



**PRIEST & ASSOCIATES
CONSULTING, LLC**

October 28, 2020

Prosoco, Inc.
3741 Greenway Circle
Lawrence, KS 66046

Re: Project No. 10261K, Revision 6
NFPA 285 Tables of Allowed Constructions for Prosoco Products

The code requirement for NFPA 285 testing of wall assemblies incorporating combustible components presents an enormous compliance endeavor. Considering the number of choices for each component (interior gypsum sheathing, cavity insulation, stud sizes, exterior gypsum sheathing, water-resistant barrier (WRB), exterior insulations, WRB, air gap, claddings), one can calculate that the number of possible constructions can reach into the tens of thousands of assemblies.

Given that each NFPA 285 assembly test costs approximately \$20,000, a manufacturer can spend many millions of dollars achieving compliance with the code for a wide variety of combinations.

Pursuant to the discretionary provisions of the building code, the building code officials community allows assemblies which have not been tested under NFPA 285, where NFPA 285 testing has been conducted on worst-case assemblies, and where Engineering Evaluations have been performed which show that a specified alternative assembly can be assumed to perform as well or better than the tested assemblies.

Strict rules based on known fire science principles are used to determine allowances of alternate materials. In the case of WRB products, an alternate WRB can substitute for a WRB incorporated in an NFPA 285 tested assembly or approved in a previous Engineering Evaluation if the alternate product's relative flaming characteristics are the same or better than the baseline product. This is accomplished via Engineering Evaluations such as those written for PROSOCO, as discussed below.

This document is a compilation of tables of allowed constructions based on NFPA 285 tests, cone calorimeter flaming and combustion studies, and Engineering Evaluations 10261A, -B, -C, -D, -E, -F, -G, -H & -I representing assemblies incorporating XPS and polyisocyanurate exterior insulation products from Atlas, Carlisle, DOW, Hunter, Johns Manville, Owens Corning and Rmax.

The Engineering Evaluations and the attached compilation also cover assemblies utilizing mineral wool insulation and assemblies with no insulation. The Engineering Evaluations assume utilization of standard steel stud, external gypsum sheathing, and cladding assemblies and assemblies with back-up walls constructed of CMU or concrete.

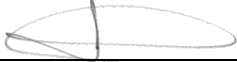
In each case, NFPA 285 tests were successfully conducted on various configurations of exterior wall system designs incorporating various WRB products as well as Prosoco products. The purpose of these evaluations was to determine engineering extensions for the alternative assemblies that can be expected to meet the requirements of NFPA 285.

An analysis was conducted on the components incorporated in assemblies tested under NFPA 285, which allowed the determination of a base wall system from which replacement components can be interchanged.

Cone calorimeter data was submitted to evaluate the substitutions of the NFPA tested WRB products with PROSOCO WRB products. The data indicated that the WRB products tested in NFPA 285 assemblies could be replaced with the PROSOCO WRB products. The tables of substitutions below outline the

allowed constructions based on the analysis of these reports. Spay Wrap RS cone calorimeter data (Ref: Exponent Report Dated July 3, 2018) was submitted for analysis and showed no sign of ignition when tested at 50 kW/m² heat flux. This qualifies it to be added to the tables below. Sprayable Cat 5 (T-2650) was analyzed compared to the tested baselines and was deemed acceptable (Pk. HRR lower than baselines) to be added to the tables below.

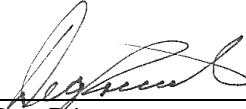
Submitted by,



Javier Trevino
Associate Engineer
210-601-0655

October 28, 2020

Reviewed and Approved,



Deg Priest
President

October 28, 2020



HUNTER TABLES

For all constructions, the window header shall consist of a minimum of 25 GA. sheet steel flashing

