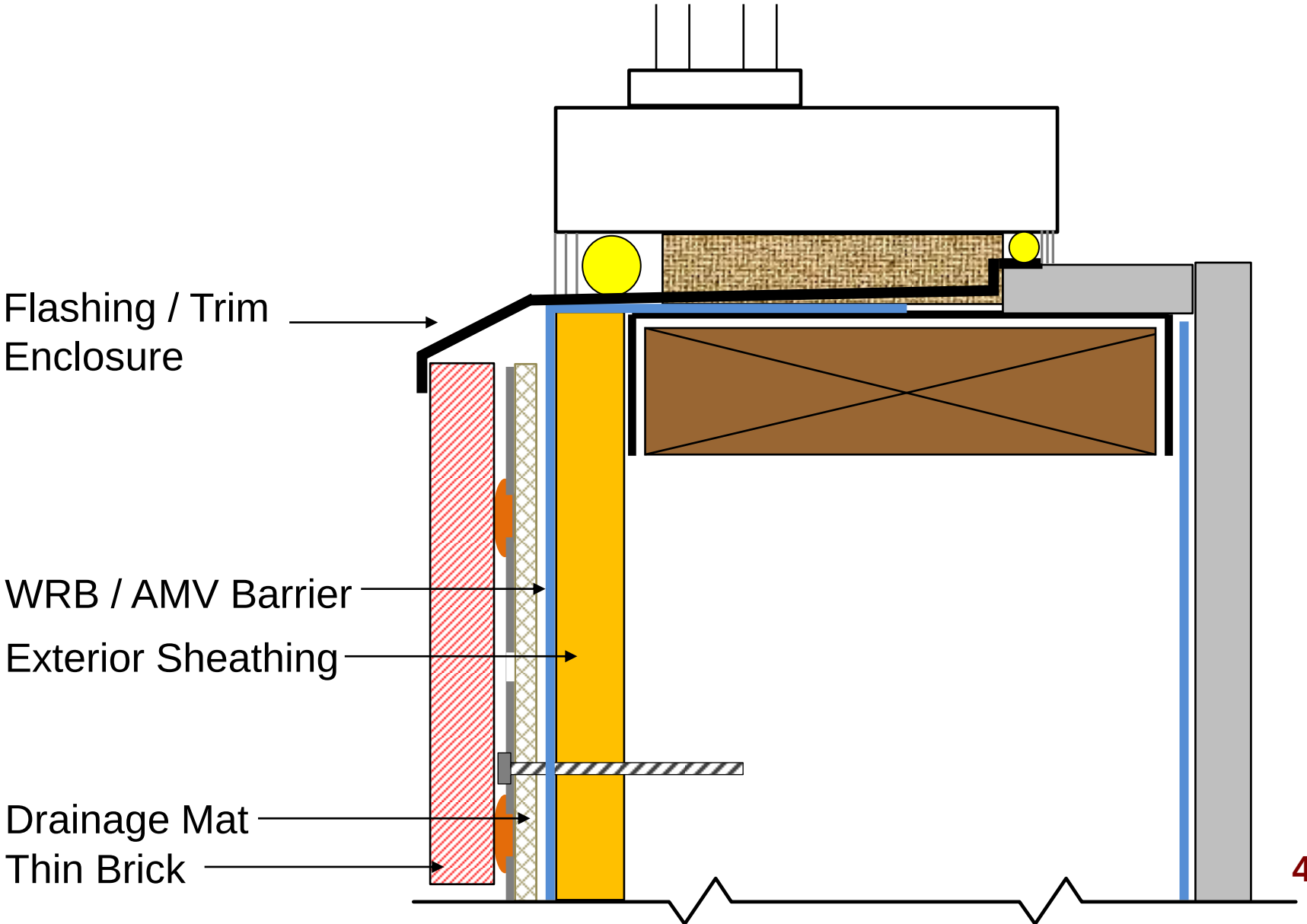
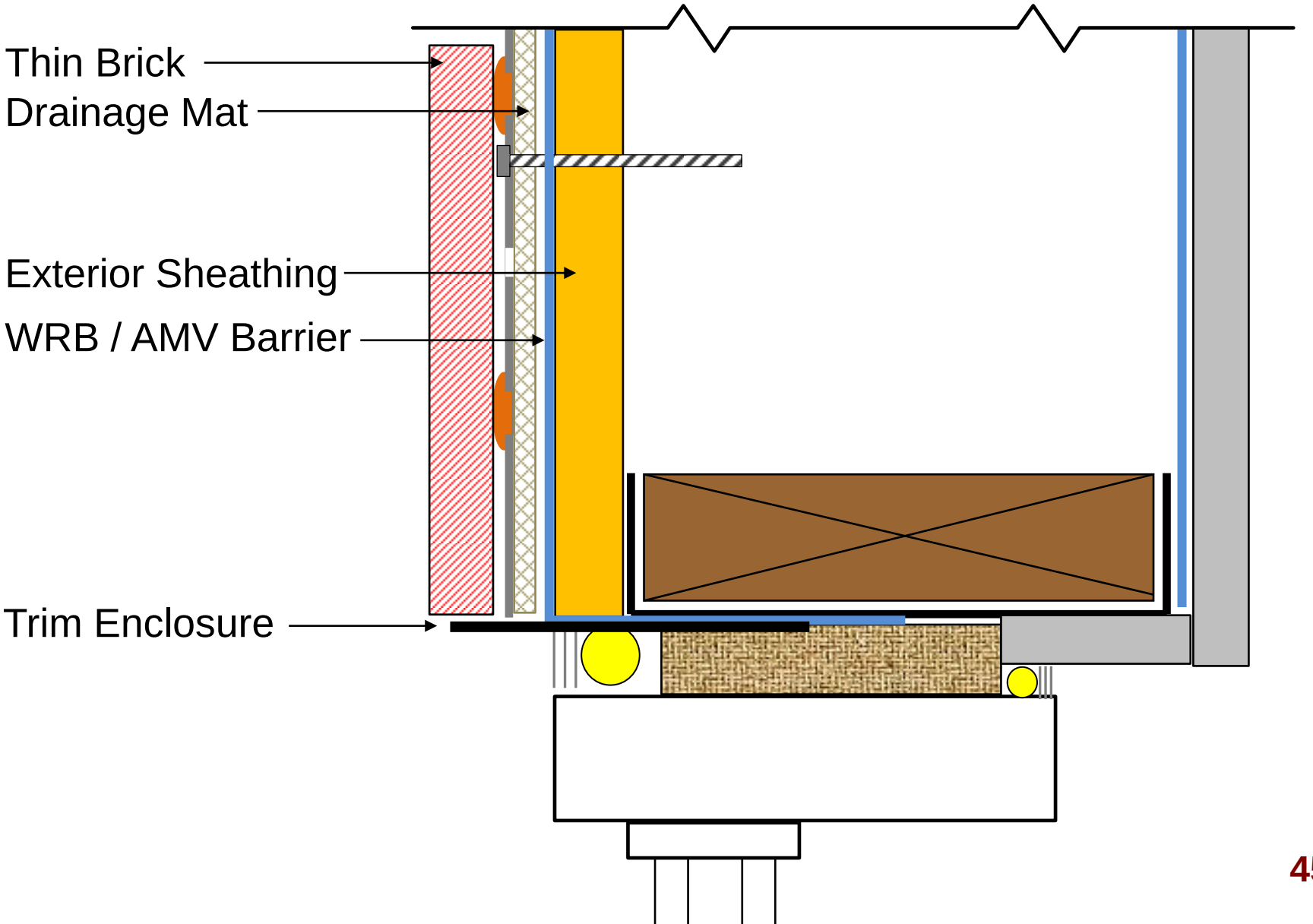


