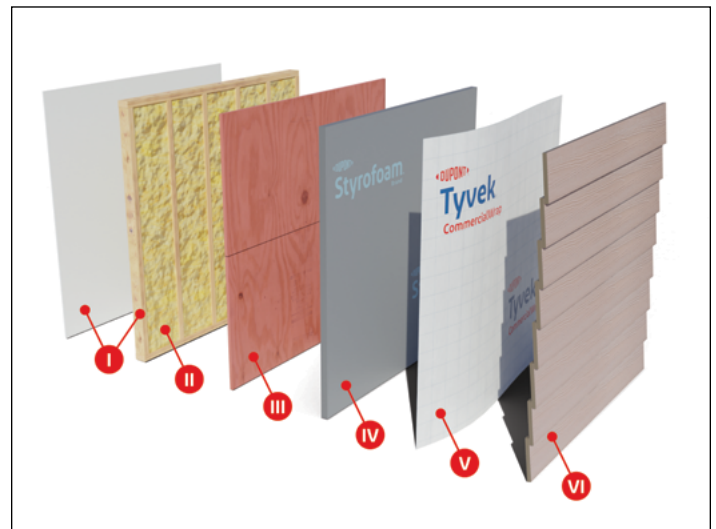
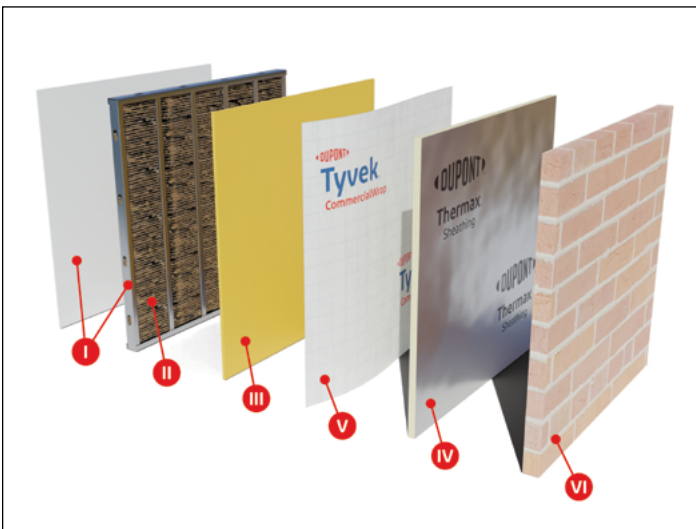


# NFPA 285 Compliant Wall Assemblies Installed using Fire Retardant Treated Wood (FRTW) Framing

With DuPont™ Tyvek® Commercial Air and Water Barrier Systems and DuPont™ Styrofoam™ Brand and Thermax™ Rigid Continuous Insulation



## I. Base Wall System

1. Wood Studs: minimum 2"x4" Fire Retardant Treated Wood (FRTW) spaced maximum 16" on center.
  - a. Minimum one layer of 5/8" thick Type X gypsum installed on interior face of wood studs.
  - b. Wall cavity filled with insulation as specified in **Cavity Insulation** section.
2. Steel Studs: minimum 3-5/8" deep, minimum 20-gauge steel studs spaced a maximum of 24-inches O.C.
  - a. Minimum one layer of 5/8" thick Type X gypsum installed on interior face of stud framing.
  - b. Wall cavity filled with insulation as specified in **Cavity Insulation** section.

**Floorline firestopping:** Minimum 8" deep, minimum 4 lb./ft<sup>3</sup> mineral wool insulation shall be friction fit in each wall stud cavity on top of the wall bottom plate at every floor line. Minimum two top plates at floorlines.

### Interior Vapor/Moisture Barrier

1. None
2. Any 6-mil thick polyethylene film

## II. Cavity Insulation

1. Minimum R-13 fiberglass batt insulation (faced or unfaced)
2. Mineral wool batt insulation (faced or unfaced)

## III. Exterior Sheathing

1. 15/32" thick FRTW plywood complying with Section 2303.2 of the IBC
2. 1/2" thick exterior gypsum sheathing
3. 5/8" thick Type X exterior gypsum sheathing

## IV. Exterior Insulation

1. Maximum 1" thick DuPont™ Thermax™ polyisocyanurate insulation
2. Maximum 1" thick DuPont™ Styrofoam™ Extruded Polystyrene (XPS) Type IV or Type X per ASTM C578. XPS fastened to exterior sheathing using 1-3/4" long roofing nails spaced 12" on center around the perimeter and 16" on center in the field.
3. None