Wall Component	
<p>Base Wall Use either 1, 2 or 3</p>	<ol style="list-style-type: none"> 1) Cast Concrete Walls 2) CMU Concrete Walls 3) 25 GA. min. 3⁵/₈" (min.) steel studs spaced 24" OC (max.) <ol style="list-style-type: none"> a. 5⁵/₈" type X Gypsum Wallboard Interior b. Lateral Bracing every 4 ft
<p>Fire-Stopping at Floor Lines</p>	<p>Any approved mineral fiber-based safing insulation in each stud cavity at floor line Safing thickness must match stud cavity depth.</p>
<p>Cavity Insulation Use either: 1, 2, 3, 4, 5, 6 or 7</p>	<ol style="list-style-type: none"> 1) Any noncombustible insulation per ASTM E136 2) Any Mineral Fiber (Board type Class A ASTM E84 faced or unfaced) 3) Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced) 4) 1½" (min.) of Bayer EcoBay CC SPF (up to full cavity thickness) 5) 1½" (min.) of BASF Walltite SPF (up to full cavity thickness) 6) Any foam plastic insulation tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable than those listed above. 7) None
<p>Exterior Sheathing</p>	<p>½" or thicker exterior gypsum sheathing</p>
<p>WRB Over Base Wall Surface Use any Item 1 - 6</p> <p>WRB Membranes are used over exterior sheathing or exterior insulation, but not both.</p>	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
<p>Exterior Insulation Use any Item 1 - 4</p>	<ol style="list-style-type: none"> 1) None 2) 3½" thick Xci-286 3) Any noncombustible or fiberglass insulation (faced or unfaced) 4) Any exterior insulation which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than those listed above.
<p>WRB Over Exterior Insulation Use any Item 1 - 6</p> <p>WRB Membranes are used over exterior sheathing or exterior insulation but not both.</p>	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
<p>Exterior Cladding Use any Item 1 - 12</p>	<ol style="list-style-type: none"> 1) Brick – Nominal 4" clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick Ties/Anchors 24" OC (max.) 2) Stucco – minimum ¾" thick exterior cement plaster and lath 3) Limestone – minimum 2" thick using any standard non-open joint installation technique such as shiplap 4) Natural Stone Veneer – minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone 5) Cast Artificial Stone – minimum 1½" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap 6) Terra Cotta Cladding – minimum 1¼" thick (solid or equivalent by



	<p>weight) using any standard non-open joint installation technique such as shiplap</p> <ol style="list-style-type: none"> 7) Any MCM that has successfully passed NFPA 285 8) Uninsulated sheet metal building panels including steel, copper, or aluminum 9) Uninsulated Fiber-cement siding 10) Stone/Aluminum honeycomb composite building panels that have successfully met NFPA 285 criteria 11) Autoclaved-aerated-concrete (AAC) panels that have successfully met NFPA 285 criteria 12) Terra Cotta Cladding – Any Rain-screen Terra Cotta (min. ½" thick) with ventilated shiplap.
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Wall Component	
Base Wall Use any Item 1 - 3	<ol style="list-style-type: none"> 1) Cast Concrete Walls 2) CMU Concrete Walls 3) 25 GA. min. 3⅝" (min.) steel studs spaced 24" OC (max.) <ol style="list-style-type: none"> a. ⅝" type X Gypsum Wallboard Interior b. Lateral Bracing every 4 ft
Fire-Stopping at floor lines	Use any approved mineral fiber-based safig insulation in each stud cavity at the floor line. Safig thickness must match stud cavity depth.
Cavity Insulation Use any Item 1 - 7	<ol style="list-style-type: none"> 1) Any noncombustible insulation per ASTM E136 2) Any Mineral Fiber (Board type Class A ASTM E84 faced or unfaced) 3) Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced) 4) 1½" (min.) of Bayer EcoBay CC SPF (up to full cavity thickness) 5) 1½" (min.) of BASF Walltite SPF (up to full cavity thickness) 6) Any foam plastic insulation tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable than those listed above. 7) None
Exterior Sheathing	½" or thicker exterior gypsum sheathing
WRB Over Base Wall Surface Use any Item 1 - 6 WRB Membranes are used over exterior sheathing or exterior insulation but not both	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
Exterior Insulation Use any Item 1 - 4	<ol style="list-style-type: none"> 1) None 2) 3½" thick Xci-Class A 3) Any Noncombustible or fiberglass insulation (faced or unfaced) 4) Any exterior insulation which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than those listed above.
WRB Over Exterior Insulation Use any Item 1 - 6 WRB Membranes are used over exterior sheathing or exterior insulation but not both.	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS