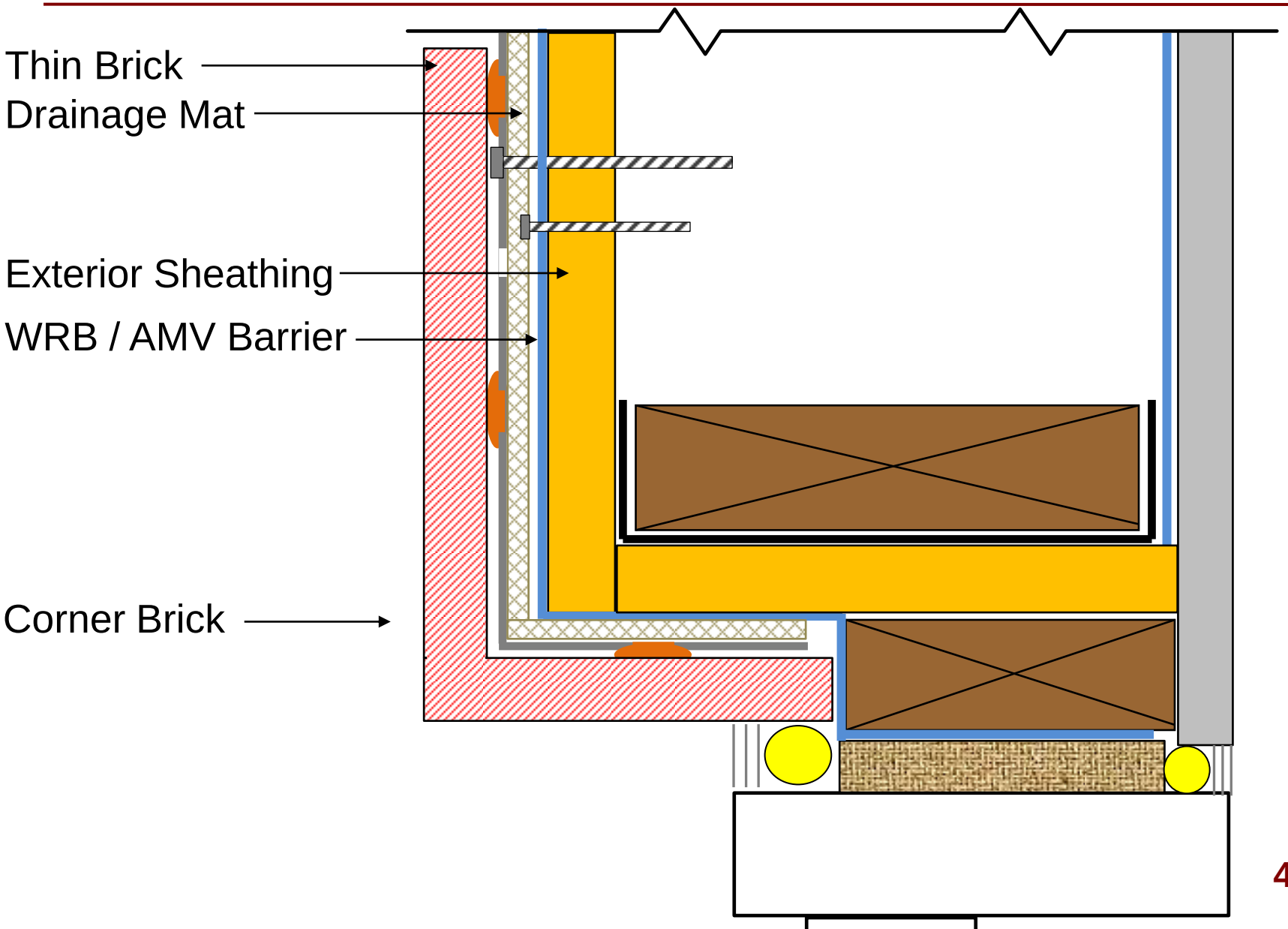
# Window Sill Detail



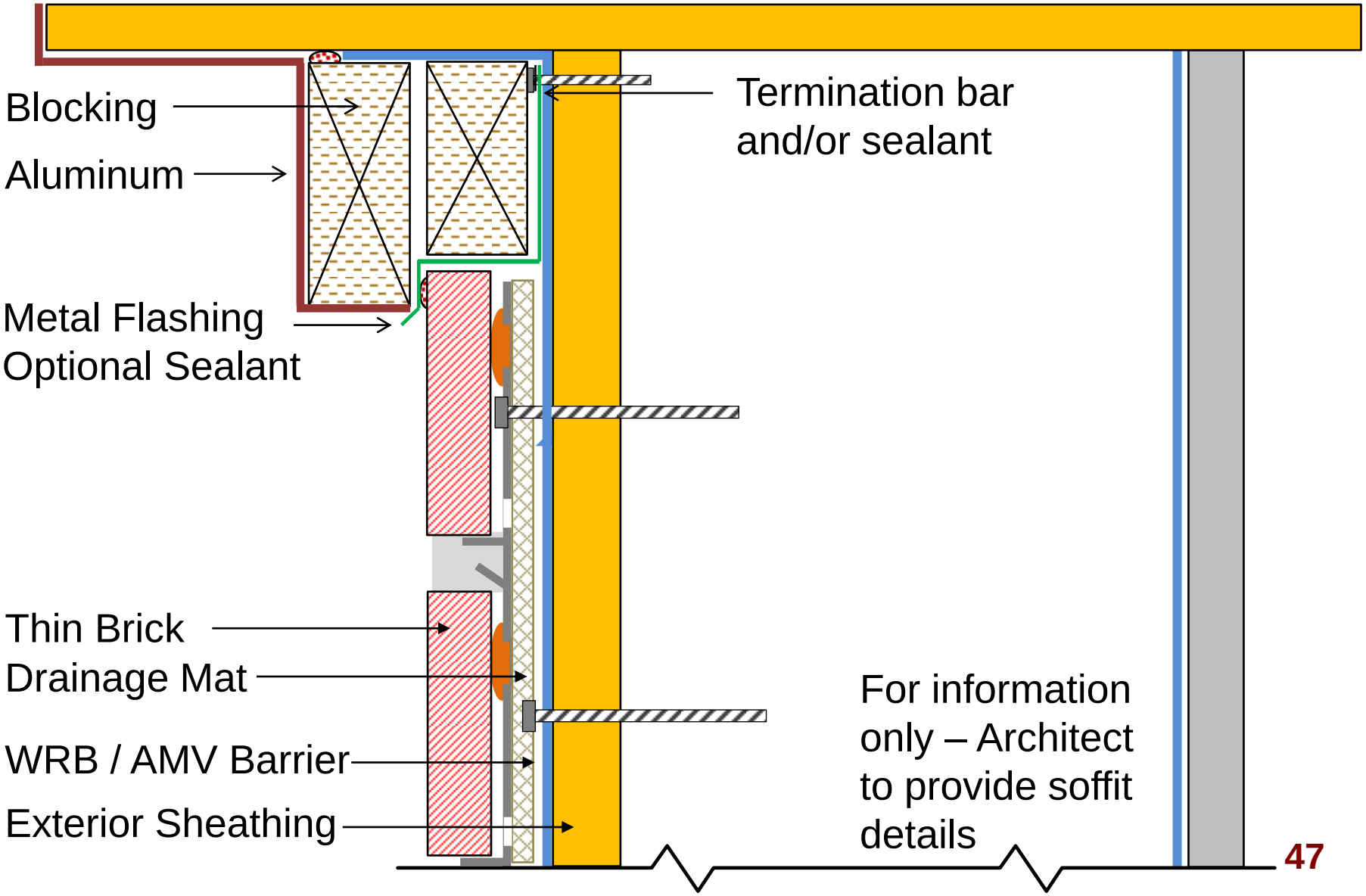
# Window Jamb 1



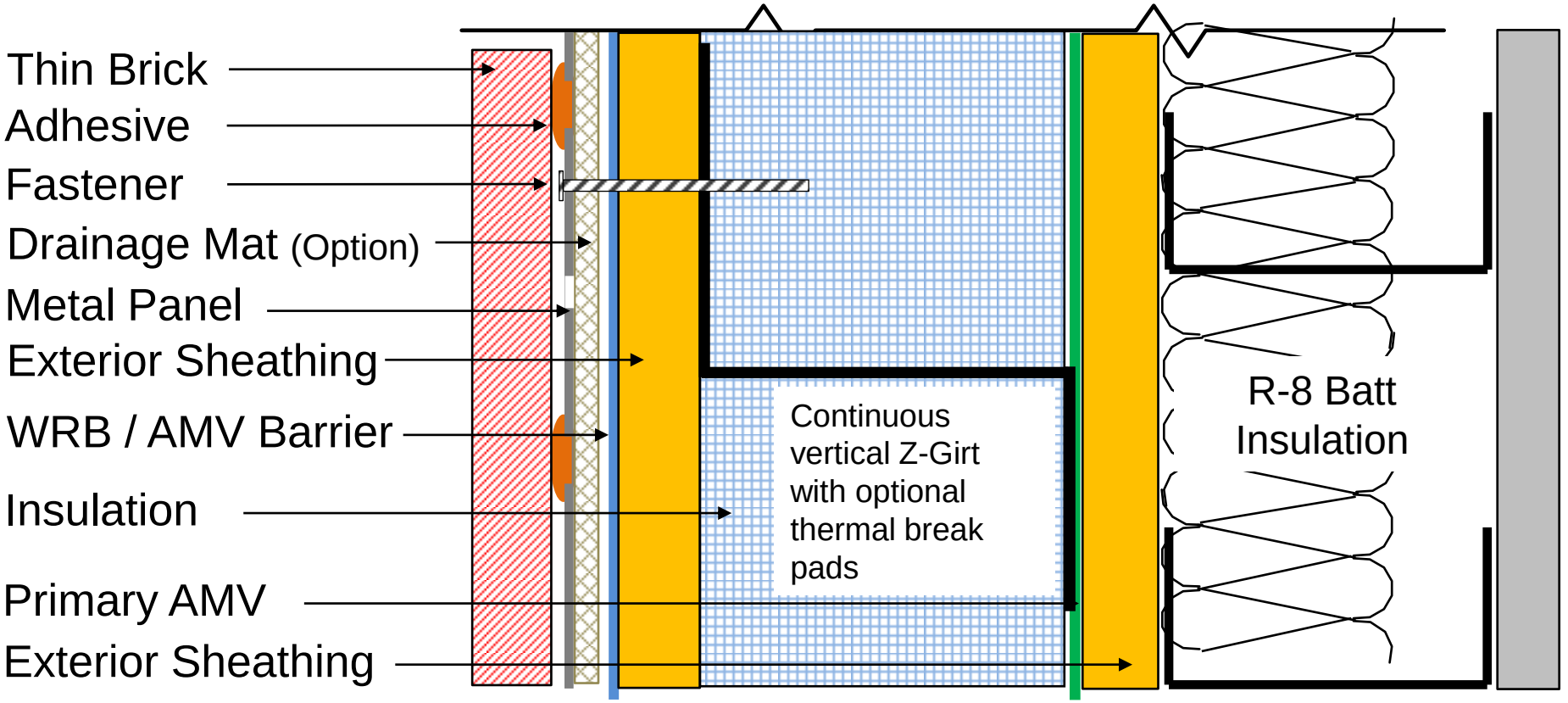
# Window Jamb 2



# Soffit / Top of Wall



# Detail Continuous Insulation and Z Girt

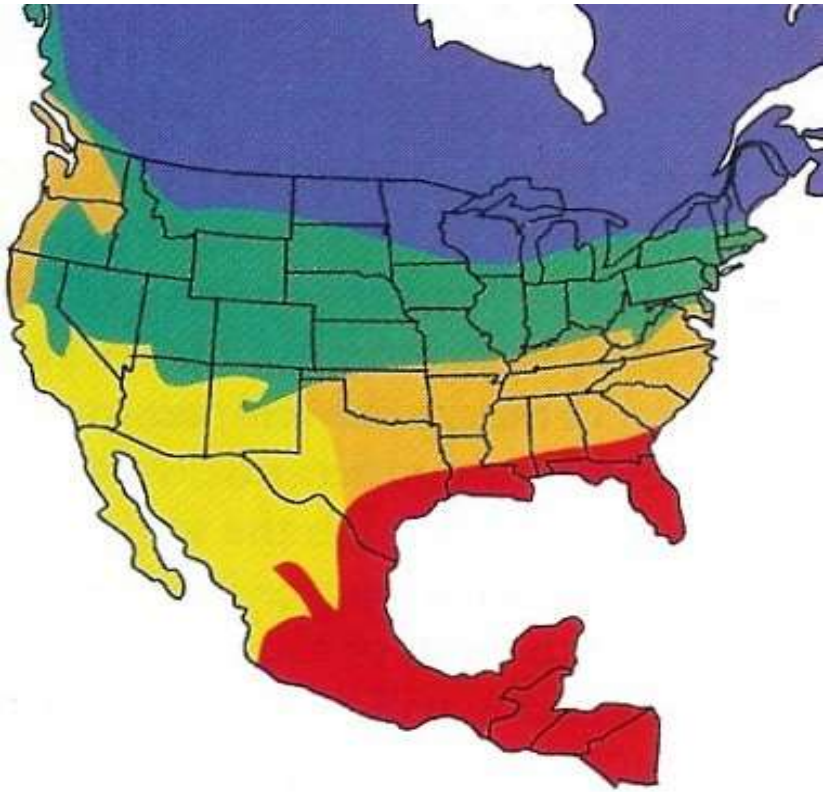



Condensation analysis required when combining C.I. and insulation between stud space.

## Plan View

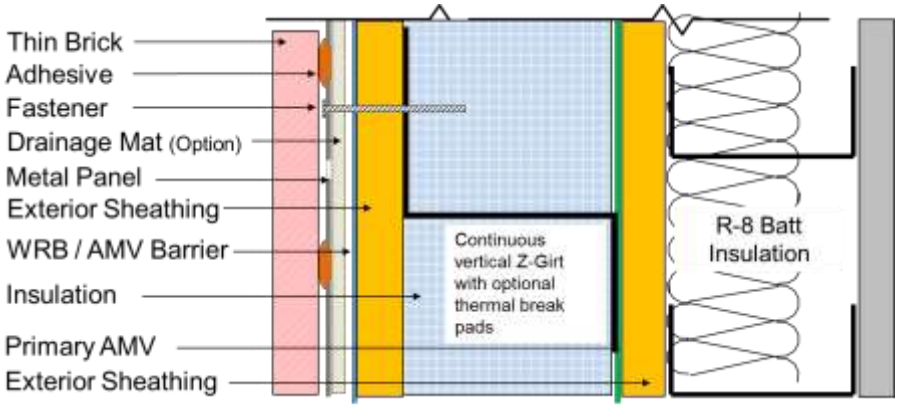
Check for compliance with NFPA 285

# R- Value Calculations



ASHRAE 90.1 (2007)
for Zone 5
**Prescriptive Option 1**
**Maximum U-Factor =**
**0.064 = R-15.63**

# R-Value Calculation – 2” Insulation




ASHRAE 90.1 (2007) for Zone 5
Maximum U-Factor = 0.064 = R-15.63
Exceeds requirement by 38%
With R-8 Batt Insulation

Condensation analysis required when combining C.I. and insulation between stud space.

| | |
|---|---|
| Outside Air Film | 0.17 |
| Thin Brick Veneer * | 0.20 |
| Air Space or Drainage | 0.97 |
| Air Barrier | 0.01 |
| 5/8" Exterior Sheathing | .67 |
| 2” Rigid Insulation | 10.00 |
| Air Barrier | 0.01 |
| 5/8" Exterior Sheathing | .67 |
| Batt Insulation | 8.00 |
| 1/2" Gypsum Board | 0.45 |
| Inside Film | 0.68 |
| Total R-Value | 21.83 |
| **U-Factor: 1/R =** | **.045** |

# Dew Point with R-10ci & R-8

Wall values entered for DOW Dew Point Analysis
See next page for results

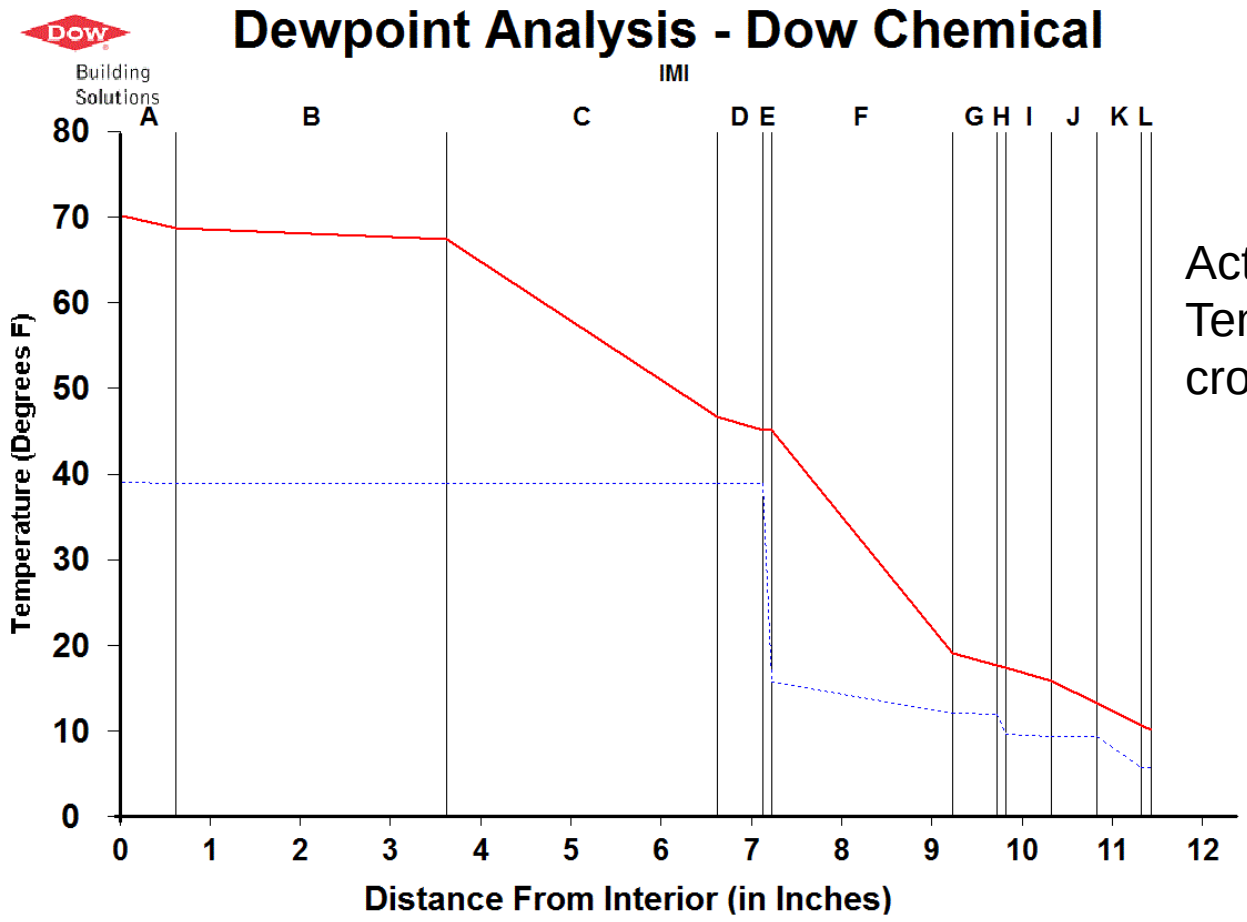
| | Component Name | Thickness | R-Value | Rep |
|---|---|---|---|---|
| A | Drywall .625in | 0.625 | 0.56 | 0.023 |
| B | Wall Air Space NonRefl | 3.000 | 0.50 | 0.024 |
| C | R 8 Fiberglass Batt | 3.000 | 8.00 | 0.010 |
| D | DENS-GLASS GOLD .5in | 0.500 | 0.56 | 0.043 |
| E | Carlisle 705 FR | 0.100 | 0.01 | 20.000 |
| F | CAVITYMATE Insulation | 2.000 | 10.00 | 1.800 |
| G | DENS-GLASS GOLD .5in | 0.500 | 0.56 | 0.043 |
| H | Asphalt Felt 15# | 0.100 | 0.10 | 1.000 |
| I | alum pan | 0.500 | 0.61 | 0.100 |
| J | Wall Air Space NonRefl | 0.500 | 1.01 | 0.006 |
| K | Brick Common .5 | 0.500 | 1.00 | 1.300 |
| L | Outside Air Film Winter | 0.100 | 0.17 | 0.001 |
| | TOTAL | 11.425 | 23.08 | 24.350 |