## Flashing of Windows, Doors, and Other Exterior Wall Penetrations

When Thermax™ Brand Insulation or Styrofoam™ Brand Foam Insulation is used as Exterior Insulation, all exterior insulation joints, through-wall penetrations, window, and door openings can be flashed with one of the following:

1. DuPont™ LiquidArmor™ CM Flashing and Sealant at maximum 60 wet mils and maximum 12" width.
2. DuPont™ LiquidArmor™ LT Flashing and Sealant at maximum 35 wet mils and maximum 12" width.
3. DuPont™ DuraGard™ CM Transition Flashing at maximum 12" width.
4. Limited amounts of acrylic, asphalt, or butyl-based flashing tape at a maximum of 12" width.

**Note:** Flashing tape used in wall openings may extend the wall width plus extend up to a maximum of 4" onto the exterior face of the sheathing. Flashing tape may be used on sheathing exterior corners where the flashing tape may extend a maximum of 4" onto the sheathing face on either side of the corner.

## V. Air and Water Barrier

Applied to Exterior Sheathing OR over Exterior Insulation

1. DuPont™ Tyvek® Commercial Wrap®
2. DuPont™ Tyvek® Commercial Wrap® D
3. DuPont™ Tyvek® ThermaWrap™

**Note:** Only one layer of Air and Water Barrier material permitted in exterior wall assembly.

## VI. Exterior Cladding

### 1. HardiPlank Lap Siding

Minimum 5/16" thick installed with a 1-1/4" overlap.

### 2. Brick

Standard nominal 4" thick clay brick with standard type brick veneer anchors, installed a maximum of 24" on center vertically on each stud, leaving a maximum 2" air gap between the exterior insulation and the brick.

### 3. Stucco

Minimum 3/4" thick exterior cement plaster and lath. A secondary water-resistive barrier can be installed between the exterior insulation and lath. The secondary water-resistive barrier can be 1 or 2 layers of asphalt building paper but shall not be full-coverage asphalt or butyl-based self-adhered membranes.

### 4. Natural or Artificial Stone

Minimum 2" thick natural stone veneer or minimum 1-1/2" thick cast artificial stone veneer. Any standard non-open-joint installation technique can be used.

### 5. Teracotta Cladding

Minimum 1-1/4" thick terracotta cladding system. Any standard non-open-joint installation technique can be used.

### 6. Concrete or Precast Concrete Panels

Minimum 1/2" thick panel with a 2" maximum air gap between exterior insulation and the interior face of the exterior CMU. Any standard non-open-joint installation technique can be used.

### 7. Concrete Masonry Units

Minimum 2" thick panel with a 2" maximum air between exterior insulation and the interior face of the exterior CMU. Any standard non-open-joint installation technique can be used.

### 8. Corium Thin Brick System

### 9. StoneLite® Natural Stone Wall Panels

### 10. Glen-Gery Thin tech Elite Series

### 11. Ceramic Tile

Minimum 3/8" thick, bonded using noncombustible mortar adhesive to minimum 1/2" thick cement board or gypsum sheathing.

### 12. Thin Brick

Minimum 3/4" thick clay brick fully adhered with cementitious mortar (standard or polymer modified) to minimum 1/2" thick cement backer board or gypsum sheathing. A second water-resistive barrier can be installed between the board/sheathing and the brick. The secondary water-resistive barrier shall not be full-coverage asphalt or butyl-based self-adhered membranes.

### 13. Natural or Artificial Stone

Minimum 3/4" thick clay brick fully adhered with cementitious mortar (standard or polymer modified) to minimum 1/2" thick cement backer board or gypsum sheathing. A second water-resistive barrier can be installed between the board/sheathing and the brick. The secondary water-resistive barrier shall not be full-coverage asphalt or butyl-based self-adhered membranes.

## Special Conditions – Wall Opening Protection

Use wall opening treatment shown in **Figure 1** for cladding materials with no air cavity space between cladding and insulation/air and water barrier. Header shall consist of minimum 5/4x4" window trim above window header, 1"x1-1/2" FRTW window rough opening extension under foam plastic insulation, and a minimum 2"x6" vertical FRTW header on top of a minimum 2 FRTW horizontal header.

When cladding materials incorporate air cavity space, wall opening header treatments shall be installed as shown in **Figure 2**.