<p>Exterior Cladding Use any Item 1 - 12</p>	<ol style="list-style-type: none"> 1) Brick – Nominal 4" clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick Ties/Anchors 24" OC (max.). 2) Stucco – minimum ¾" thick exterior cement plaster and lath 3) Limestone – minimum 2" thick using any standard non-open joint installation technique such as shiplap 4) Natural Stone Veneer – minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone 5) Cast Artificial Stone – minimum 1½" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap 6) Terra Cotta Cladding – minimum 1¼" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap 7) Any MCM that has successfully passed NFPA 285 8) Uninsulated sheet metal building panels including steel, copper, or aluminum 9) Uninsulated Fiber-cement siding. 10) Stone/Aluminum honeycomb composite building panels that have successfully met NFPA 285 criteria 11) Autoclaved-aerated-concrete (AAC) panels that have successfully met NFPA 285 criteria. 12) Terra Cotta Cladding – Any Rain-screen Terra Cotta (min. ½" thick) with ventilated shiplap.
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<p>Wall Component</p>	
<p>Base Wall Use any Item 1 - 3</p>	<ol style="list-style-type: none"> 1) Cast Concrete Walls 2) CMU Concrete Walls 3) 25 GA. min. 3⅝" (min.) steel studs spaced 24" OC (max.) <ol style="list-style-type: none"> a. ⅝" type X Gypsum Wallboard Interior b. Lateral Bracing every 4 ft
<p>Fire-Stopping at Floor Lines</p>	<p>Use any approved mineral fiber-based safing insulation in each stud cavity at the floor line. Safing thickness must match stud cavity depth.</p>
<p>Cavity Insulation Use any Item 1 - 7</p>	<ol style="list-style-type: none"> 1) Any noncombustible insulation per ASTM E136 2) Any Mineral Fiber (Board type Class A ASTM E84 faced or unfaced) 3) Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced) 4) 1½" (min.) of Bayer EcoBay CC SPF (up to full cavity thickness) 5) 1½" (min.) of BASF Walltite SPF (up to full cavity thickness) 6) Any foam plastic insulation tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable than those listed above. 7) None
<p>Exterior Sheathing</p>	<p>½" or thicker exterior gypsum sheathing</p>
<p>WRB Over Base Wall Surface Use any Item 1 - 6</p> <p>WRB Membranes are used over exterior sheathing or exterior insulation but not both.</p>	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
<p>Exterior Insulation Use any Item 1 - 4</p>	<ol style="list-style-type: none"> 1) None 2) 3½" thick (max.) Xci-CG 3) Any noncombustible insulation (faced or unfaced) when any of the cladding Options 1 - 6 are used. Any unfaced noncombustible insulation may be used with Claddings 1 - 12.



	<p>4) Any exterior insulation which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than those listed above.</p>
<p>WRB Over Exterior Insulation Use any Item 1 - 6</p> <p>WRB Membranes are used over exterior sheathing or exterior insulation but not both.</p>	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
<p>Exterior Cladding Use any Item 1 - 12</p>	<ol style="list-style-type: none"> 1) Brick – Nominal 4" clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick Ties/Anchors 24" OC (max.) 2) Stucco – minimum ¾" thick exterior cement plaster and lath 3) Limestone – minimum 2" thick using any standard non-open joint installation technique such as shiplap. 4) Natural Stone Veneer – minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone 5) Cast Artificial Stone – minimum 1½" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap 6) Terra Cotta Cladding – minimum 1¼" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap 7) Any MCM that has successfully passed NFPA 285 8) Uninsulated sheet metal building panels including steel, copper, or aluminum 9) Uninsulated Fiber-cement siding 10) Stone/Aluminum honeycomb composite building panels that have successfully met NFPA 285 criteria 11) Autoclaved-aerated-concrete (AAC) panels that have successfully met NFPA 285 criteria 12) Terra Cotta Cladding – Any Rain-screen Terra Cotta (min. ½" thick) with ventilated shiplap