| Interface | Temperature Actual | Temperature Dewpnt | Accum (oz/day-sqft) |
|---|---|---|---|
| -A | 70.00 | 38.81 | 0.000 |
| AB | 68.54 | 38.79 | 0.000 |
| BC | 67.24 | 38.77 | 0.000 |
| CD | 46.45 | 38.76 | 0.000 |
| DE | 44.99 | 38.72 | 0.000 |
| EF | 44.97 | 15.55 | 0.000 |
| FG | 18.97 | 11.86 | 0.000 |
| GH | 17.51 | 11.76 | 0.000 |
| HI | 17.25 | 9.41 | 0.000 |
| IJ | 15.67 | 9.16 | 0.000 |
| JK | 13.04 | 9.15 | 0.000 |
| KL | 10.44 | 5.59 | 0.000 |
| L- | 10.00 | 5.59 | 0.000 |

**NOTICE**: This calculation is based on the theory of Water Vapor Migration presented in the ASHRAE 1993 Fundamentals Handbook. Actual performance may vary depending upon air infiltration. workmanship, and building materials. Since the information is provided without charge, The Dow Chemical Company assumes **no obligation or liability** for its use.

November 1 2013 8:30:13 AM

# Dew Point with R-10ci & R-8




Actual & Dew Point Temperatures do not cross - ok

# BIA Modular Brick Sizes

| Brick Designation[1] | Nominal Dimensions, in. (mm) | | | Joint Thickness,[3] in. (mm) | Specified Dimensions,[4] in. (mm) | | | Vertical Coursing |
|---|---|---|---|---|---|---|---|---|
| | W | H | L | | W | H | L | |
| Modular | 4 (102) | 2⅝ (68) | 8 (203) | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 2¼ (57) | 7⅝ (194)<br>7½ (191) | 3C = 8 in. (203 mm) |
| Engineer Modular | 4 (102) | 3⅛ (81) | 8 (203) | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 2¹³⁄₁₆ (71)<br>2¾ (70) | 7⅝ (194)<br>7½ (191) | 5C = 16 in. (406 mm) |
| Closure Modular | 4 (102) | 4 (102) | 8 (203) | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 3⅝ (92)<br>3½ (89) | 7⅝ (194)<br>7½ (191) | 1C = 4 in. (102 mm) |
| —[2] | 4 (102) | 6 (152) | 8 (203) | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 5⅝ (143)<br>5½ (140) | 7⅝ (194)<br>7½ (191) | 2C = 12 in. (305 mm) |
| —[2] | 4 (102) | 8 (203) | 8 (203) | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 7⅝ (194)<br>7½ (191) | 7⅝ (194)<br>7½ (191) | 1C = 8 in. (203 mm) |
| Roman | 4 (102) | 2 (51) | 12 (305) | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 1⅝ (41)<br>1½ (38) | 11⅝ (295)<br>11½ (292) | 2C = 4 in. (102 mm) |
| Norman | 4 (102) | 2⅝ (68) | 12 (305) | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 2¼ (57) | 11⅝ (295)<br>11½ (292) | 3C = 8 in. (203 mm) |
| Engineer Norman | 4 (102) | 3⅛ (81) | 12 (305) | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 2¹³⁄₁₆ (71)<br>2¾ (70) | 11⅝ (295)<br>11½ (292) | 5C = 16 in. (406 mm) |
| Utility | 4 (102) | 4 (102) | 12 (305) | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 3⅝ (92)<br>3½ (89) | 11⅝ (295)<br>11½ (292) | 1C = 4 in. (102 mm) |

See Notes – next slide

# BIA Modular Brick Sizes

| Brick Designation[1] | Nominal Dimensions, in. (mm) | | | Joint Thickness,[3] in. (mm) | Specified Dimensions,[4] in. (mm) | | | Vertical Coursing |
|---|---|---|---|---|---|---|---|---|
| | W | H | L | | W | H | L | |
| —[2] | 6 (152) | 3⅝ (81) | 12 (305) | ⅜ (9.5)<br>½ (12.7) | 5⅝ (143)<br>5½ (140) | 2¹³⁄₁₆ (71)<br>2¾ (70) | 11⅝ (295)<br>11½ (292) | 5C = 16 in.<br>(406 mm) |
| —[2] | 6 (152) | 4 (102) | 12 (305) | ⅜ (9.5)<br>½ (12.7) | 5⅝ (143)<br>5½ (140) | 3⅝ (92)<br>3½ (89) | 11⅝ (295)<br>11½ (292) | 1C = 4 in.<br>(102 mm) |
| —[2] | 8 (203) | 4 (102) | 12 (305) | ⅜ (9.5)<br>½ (12.7) | 7⅝ (194)<br>7½ (191) | 3⅝ (92)<br>3½ (89) | 11⅝ (295)<br>11½ (292) | 1C = 4 in.<br>(102 mm) |
| —[2] | 4 (102) | 2⅝ (68) | 16 (406) | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 2¼ (57) | 15⅝ (397)<br>15½ (394) | 3C = 8 in.<br>(203 mm) |
| Meridian | 4 (102) | 4 (102) | 16 (406) | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 3⅝ (92)<br>3½ (89) | 15⅝ (397)<br>15½ (394) | 1C = 4 in.<br>(102 mm) |
| Double Meridian | 4 (102) | 8 (203) | 16 (406) | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 7⅝ (194)<br>7½ (191) | 15⅝ (397)<br>15½ (394) | 1C = 8 in.<br>(203 mm) |

1. Some manufacturers may use a brick designation different from that shown.
2. No brick designation is provided due to inadequate consensus among manufacturers.
3. Common joint sizes used with length and width dimensions. Actual bed joint thicknesses vary based on vertical coursing and actual brick height.
4. Specified dimensions may vary within this range from manufacturer to manufacturer.

# BIA Non-Modular Brick Sizes

| Brick Designation[1] | Joint Thickness,[3] in. (mm) | Specified Dimensions,[4] in. (mm) | | | Vertical Coursing |
|---|---|---|---|---|---|
| | | W | H | L | |
| Queen | ⅜ (9.5)<br>½ (12.7) | 2¼ (70)<br>3 (76) | 2¾ (70) | 7⅝ (194)<br>8 (203) | 5C = 16 in.<br>(406 mm) |
| King | ⅜ (9.5)<br>½ (12.7) | 2¼ (70)<br>3 (76) | 2⅝ (67)<br>2¾ (70) | 9⅝ (244)<br>9¾ (248) | 5C = 16 in.<br>(406 mm) |
| —[2] | ⅜ (9.5)<br>½ (12.7) | 3 (76) | 2⅝ (67)<br>2¾ (70) | 8⅝ (219) | 5C = 16 in.<br>(406 mm) |
| Standard | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 2¼ (57) | 8 (203) | 3C = 8 in.<br>(203 mm) |
| Engineer Standard | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 2 13/16 (71)<br>2¾ (70) | 8 (203) | 5C = 16 in.<br>(406 mm) |
| Closure Standard | ⅜ (9.5)<br>½ (12.7) | 3⅝ (92)<br>3½ (89) | 3⅝ (92)<br>3½ (89) | 8 (203) | 1C = 4 in.<br>(102 mm) |

| Brick Coursing and Joint Size for King / Queen - 5 Courses = 16" | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| # | HT | Courses | Total Brick | 16" Mod | Remain | Joints | Joint Size | |
| 1 | 2 9/16" | x 5 courses | 12 13/16" | less 16" = | 3 3/16" | / 5 joints | 5/8" Joint | To Big |
| 2 | 2 5/8" | x 5 courses | 13 1/8" | less 16" = | 2 7/8" | / 5 joints | 9/16" Joint | ? |
| 3 | 2 11/16" | x 5 courses | 13 7/16" | less 16" = | 2 9/16" | / 5 joints | 1/2" Joint | OK |
| 4 | 2 3/4" | x 5 courses | 13 3/4" | less 16" = | 2 1/4" | / 5 joints | 7/16" Joint | OK |
| 5 | 2 13/16" | x 5 courses | 14 1/16" | less 16" = | 1 15/16" | / 5 joints | 3/8" Joint | OK |

# King / Queen Joint Sizes

| # | Brick Height | Mortar Joint | Modular |
|---|---|---|---|
| 1 | 2 9/16" | 5/8" Joint | 3 3/16" |
| 2 | 2 5/8" | 9/16" Joint | 3 3/16" |
| 3 | 2 11/16" | 1/2" Joint | 3 3/16" |
| 4 | 2 3/4" | 7/16" Joint | 3 3/16" |
| 5 | 2 13/16" | 3/8" Joint | 3 3/16" |

Custom panel are available to accommodate brick heights and mortar joints

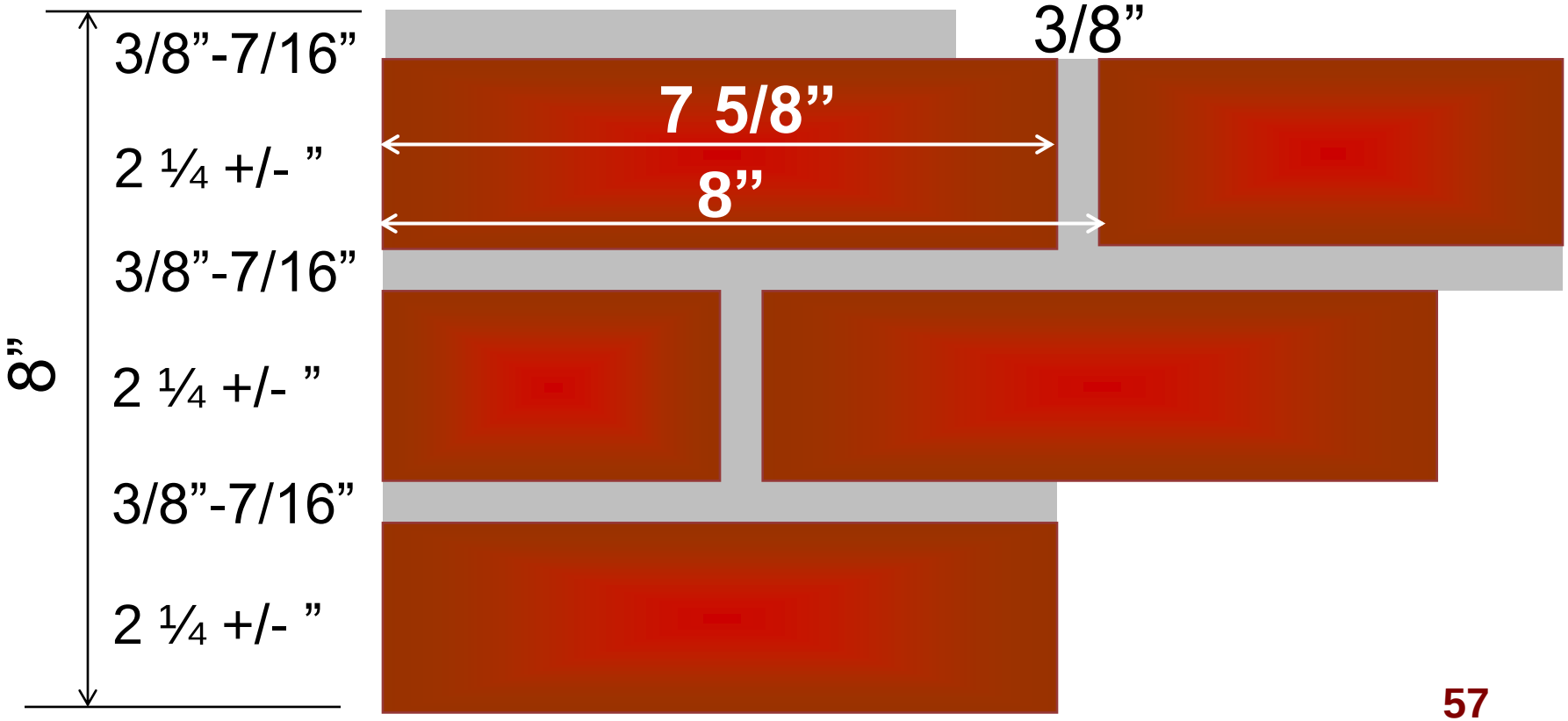
# 8” Modular Brick Coursing

3 courses of brick = 8”