# NFPA 285 Window Head and Sill Detail Options for All Exterior Window and Door Openings

## Tyvek® WRB and Continuous Insulation for Cladding Materials With No Air Cavity Space

Figure 1: Wall opening treatment for cladding materials with no air cavity space

### HEAD

2X4 FRTW @ 1.6" O.C.  
Double top plate

1/2" FRTW Plywood

TYVEK® Commercial  
Wrap

8.25" X 5/16"  
Hardie Siding with  
7" Exposure

Drip Cap

5/4X4" Window Trim

Drip Cap

TYVEK® Flashing

5/8" Type "X"  
Gyp Board

R-13 Kraft Face  
Batt Insulation  
Refer to Insulation  
Layer II

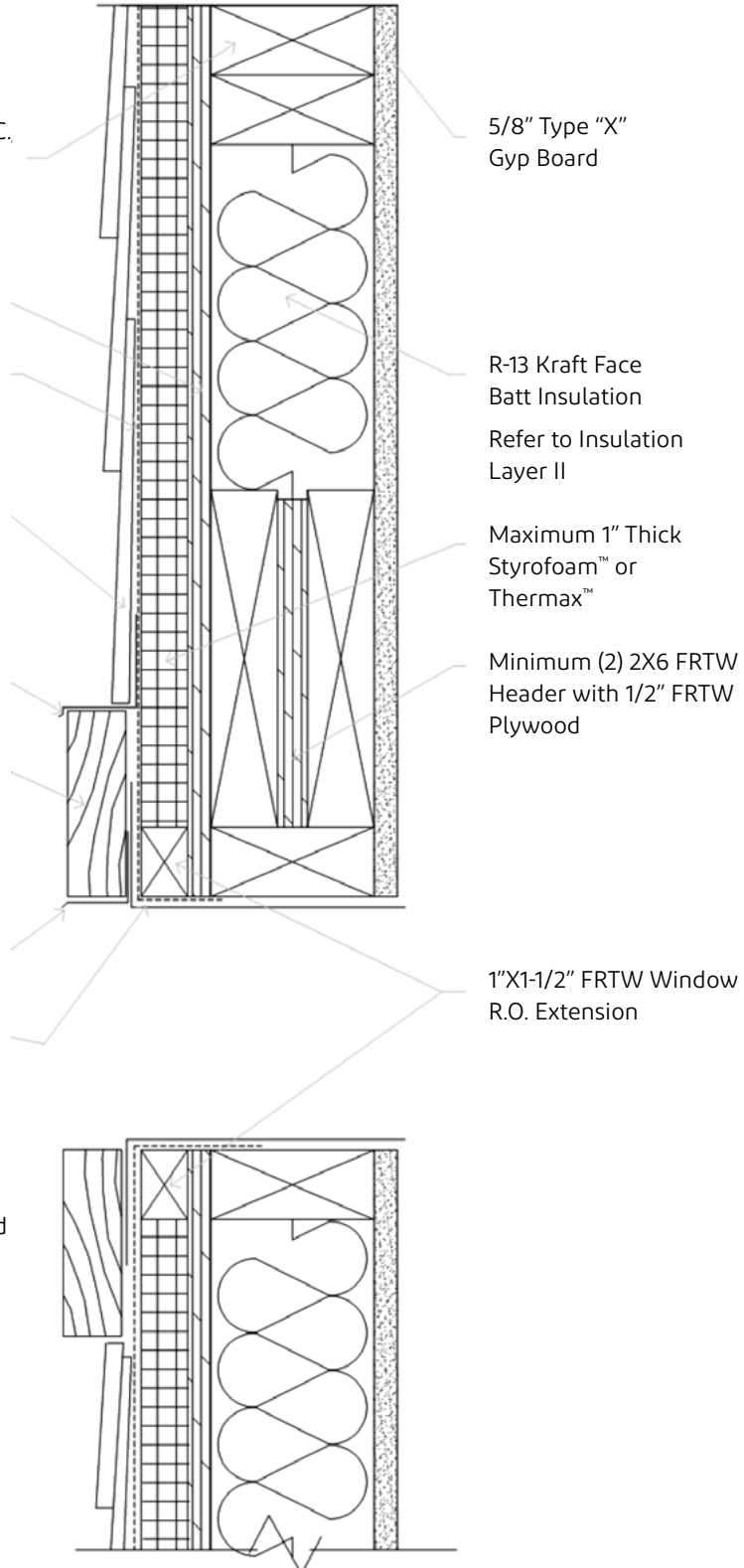
Maximum 1" Thick  
Styrofoam™ or  
Thermax™