<p>Wall Component</p>	
<p>Base Wall Use any Item 1 - 3</p>	<ol style="list-style-type: none"> 1) Cast Concrete Walls 2) CMU Concrete Walls 3) 25 GA. min. 3⅝" (min.) steel studs spaced 24" OC (max.) <ol style="list-style-type: none"> a. ⅝" type X Gypsum Wallboard Interior b. Lateral Bracing every 4 ft
<p>Fire-Stopping at Floor Lines</p>	<p>Use any approved mineral fiber-based safing insulation in each stud cavity at the floor line. Safing thickness must match stud cavity depth.</p>
<p>Cavity Insulation Use any Item 1 - 7</p>	<ol style="list-style-type: none"> 1) Any noncombustible insulation per ASTM E136 2) Any Mineral Fiber (Board type Class A ASTM E84 faced or unfaced) 3) Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced) 4) 1½" (min.) of Bayer EcoBay CC SPF (up to full cavity thickness) 5) 1½" (min.) of BASF Walltite SPF (up to full cavity thickness) 6) Any foam plastic insulation tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable than the ones listed above 7) None
<p>Exterior Sheathing</p>	<p>½" or thicker exterior gypsum sheathing</p>



<p>WRB Over Base Wall Surface Use any Item 1 - 6 WRB Membranes are used over exterior sheathing or exterior insulation but not both.</p>	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
<p>Exterior Insulation Use any Item 1 - 4</p>	<ol style="list-style-type: none"> 1) None 2) 3½" thick (max.) Xci-Foil 3) Any Noncombustible or fiberglass insulation (faced or unfaced) 4) Any exterior insulation which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than those listed above.
<p>WRB Over Exterior Insulation Use any Item 1 - 6 WRB Membranes are used over exterior sheathing or exterior insulation but not both</p>	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
<p>Exterior Cladding Use any Item 1 - 6</p>	<ol style="list-style-type: none"> 1) Brick – Nominal 4" clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick Ties/Anchors 24" OC (max.) 2) Stucco – minimum ¾" thick exterior cement plaster and lath 3) Limestone – minimum 2" thick using any standard non-open joint installation technique such as shiplap 4) Natural Stone Veneer – minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone 5) Cast Artificial Stone – minimum 1½" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap 6) Terra Cotta Cladding – minimum 1¼" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap

<p>Wall Component</p>	
<p>Base Wall Use any Item 1 - 3</p>	<ol style="list-style-type: none"> 1) Cast Concrete Walls 2) CMU Concrete Walls 3) 25 GA. min. 3⅝" (min.) steel studs spaced 24" OC (max.) <ol style="list-style-type: none"> a. ⅝" type X Gypsum Wallboard Interior b. Lateral Bracing every 4 ft
<p>Fire-Stopping at Floor Lines</p>	<p>Use any approved mineral fiber-based safing insulation in each stud cavity at the floor line. Safing thickness must match stud cavity depth.</p>
<p>Cavity Insulation Use any Item 1 - 7</p>	<ol style="list-style-type: none"> 1) Any noncombustible insulation per ASTM E136 2) Any Mineral Fiber (Board type Class A ASTM E84 faced or unfaced) 3) Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced) 4) 1½" (min.) of Bayer EcoBay CC SPF (up to full cavity thickness) 5) 1½" (min.) of BASF Walltite SPF (up to full cavity thickness) 6) Any foam plastic insulation tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable than those listed above. 7) None
<p>Exterior Sheathing</p>	<p>½" or thicker exterior gypsum sheathing</p>