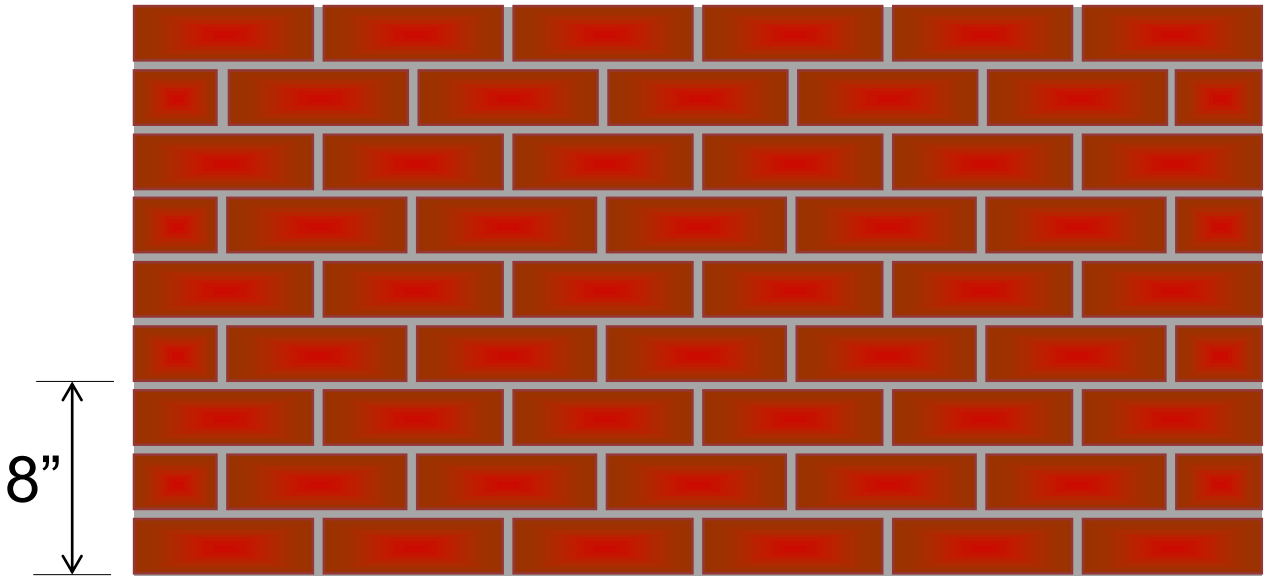
8” / 3 = 2 2/3” = about 2 11/16” = Brick plus joint

General Terms - Brick 2 ¼” + 3/8” joint = 2 5/8”

Joint is actually 7/16” (+/-) + 2 ¼” = 2 11/16”