Minimum (2) 2X6 FRTW  
Header with 1/2" FRTW  
Plywood

1"X1-1/2" FRTW Window  
R.O. Extension

### SILL

NOTE: Boxed, bolded  
items are critical to  
maintain NFPA 285  
Compliance



**Figure 2: Wall opening treatment for cladding materials with air cavity space**

**HEAD**

2X4 FRTW @ 1.6" O.C.  
Double top plate

1/2" FRTW Plywood

TYVEK® Commercial  
Wrap

NFPA 285 Approved  
heavy masonry  
claddings

Masonry Lintel

5/8" Type "X"  
Gyp Board

R-13 Kraft Face  
Batt Insulation  
Refer to Insulation  
Layer II

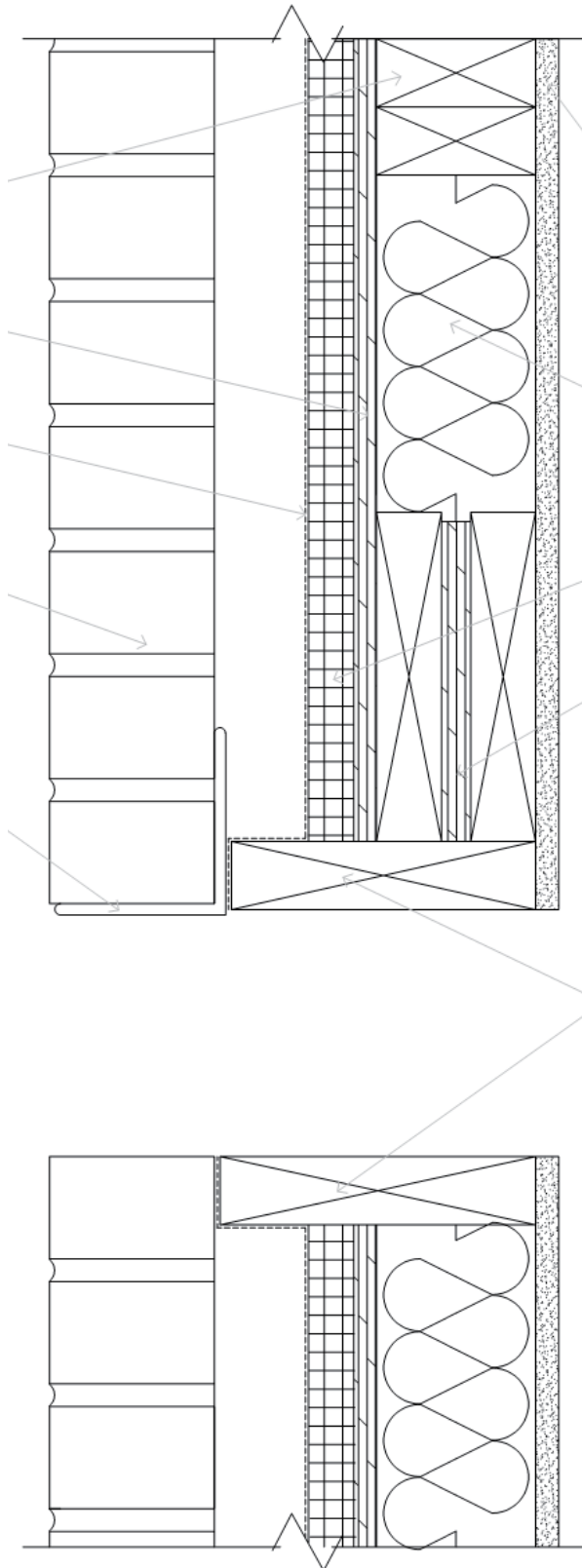
Maximum 1" Thick  
Styrofoam™ or  
Thermax™

Minimum (2) 2X6  
FRTW Header with  
1/2" FRTW Plywood

FRTW Framing  
extends to back face  
of masonry lintel/  
cladding

**SILL**

**NOTE:** Boxed, bolded  
items are critical to  
maintain NFPA 285  
Compliance



For additional NFPA 285 compliant wall assemblies utilizing DuPont™ Tyvek® Commercial Air and Water Barrier products, referenced from other assembly component manufacturers, please call 1-833-338-7668 or visit [building.dupont.com](http://building.dupont.com).

DuPont - Engineering Analysis for Exterior Wall Assemblies Constructed using Fire Retardant Treated Wood (FRTW) Framing  
Jensen Hughes Project Number 1JJB05306.011 Dated April 19, 2022



**For more information visit  
[building.dupont.com](http://building.dupont.com)  
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