<p>WRB Over Base Wall Surface – Use any Item 1 - 6 WRB Membranes are used over exterior sheathing or exterior insulation but not both.</p>	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
<p>Exterior Insulation Use any Item 1 - 4</p>	<ol style="list-style-type: none"> 1) None – (for claddings 1 - 6, or 9-14) 2) 3.6" (max.) Xci-Ply 3) Any noncombustible or fiberglass insulation (faced or unfaced) 4) Any exterior insulation which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than those listed above.
<p>WRB Over Exterior Insulation Use any Item 1 - 6 WRB Membranes are used over exterior sheathing or exterior insulation but not both.</p>	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
<p>Exterior Cladding Use any Item 1 - 14</p>	<ol style="list-style-type: none"> 1) Brick – Nominal 4" clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick Ties/Anchors 24" OC (max.). 2) Stucco – minimum ¾" thick exterior cement plaster and lath 3) Limestone – minimum 2" thick using any standard non-open joint installation technique such as shiplap. 4) Natural Stone Veneer – minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone. 5) Cast Artificial Stone – minimum 1½" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap 6) Terra Cotta Cladding – minimum 1¼" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap 7) Thin brick/cultured stone set in thin-set adhesive and metal lath that has been tested to ASTM E119 (brick exposed to furnace) and remains in place for a minimum of 30 minutes, or has passed an NFPA 285 test. Minimum ¾". 8) TABS II Panel System with ½" thick bricks using TABS Wall Adhesive. 9) Any MCM that has successfully passed NFPA 285. 10) Uninsulated sheet metal building panels including steel, copper, or aluminum 11) Uninsulated Fiber-cement siding 12) Stone/Aluminum honeycomb composite building panels that have successfully met NFPA 285 criteria 13) Autoclaved-aerated-concrete (AAC) panels that have successfully met NFPA 285 criteria 14) Terra Cotta Cladding – Any Rain-screen Terra Cotta (min. ½ " thick) with ventilated shiplap



RMax Table

Window Headers for all constructions shall incorporate 0.078 in. (min.) aluminum flashing. Flashing of window, door, and other wall penetrations may use asphalt, acrylic, or butyl based flashing tape, or R-SEAL 6000 35 mil thick woven polyethylene tape – max. 12 in. width.

Wall Component	
Base Wall Use any Item 1 - 3	1) Cast Concrete Walls 2) CMU Concrete Walls 3) 20 GA. (min.) 3 ⁵ / ₈ in. (min.) steel studs spaced 24 in. OC (max.) a. ⁵ / ₈ in. (min.) type X Special Fire Resistant Gypsum Wallboard Interior
Fire-Stopping in Stud Cavity at Floor Lines	Four pcf mineral fiber insulation installed with z-clips
Cavity Insulation Use any Item 1 - 4	1) None 2) Any noncombustible insulation per ASTM E136 3) Any Mineral Fiber (Board type Class A ASTM E84 faced or unfaced) 4) Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced)
Exterior Sheathing	½ in. or thicker exterior gypsum sheathing
WRB Over Sheathing Use any Item 1 - 6 Install per mfr's application instructions.	1) None 2) Prosoco R-Guard SprayWrap MVP 3) Prosoco R-Guard VB 4) Prosoco R-Guard Cat 5 or Sprayable Cat 5 5) Prosoco Cat 5 Rain Screen 6) Spay Wrap RS
Exterior Insulation Use any Item 1 - 2	1) 3 in. (max. consisting of a single panel or multiple thinner panels) Rmax TSX-8500 2) 3 in. (max. consisting of a single panel or multiple thinner panels) Rmax ECOMAXci.
Exterior Cladding Use any Item 1 - 12	1) Brick – Nominal 4 in. clay brick or veneer with maximum 2 in. air gap behind the brick. Brick Ties/Anchors 24 in. OC (max) 2) Stucco – minimum ¾ in. thick exterior cement plaster and lath with an optional secondary water-resistive barrier between the exterior insulation and lath The secondary barrier shall not be full coverage asphalt or self-adhered butyl membrane. 3) Limestone – minimum 2 in. thick using any standard installation technique 4) Natural Stone Veneer – minimum 2 in. thick using any standard installation technique 5) Cast Artificial Stone – minimum 1½ in. thick complying with ICC-ES AC 51 using any standard installation technique 6) Terra Cotta Cladding – minimum 1¼ in. thick using any standard installation technique 7) Any MCM (aluminum, steel, copper) (w/ 1½ in. ± ½ in. air gap) that has successfully passed NFPA 285 using any standard installation technique 8) Uninsulated sheet metal building panels, including aluminum, steel, or copper, using any standard installation technique 9) Uninsulated Fiber-cement siding using any standard installation technique 10) Stone/Aluminum honeycomb composite building panels that have passed NFPA 285 or equivalent Stone Panels Inc. Stone Lite Panel system has been analyzed using mfr's standard installation technique. 11) Autoclaved-aerated-concrete (AAC) panels that have successfully passed NFPA 285 using any standard installation technique 12) Thin Set Brick - Glen Gery Thin Tech Elite has been analyzed using mfr's standard installation technique.