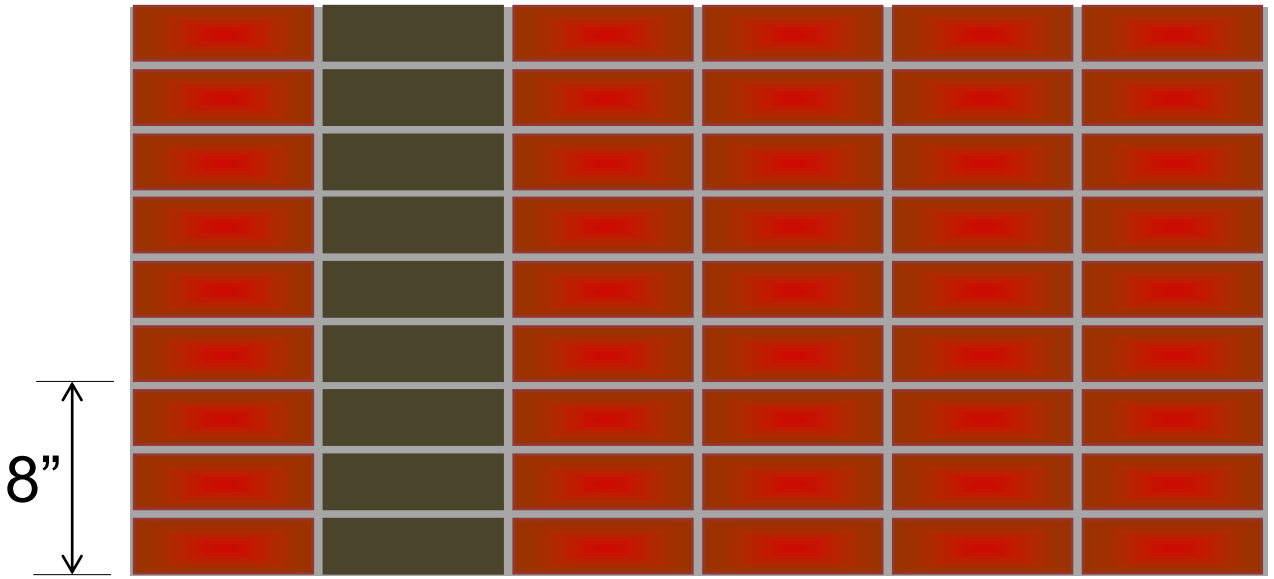


# Running Bond



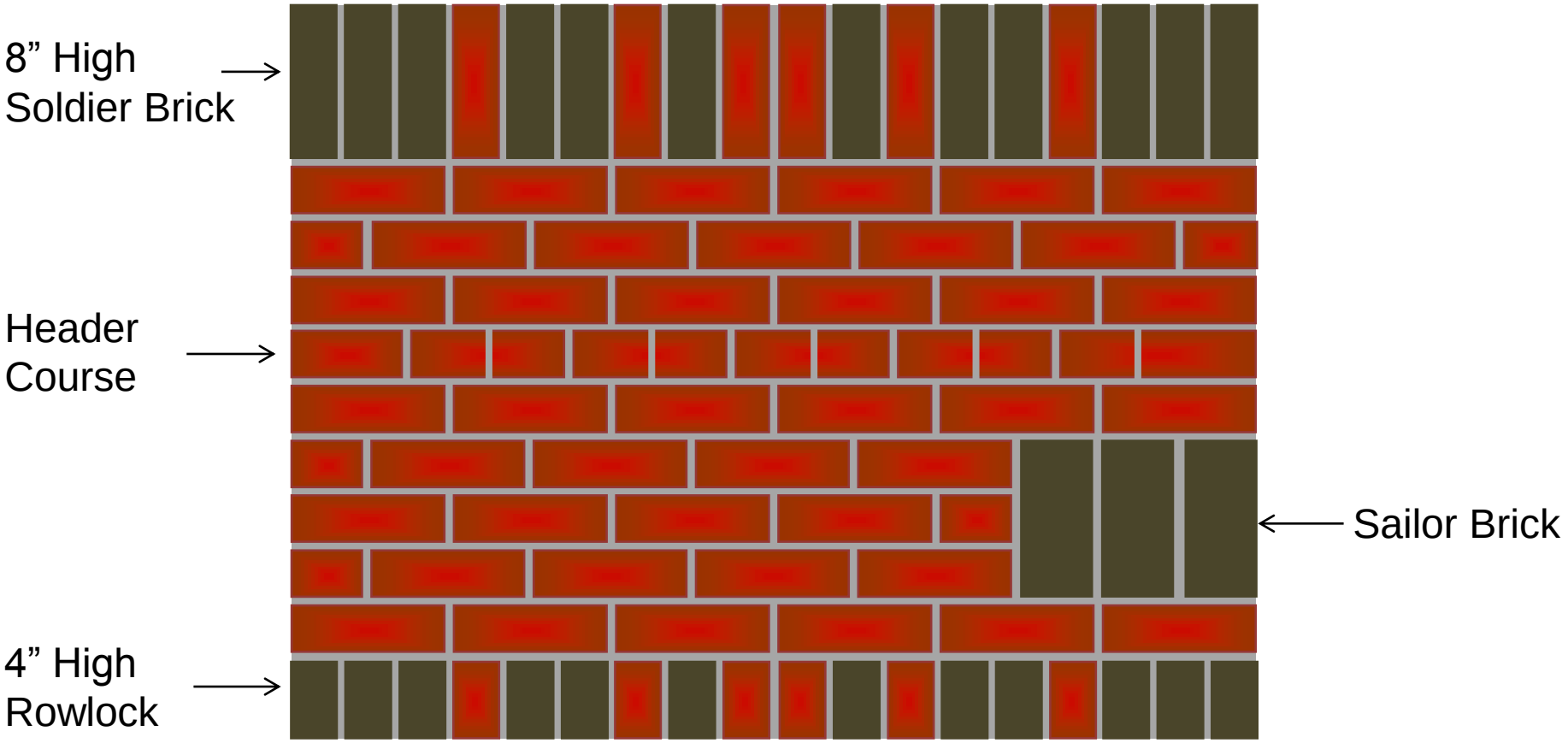

Running Bond - Modular Brick

# Stack Bond



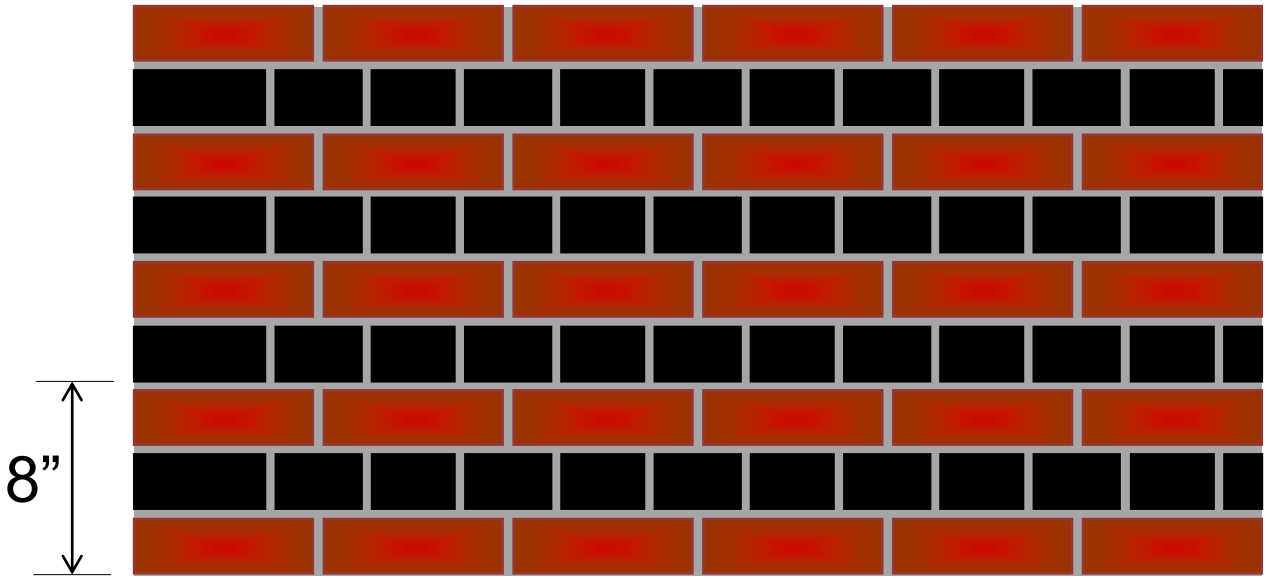

Stack Bond - Modular Brick

# Accent Patterns



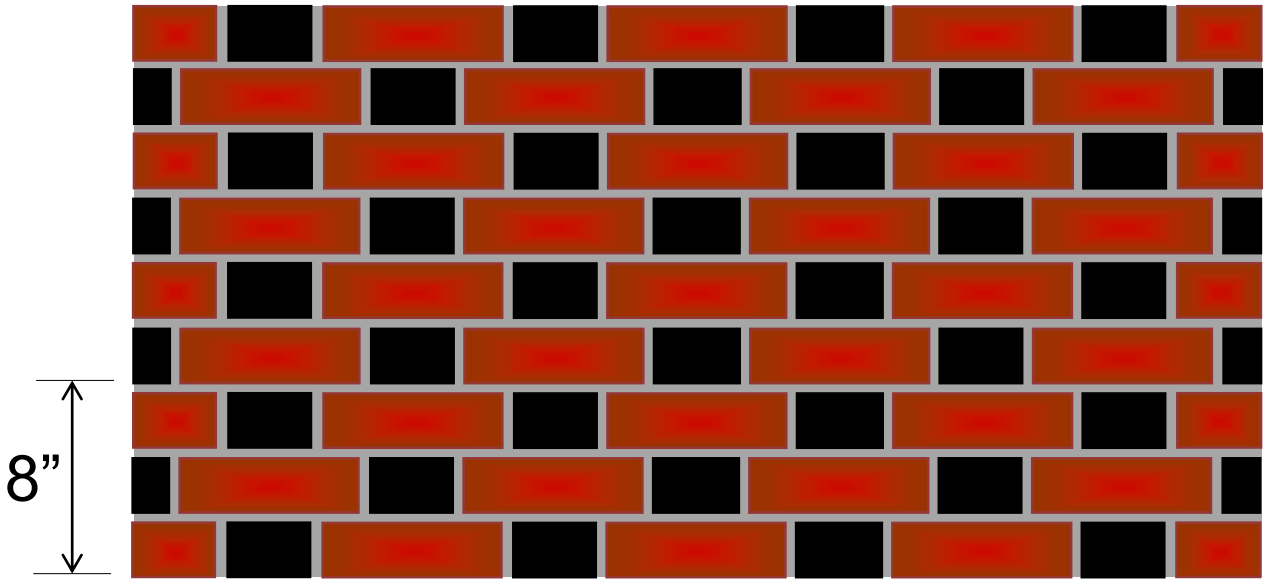

Running Bond - Modular Brick

# Common Bond



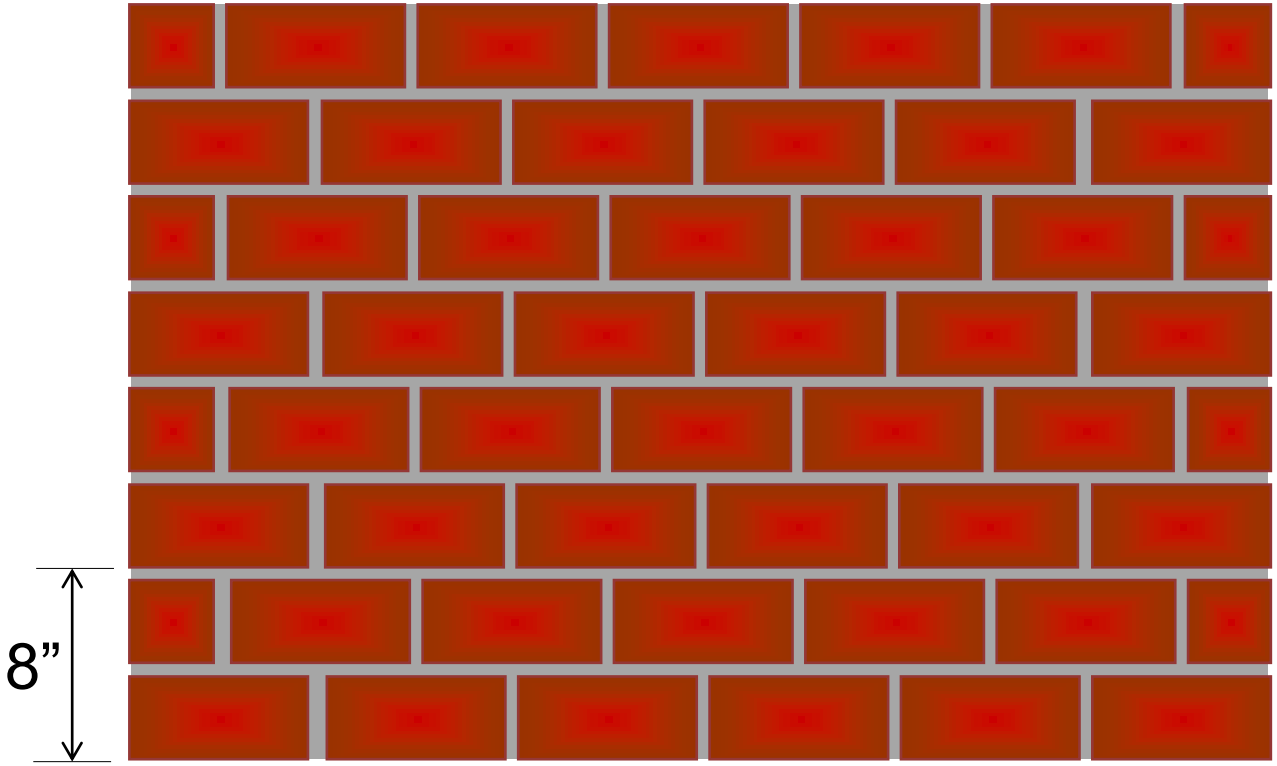

Common Bond - Modular Brick

# Flemish Bond



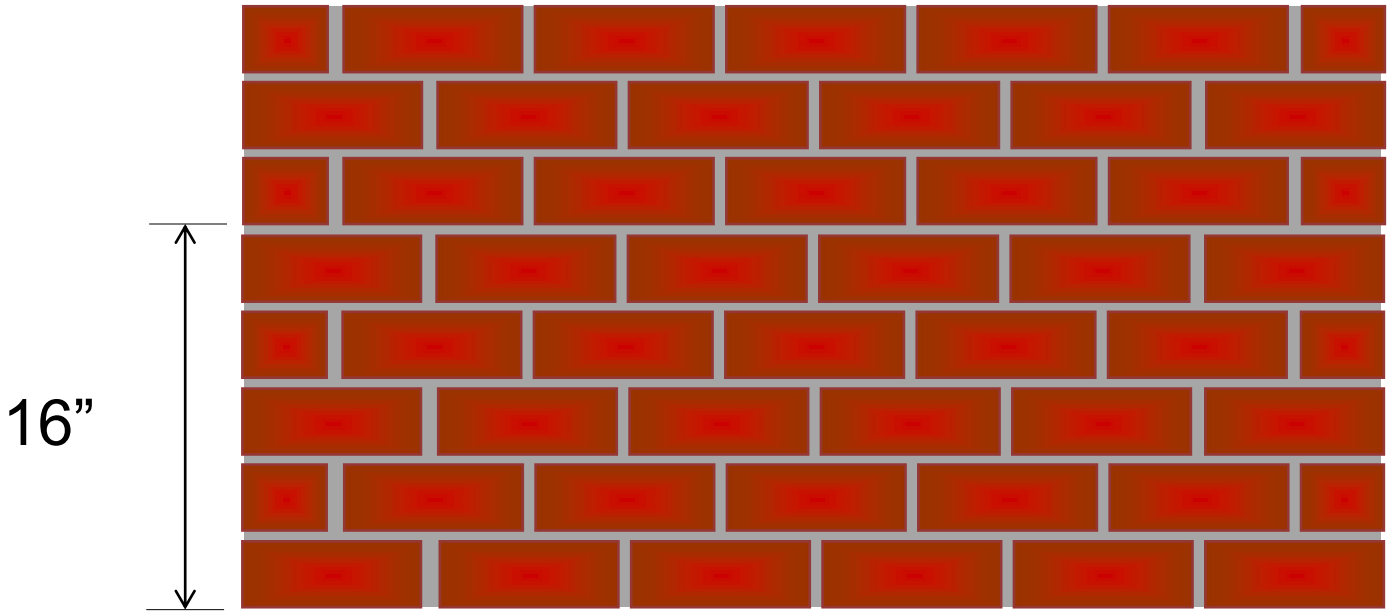

Flemish - Modular Brick

# Running Bond



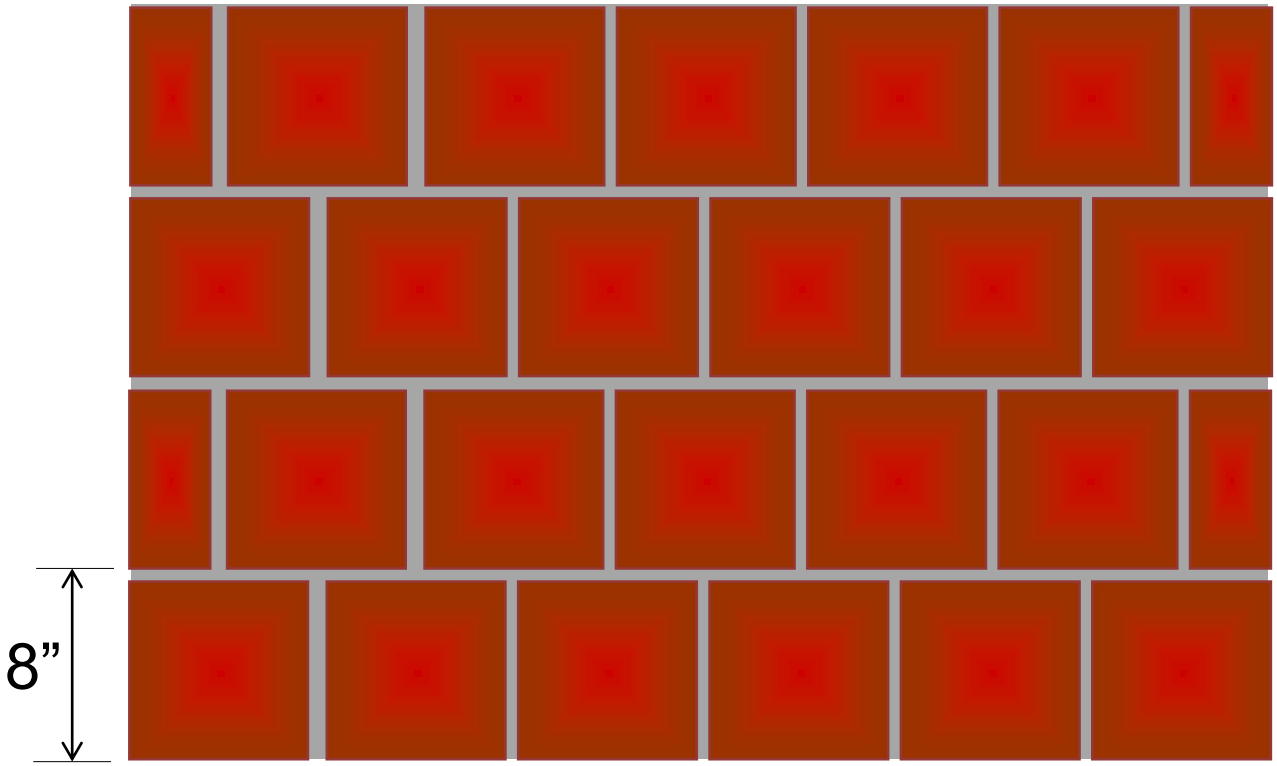

Running Bond - Econo Brick (4 x8)

# Running Bond




Running Bond – Jumbo Brick
(5 Course = 16”)

# Running Bond



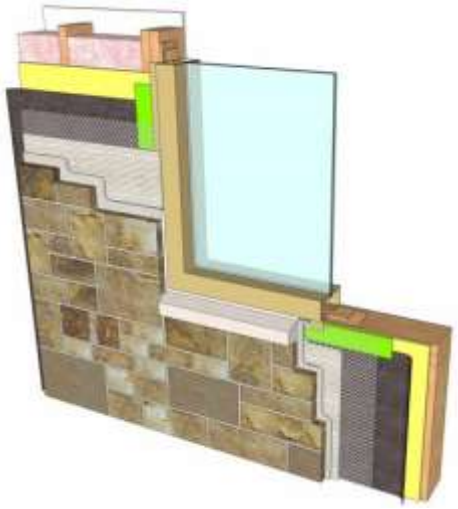

Running Bond - Stylo Brick (8 x8)

# Other Brick Sizes & Materials

2 ½” x 8” Brick (California)