ATLAS Tables

Wall Component	
Base Wall Use 1, 2 or 3	<ol style="list-style-type: none"> 1) Cast Concrete Walls 2) CMU Concrete Walls 3) 25 GA. (min.) 3⁵/₈" (min.) steel studs spaced 24" OC (max.) <ol style="list-style-type: none"> a. Any 5/8" type X Gypsum Wallboard Interior b. Any 1/2" (min.) Exterior Gypsum Sheathing c. Lateral Bracing Every 4 ft vertically
Fire Stopping at floor lines	Four pcf mineral fiber insulation (safing) filling stud cavity
Cavity Insulation Use any Item 1 - 3	<ol style="list-style-type: none"> 1) None 2) Any Class A, B, or C Fiberglass batt insulation (faced or unfaced) 3) Any noncombustible insulation
Exterior Sheathing	1/2" or thicker exterior gypsum sheathing
WRB or AB over Base Wall Surface Use any Item 1 - 6 Use mfg. instructions for application	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
Exterior Insulation Use any Item 1 - 6	<ol style="list-style-type: none"> 1) Atlas ThermalStar CVT 25 (25 psi product, 1.8 pcf) up to 5.4 inches thick 2) Atlas ThermalStar CVT 15 (15 psi product, 1.35 pcf) up to 7.2 inches thick 3) ThermalStar LCi 15 (15 psi product, 1.35 pcf) up to 7.2 inches thick 4) ThermalStar LCi 25 (25 psi product, 1.70 pcf) up to 5.4 inches thick 5) ThermalStar CHROME 15 (15 psi product, 1.35 pcf) up to 7.2 inches thick 6) ThermalStar CHROME 25 (25 psi product, 1.70 pcf) up to 5.4 inches thick
Exterior Cladding Use any Item 1 - 8	<ol style="list-style-type: none"> 1) Brick – Nominal 4" clay brick or veneer with maximum 2" air gap behind the cladding. Brick with ties/anchors 24" OC (max.) 2) Concrete – Minimum 2" thick with maximum 2" air gap behind the cladding 3) Concrete Masonry Units – Minimum 4" thick with maximum 2" air gap behind the cladding 4) Limestone – minimum 2" thick with non-open joints installation technique such as shiplap 5) Natural Stone Veneer – minimum 2" thick with non-open joints installation technique such as shiplap 6) Precast Artificial Stone – minimum 1 1/2" thick complying with ICC-ES, AC 51 with non-open joint installation technique 7) Terra Cotta Cladding – minimum 1 1/4" thick (solid) with non-open joint installation technique such as shiplap 8) Stucco – minimum 3/4" thick exterior cement plaster and lath
Window Header Use any Item 1 or 2	<ol style="list-style-type: none"> 1) Flashing to comprise 25 GA. (min.) sheet metal (steel) with 1" thick, four pcf mineral wool over interior of sheet steel 2) Any header design deemed more robust than item 1 per analysis.