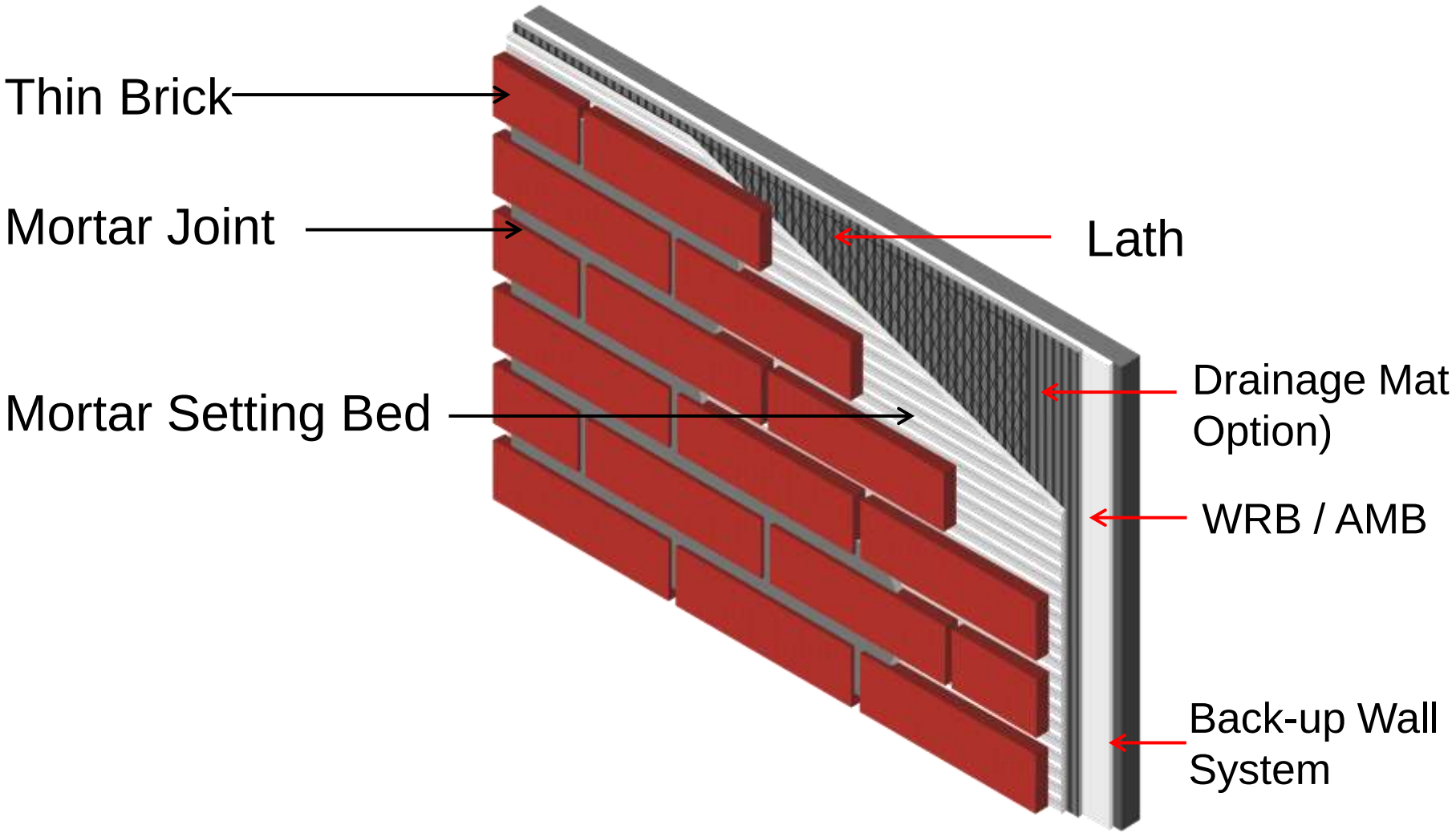
2 ¼” x 12” Brick

4” x 12” Brick



Stone Veneer
CMU Veneer
Manufactured Veneers

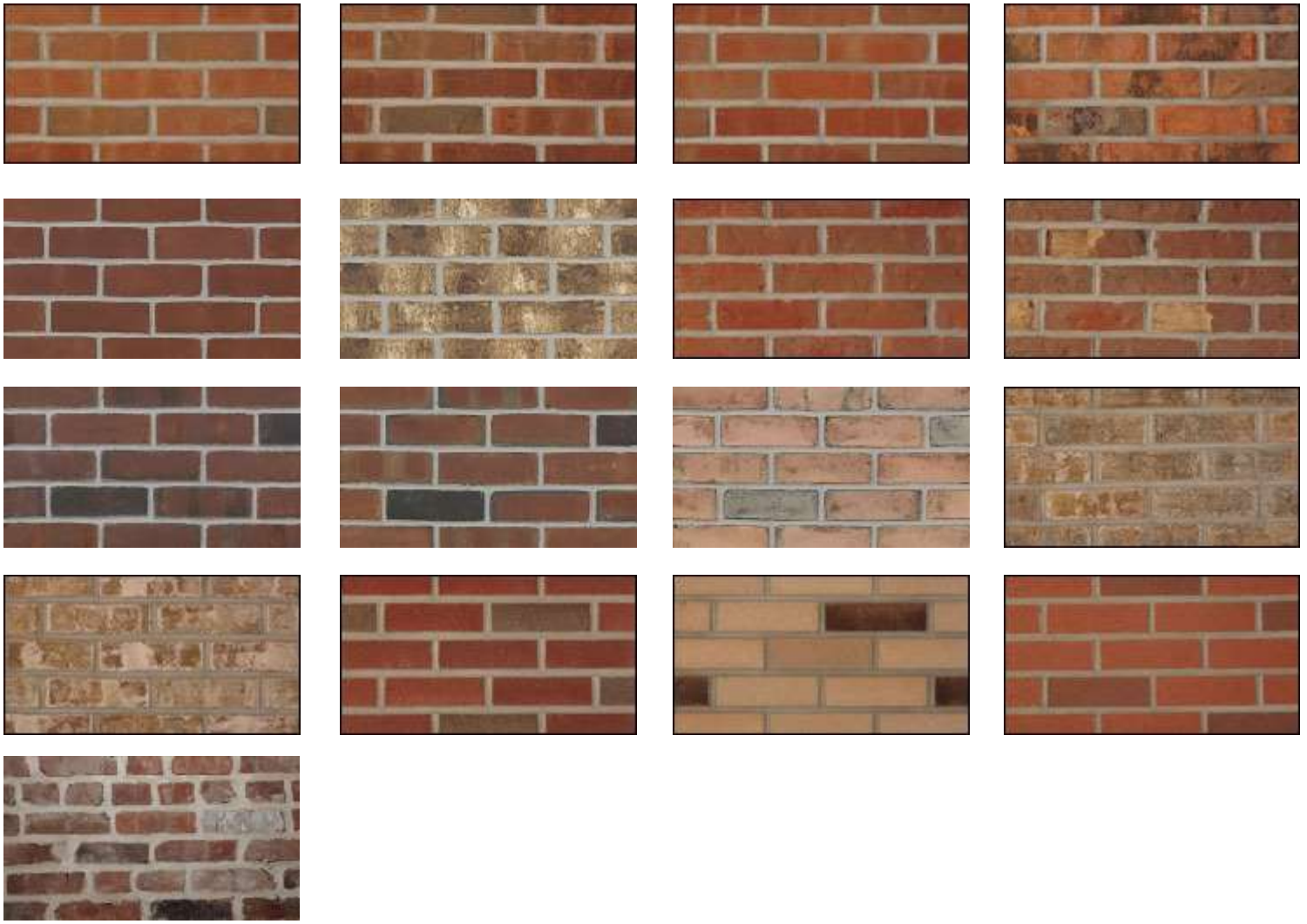
# Traditional Thin-Set Brick



# Thin Brick Options

- Manufactured Stock Thin Brick
- Special Order Bricks
- Tumbled Bricks
- Cut Brick of any Type
- Clinker Brick
- Glazed Brick

# Thin Brick Options



# Corners and Specials

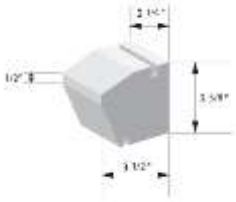
Modular Stretcher
2 1/4 x 7 5/8

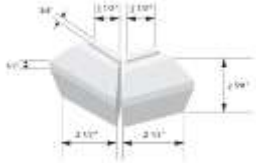
Modular Corner
2 1/4 x 7 5/8 x 3 5/8

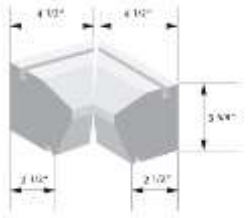
Modular Edge Cap
2 1/4 x 7 5/8 x 3 5/8

Modular Edge Cap Corner Left
2 1/4 x 7 5/8 x 3 5/8

Modular Edge Cap Corner Right
2 1/4 x 7 5/8 x 3 5/8







# INSTALLATION GUIDLINES

# Important Notes

- The following installation instructions are guidelines.  See detailed manufacturer's installation instructions and specifications for complete installation requirements.
- Refer to relevant codes, industry standards and project drawings and specifications

# Preparation

- Verify back-up is per project requirements
  - Plumb / level / openings / stud spacing
- Obtain written acceptance of the water resistive or air/moisture/vapor barrier and related flashings
- Install all flashings and transitions
- Obtain material certifications and submittal information for project compliance
- Provide samples and mock-up as required
- Obtain compatibility statement for adhesive and WRB/AMB, flashing and other adjacent materials

# Water Resistive Barrier (WRB)

## Air / Moisture / Vapor Barrier (AMV)

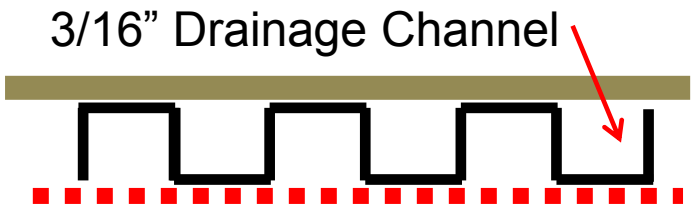
- Many choices
- AMV membrane products are self healing at fasteners
- Permeable and non-permeable
- Thin paper / plastic products should have taped joints

Paper / Plastic


Adhesive Membrane

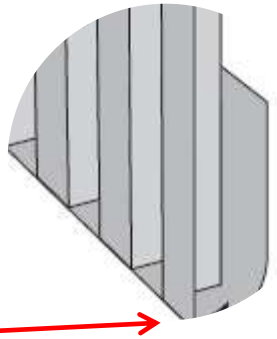
Spray

# Drainage Mat Installation




Fabric Mesh faces outside

Lap fabric over lower panel



Wrap fabric at exposed ends

# Tools

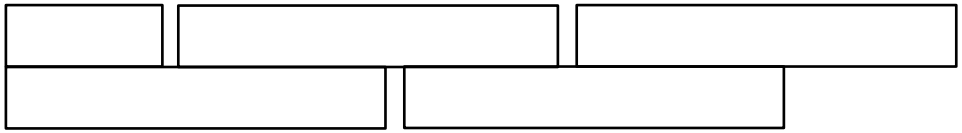
- Hammer
- Hacksaw
- Metal Snips
- Circular Saw
- Brick Nipper
- Wet Saw
- Caulking Gun
- Drill
- Mortar Bag
- Jointing Tools
- Mortar Mixer
- Staging

# Safety

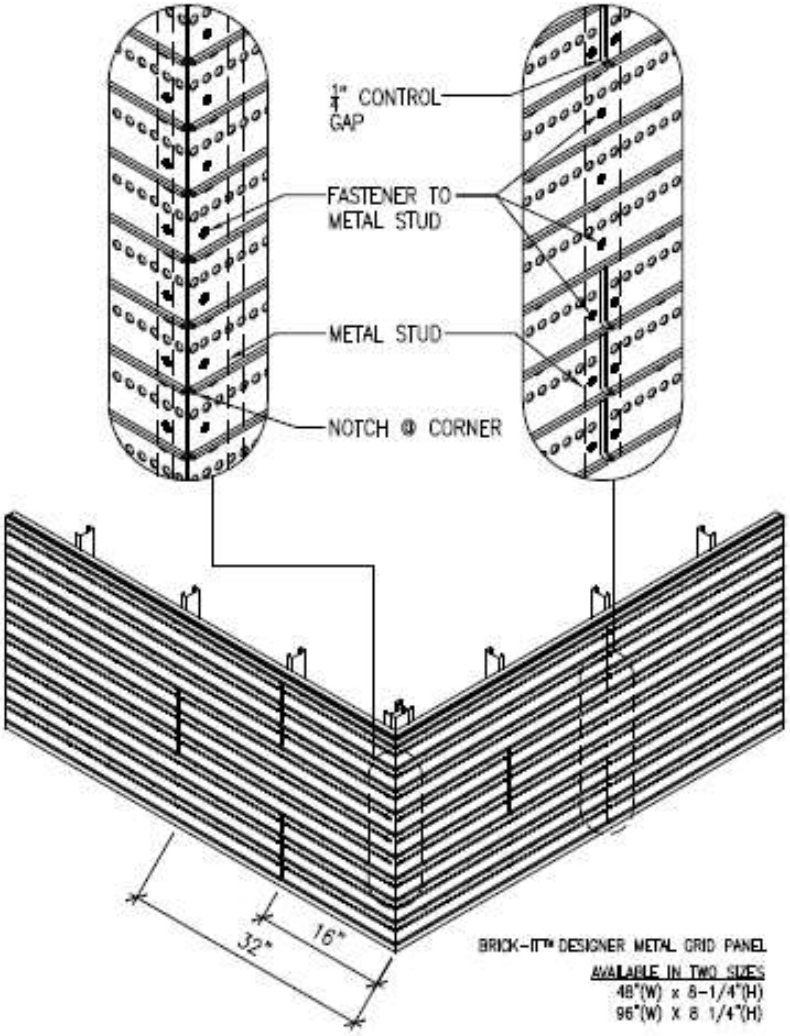
- Work in well ventilated areas
- Wear protective gloves, safety glasses, masks, hard hats and appropriate clothing
- Metal panels have sharp edges
- Follow all OSHA and job site safety regulations

# Metal Grid Panel Installation

- Install metal grid panels in running bond
- Leave a ¼” to 3/8” space between panels
- Interlock panels in vertical application
- Fasten at every stud (16”) o.c. horizontally and 3 per 8” vertically. Engineering may be required.
- Use recommended fasteners only
- Install corners per details
- Clean metal grid of dust, dirt, oils, etc. prior to brick installation



# Corner Panel Installation



# Fasteners

- Non-Corrosive (galvanized, coated, stainless steel)
- Spacing: 3 per 8” vertically and 16” o.c. horizontally
- Self Drilling Wafer Head for steel studs
- Flat Head Power Actuated
- Ribbed Nails
- Staples
- Masonry and concrete walls require fasteners and adhesive


# Fasteners

Ramset
DRIVING JOBSITE SPEED

FASTENING SYSTEMS

## GYPFAST

### Corrosion Resistance:

Climacoat Long Life Polymer

- *Salt Spray Results (ASTM B117)*
  *Driven: 1560 hours, 10% or less red rust*
  *UnDriven: 3240 hours, 10% or less red rust*

### Selection Chart

| Part No. | Fastener Description .140" dia. Knurled Shank 5/16" dia. Bugle Head | Master Carton Quantity | Master Carton Weight | Applications |
|---|---|---|---|---|
| GF112 | 1-1/2" (38mm) | 6,000 nails/ctn (40- 150 ct. coils) 6 fuel cells | 37 lbs. | Single Layer of Exterior Sheathing, Wood Furring and Blocking |
| GF200 | 2" (51mm) | 4,800 nails/ctn (32 - 150 ct. coils) 5 fuel cells | 38 lbs. | Double Layer of Exterior Gypsum Sheathing, Wood Furring and Blocking |
| GF212 | 2-1/2" (64mm) | 2,700 nails/ctn (18 - 150 ct. coils) 3 fuel cells | 26 lbs. | Multi-Layers of Sheathing, Wood Blocking, and Dimensional Lumber |
| G2 | GypFast Cordless Coil Nailer 7.5 with battery<br>(1) Tool; (1) Safety Goggles; (1) Operators Manual; (2) Batteries | | | |

### Performance Data

ASTM E330 Negative Wind Load Results

| Fastener | Board Type | Orientation | Gauge | Stud Spacing | Stud/ Fastener |
|---|---|---|---|---|---|
| GypFast | 5/8" Dens-Glass® Gold | Vertical | 18 | 24"/8" | 70.9 |
| GypFast | 5/8" Exterior Gypsum | Vertical | 18 | 24"/8" | 63.5 |

Fastener Comparison/Performance

| Fastener | Pullout Steel Gauge 20 .036 | 18 .048 | 16 .060 | 14 .075 | Avg. lbs. Ultimate Tensile | Avg. lbs. Ultimate Shear |
|---|---|---|---|---|---|---|
| GypFast | 285 | 393 | 574 | 659 | 2041 | 1385 |
| 5-12 self-drilling screws | 194 | 327 | 437 | 930 | 750 | 1430 |

Values are in average, ultimate pounds.

### Accessories

| Part No. | Description | Carton (Qty) |
|---|---|---|
| 100342 | Lath Disc Magnetic Nose Piece | 1 |
| LD114 | Lath Disc - 1-1/4" | 1000 |
| LD100 | Lath Disc - 1" | 1000 |
| B0002 | Battery | 1 |
| TRIEL | Fuel Cell | 12 |
| B0022 | Battery Charger | 1 |

### Tools and Techniques

- *Always read operators manual for instruction on proper use and safety.*
- *Adjust depth sensitive nosepiece to achieve proper seating of fastener to work surface.*
- *Consult sheathing manufacturer's guidelines for appropriate fastener and fastening pattern.*
- *Point of nail must penetrate 1/2" minimum beyond steel.*

# Adhesives

- Use and purchase adhesives from the manufacturer. These products have been tested and approved for use with the system.
- Use of other products will void any and all warranties
- Apply adhesive beads in thickness and pattern shown
- Slide brick in a slightly side to side motion to spread adhesive
- Do NOT use excessive amounts of adhesive
- Allow adhesive to dry at least 24 hours before mortar jointing

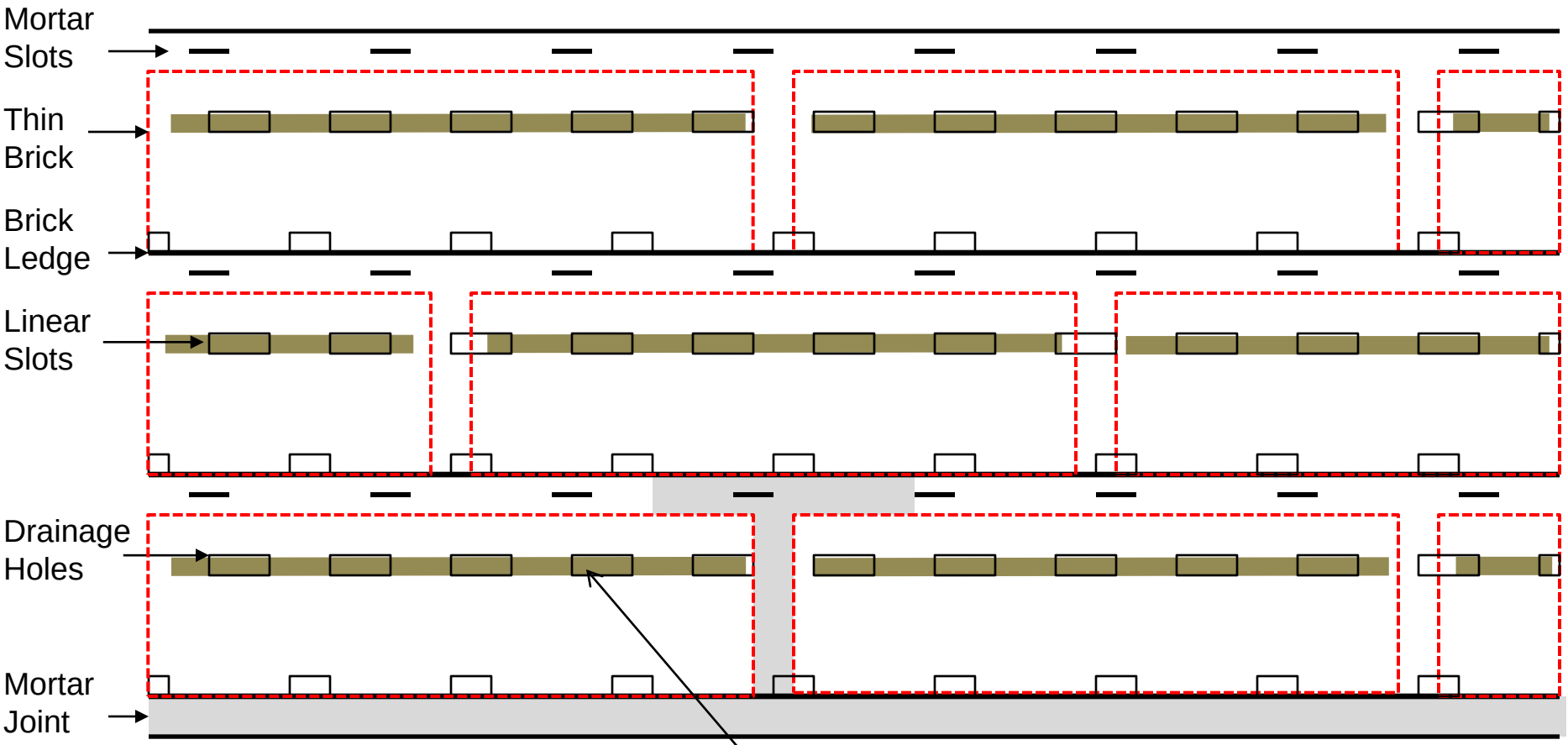
# Adhesives

**Adhesives currently used by Brick IT**

Sonneborn (BASF) Premium Adhesive is a polyurethane based, moisture cure adhesive. Can be installed in cold weather. Moisture cure means moisture will not affect bond. OK in heat.

Titebond – Provantage Heavy Duty Adhesive is a solvent based adhesive.
Can be installed in cold weather. Adhesive can melt in high heat installations before cure. Once cured, product is stable. Acceptable for interiors year round. Less expensive.

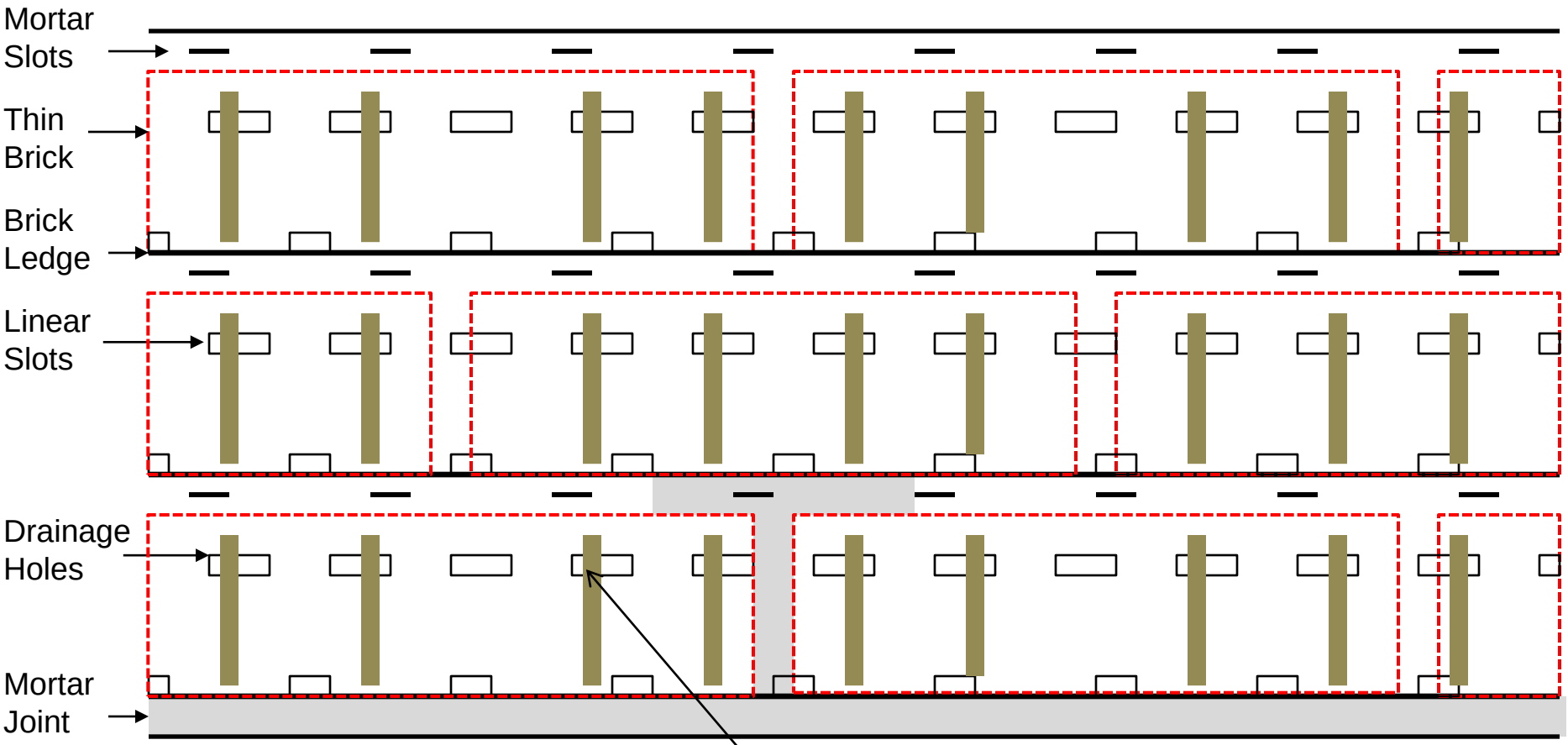
# Adhesive Option 1 – Non-Drainage




Area of adhesive = about ½" wide by 8" or 4 sq. in per brick.

Adhesive at holes bridges any minor voids between the panel and substrate provides solid installation crucial to veneer longevity.