For the table below, the window header shall consist of a minimum of 25 GA. sheet steel flashing

Wall Component	
Base Wall Use any Item 1 - 3	1) Cast Concrete Walls 2) CMU Concrete Walls 3) 20 GA (min.) 3 ⁵ / ₈ in. (min.) steel studs spaced 24 in. OC (max.) a. 5/8 in. type X Gypsum Wallboard Interior b. 5/8 in. Exterior Gypsum Sheathing
Fire-Stopping in Stud Cavity at Floor Lines	4 inch, four pcf mineral fiber installed with Z-Clips
Cavity Insulation Use any Item 1 - 4	1) None 2) Any noncombustible insulation per ASTM E136 3) Any Mineral Fiber (Board type Class A ASTM E84 faced or unfaced) 4) Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced)
Exterior Sheathing Use Item 1 or 2	1) 5/8 in. or thicker exterior gypsum sheathing 2) 2 in. precast concrete panels attached to structural elements of the building
WRB Over Sheathing Use any Item 1 - 6	1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
Exterior Insulation Use Item 1 or 2	1) 2 in. or 3 in. Atlas Energy Shield Pro (or Pro2), and 4 in. EnergyShield Pro (or Pro2) may be substituted for each other in reports which utilize either of these insulations. 2) 4 in. RBoard Pro
WRB Over Exterior Insulation Use Item 1 or 2	1) None 2) 3 in. IPG Cold Weather Foil Tape and 4 in. Atlas WRB System Tape may be interchanged Note: Tape is only used at panel joints.
Exterior Cladding Use any Item 1 - 11	1) Brick – Nominal 4 in. clay brick or veneer with maximum 2 in. air gap behind the brick. Brick Ties/Anchors 24 in. OC (max) 2) Stucco – minimum 3/4 in. thick exterior cement plaster and lath 3) Limestone – minimum 2 in. thick 4) Natural Stone Veneer – minimum 2 in. thick 5) Cast Artificial Stone – minimum 1 1/2 in. thick complying with ICC-ES AC 51 6) Terra Cotta Cladding – minimum 1 1/4 in. thick 7) Any ACM that has successfully passed NFPA 285 8) Uninsulated sheet metal building panels including steel or copper 9) Uninsulated fiber-cement siding (min. 1/4 in. thick) 10) Stone/Aluminum honeycomb composite building panels that have successfully met NFPA 285 criteria 11) Autoclaved-aerated-concrete (AAC) panels (min. 1 1/2 in. thick)

Carlisle Tables

For all constructions below, the window header shall consist of a minimum of 25 GA. sheet steel flashing. WRB Membranes are used over exterior sheathing or exterior insulation but not both.