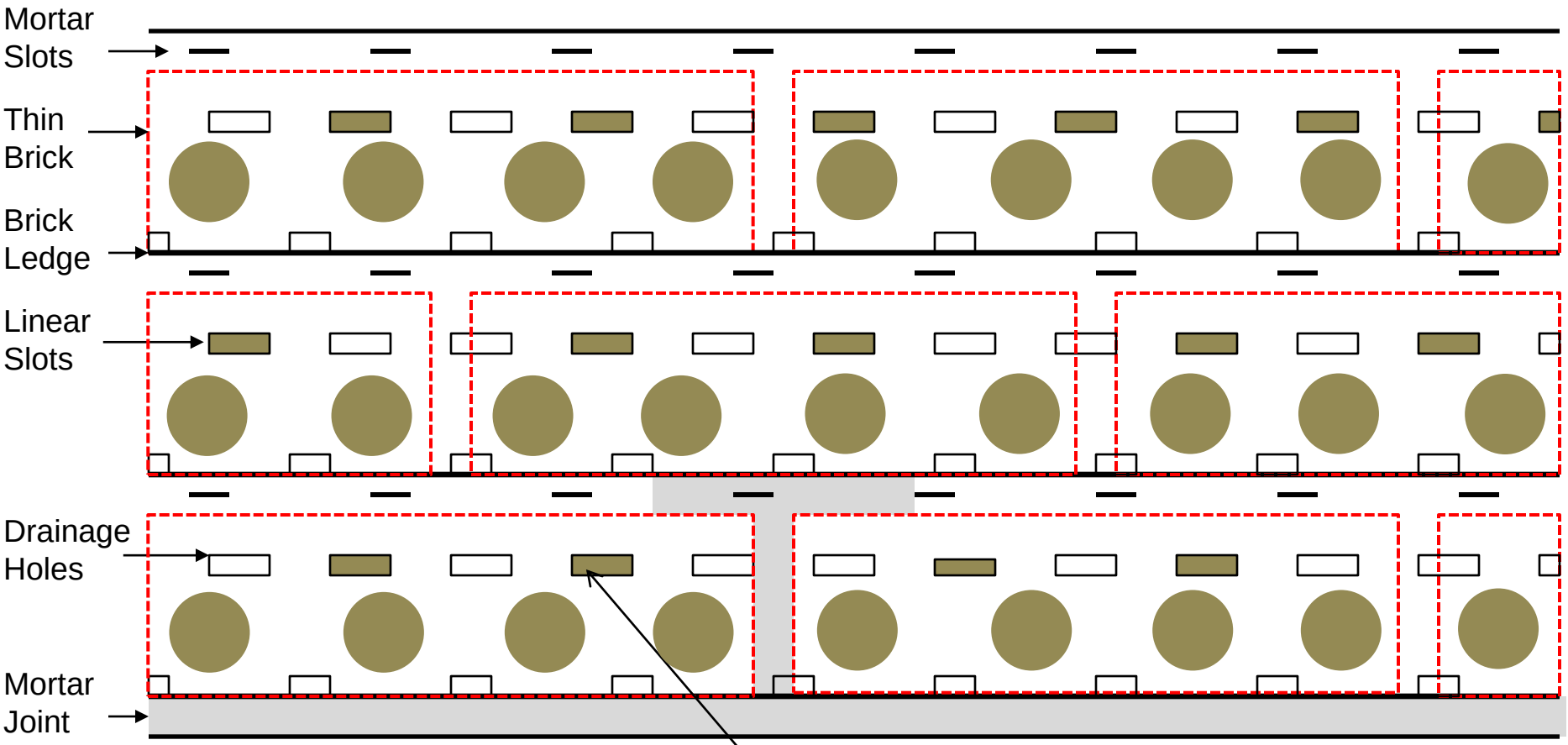
# Adhesive Option 2 – Drainage & All




Area of adhesive = about ½" wide by 8" or 4 sq. in per brick.

Adhesive at holes bridges any minor voids between the panel and substrate provides solid installation crucial to veneer longevity.

# Adhesive Option 3 – Drainage & All




Area of adhesive = about 1” Diameter (.8 si)”- 4 per brick or about 4 sq. in per brick.

Adhesive at holes bridges any minor voids between the panel and substrate provides solid installation crucial to veneer longevity.

# Thin Brick Installation

- Layout brick to modular bond in advance
- Install corner brick to bond pattern
- Adjust joints as required: 3/8”  +/- 1/8”
- Use plumb lines as required to keep vertical joints in alignment
- Do not install defective brick
- Blend brick that have a range
- Do not hammer cut brick – use a saw
- Install expansion joints as shown
- Apply adhesive per manufacturer’s recommendations

# Mortar Joint Installation

- Allow adhesive to dry for a least 24 hours
- Use and purchase mortar from the manufacturer. These mortars have been tested and approved for use with the system.
- Use of other products will void any and all warranties
- Make sure panel is free of dirt, oil and adhesive
- Install mortar in joint with grout bag or by industry approved method
- Fill joints but avoid over grouting on brick surface
- Fill horizontal first, then vertical for even setting time
- Tool joint when mortar is thumb print hard
- Tool vertical (head joints), then horizontal (bed joints)
- Tool joint concave using a concave jointer or dowel
- Clean excess when dry

# Wash-down

1. Use cleaning products as recommended by the brick manufacturers
2. Some brick contain iron, manganese or other substances that are sensitive to acids
3. Wait 7 days (or longer - weather dependent) or as recommended after mortar joint pointing
4. Protect adjacent areas
5. Dilute cleaners as much as possible and avoid strong concentrations of acid
6. Pre-Wet entire area thoroughly
7. Rinse area with plenty of water
8. Follow manufacturers instruction

# Weather Conditions

- Install adhesive in temperatures as recommended by manufacturer
- Do not install mortar joints if temperature is below 40 degrees.
- Provide heat and protection per codes
- Wet brick in advance (night before) prior to mortaring in hot weather or if height absorptive

# Sheathing / Flashing

# Water Resistive Barrier

# Metal Grid Panel Installation


# Thin Brick Installation

# Thin Brick Installation

# Thin Brick Installation

# Quality Assurance

## Quality Assurance Program

### Participating Products List for:

**Corporate Address:** Brick-It
17 Central Avenue
Hauppauge, New York 11788

**Website:** www.brickit.com

**Manufacturing Location:** 17 Central Avenue
Hauppauge, New York 11788

**Participant Since:** November 2009

Note: The manufacturer posted on this Quality Assurance Program Listing is a participant in good-standing in the Architectural Testing Third-Party Quality Assurance program, which is approved by the Florida State Department of Community Affairs in conjunction with the Florida State-Wide Product Approval Program. The products listed have been approved by the DCA and are verified by Architectural Testing during unannounced manufacturing site audits. This Quality Assurance Program listing is not an endorsement or approval of the manufacturer or products listed herein.

# Quality Assurance

## Quality Assurance Program

### Participating Products List for:

**Corporate Address:**

Brick-It
17 Central Avenue
Hauppauge, New York 11788

**Florida Application List:**

Approved Quality Assurance Program for:

**FL 14427:**

Brick Veneer Wall Panel System

Note: The manufacturer posted on this Quality Assurance Program Listing is a participant in good-standing in the Architectural Testing Third-Party Quality Assurance program, which is approved by the Florida State Department of Community Affairs in conjunction with the Florida State-Wide Product Approval Program. The products listed have been approved by the DCA and are verified by Architectural Testing during unannounced manufacturing site audits. This Quality Assurance Program listing is not an endorsement or approval of the manufacturer or products listed herein.

# Education / Training & Installer Requirements

- Installer shall have received instructions from the manufacturer and a Certificate of Trained Applicator
- Installer must be experienced and trained in brick masonry construction
- If requested, submit a list of recently completed projects
- Request and pay for job site inspection if required by project

# Warranty

- Provide manufacturers standard 20 year warranty
- Request and pay for periodic job site inspection if required by project to validate warranty

# SPECIFICATIONS

SEE MANUFCATURERS AND ARCHITECTS RECOMMENDED SPECIFICATIONS

# SECTION 5

# GALLERY OF PROJECTS


Optical
Cleaner
JEWELRY

Commercial


Commercial


101
STATE FARM
PROVIDING INSURANCE AND FINANCIAL SERVICES


STATE FARM


STATE FARM
101
STATE FARM

Interior


PACHO
COCINA AND TEQUILA


Mount Sinai
HERITAGE
DINER

Residential


Commercial


OPTICAL
CHEAP CD'S
FOOT CARE


Apple Bank
Uncle Giuseppes'
MARKETPLACE


Talbots
OUTLET STORE
GOOD TASTE CHINESE BUFFET

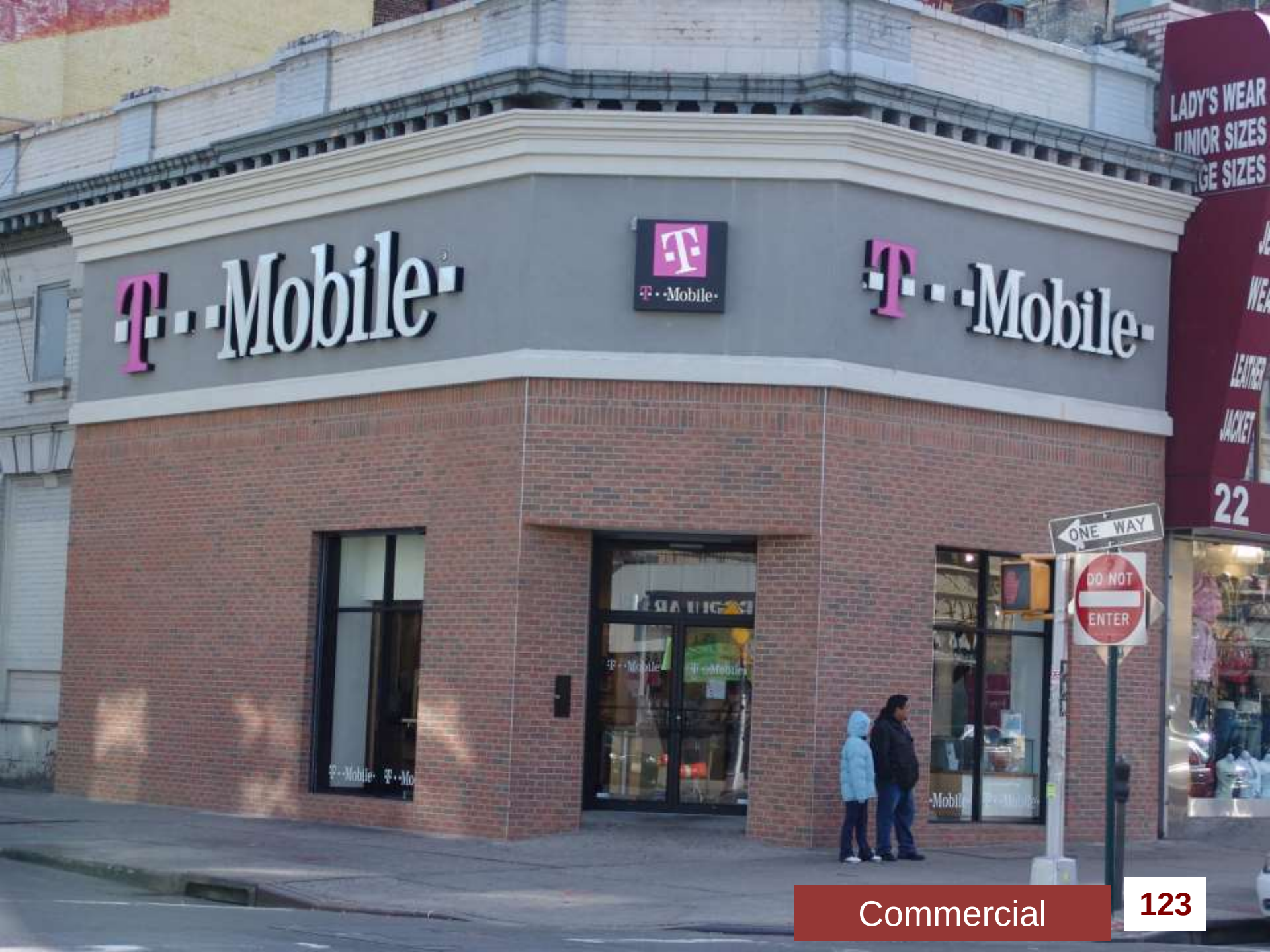

ECKERD


ECKERD
PHARMACY
ECKERD
ECKERD


ECKERD
PHARMACY
ECKERD
PHARMACY

Commercial

Commercial




Commercial


Commercial


35
MAXIMA

Residential

Interior

Interior

Interior

Interior

# AIA-CES Program

This concludes The American Institute of Architects Continuing Education Systems Course

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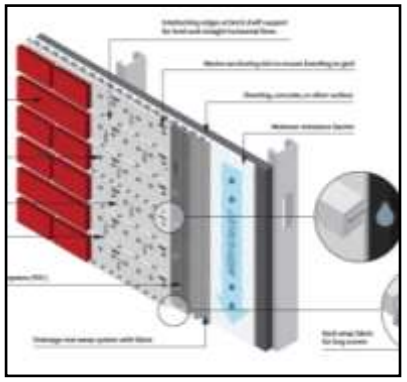
Hauppauge, NY 11788
Email: Robert@brickit.com
631.591.9195 - Cell
631-902-9331 Direct
631-244-3993 x 312

# Brick It™ - Company Profile

BRICK IT
Thin Brick & Installation Systems


- Thin Bricks
- Thin Stone
- Metal Grids
- Accessories


SIDING
PUTS ON A
NEW FACE




# Designing & Detailing Adhered Veneer Systems with Thin Brick and Stone