Table 1: R2+ SHEATHE Exterior Insulation

Wall Component	
Base Wall Use Item 1, 2 or 3	<ol style="list-style-type: none"> 1) Cast Concrete Walls 2) CMU Concrete Walls 3) 25 GA. min. 3⁵/₈" (min.) steel studs spaced 24" OC (max.) <ol style="list-style-type: none"> a. 5⁸/₈" type X Gypsum Wallboard Interior b. Lateral Bracing every 4 ft
Fire-Stopping at floor lines	Any approved mineral fiber-based safing insulation in each stud cavity at floor line Safing thickness must match stud cavity depth.
Cavity Insulation Use any Item 1 - 7	<ol style="list-style-type: none"> 1) None 2) 1¹/₂" (min.) of Bayer EcoBay CC SPF (up to full cavity thickness) 3) 1¹/₂" (min.) of BASF Walltite SPF (up to full cavity thickness) 4) Any noncombustible insulation per ASTM E136 5) Any Mineral Fiber (Board type Class A ASTM E84 faced or unfaced) 6) Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced) 7) Any foam plastic insulation (SPF or board type), which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than Bayer EcoBay CC or BASF Walltite.
Exterior Sheathing	1/2" or thicker exterior gypsum sheathing
WRB Over Base Wall Surface Use any Item 1 - 6	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
Exterior Insulation Use any Item 1 - 4	<ol style="list-style-type: none"> 1) 3¹/₂" thick R2+ SHEATHE 2) Any Noncombustible insulation (faced or unfaced) when any of cladding Options 1 - 6 are used Any Unfaced noncombustible insulation may be used with Claddings 1 - 12. 3) Any exterior insulation which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than those listed above. 4) None
WRB over Exterior Insulation Use any Item 1 - 6	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
Exterior Cladding - Use any Item 1 -12	<ol style="list-style-type: none"> 1) Brick – Nominal 4" clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick Ties/Anchors 24" OC (max.) 2) Stucco – minimum 3/4" thick exterior cement plaster and lath 3) Limestone – minimum 2" thick using any standard non-open joint installation technique such as shiplap 4) Natural Stone Veneer – minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone 5) Cast Artificial Stone – minimum 1¹/₂" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap 6) Terra Cotta Cladding – minimum 1¹/₄" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap 7) Any MCM that has successfully passed NFPA 285 8) Uninsulated sheet metal building panels including steel, copper, or



	<p>aluminum</p> <p>9) Uninsulated Fiber-Cement siding</p> <p>10) Stone/Aluminum honeycomb composite building panels that have successfully met NFPA 285 criteria</p> <p>11) Autoclaved-aerated-concrete (AAC) panels that have successfully met NFPA 285 criteria</p> <p>12) Terra Cotta Cladding – Any Rain-screen Terra Cotta (min. ½" thick) with ventilated shiplap</p>
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Table 2: R2+ MATTE Exterior Insulation

Wall Component	
<p>Base Wall Use Item 1, 2, or 3</p>	<p>1) Cast Concrete Walls</p> <p>2) CMU Concrete Walls</p> <p>3) 25 GA. min. 3⅝" (min.) steel studs spaced 24" OC (max.)</p> <p>a. ⅝" type X Gypsum Wallboard Interior</p> <p>b. Lateral Bracing every 4 ft</p>
<p>Fire-Stopping at Floor Lines</p>	<p>Any approved mineral fiber-based safing insulation in each stud cavity at floor line</p> <p>Safing thickness must match stud cavity depth.</p>
<p>Cavity Insulation Use any Item 1 - 7</p>	<p>1) None</p> <p>2) 1½" (min.) of Bayer EcoBay CC SPF (up to full cavity thickness)</p> <p>3) 1½" (min.) of BASF Walltite SPF (up to full cavity thickness)</p> <p>4) Any noncombustible insulation per ASTM E136</p> <p>5) Any Mineral Fiber (Board type Class A ASTM E84 faced or unfaced)</p> <p>6) Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced)</p> <p>7) Any foam plastic insulation (SPF or board type), which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than Bayer EcoBay CC or BASF Walltite.</p>
<p>Exterior Sheathing</p>	<p>½" or thicker exterior gypsum sheathing</p>
<p>WRB over Base Wall Surface Use any Item 1 - 6</p>	<p>1) None</p> <p>2) Prosoco R-Guard VB</p> <p>3) Prosoco R-Guard Cat 5 or Sprayable Cat 5</p> <p>4) Prosoco R-Guard Cat 5 Rain Screen</p> <p>5) Prosoco SprayWrap MVP</p> <p>6) Spay Wrap RS</p>
<p>Exterior Insulation Use any Item 1 - 4</p>	<p>1) 3½" thick (max.) R2+ MATTE</p> <p>2) Any noncombustible insulation (faced or unfaced) when any of cladding Options 1 - 6 are used</p> <p>Any unfaced noncombustible insulation may be used with Claddings 1 - 12.</p> <p>3) Any exterior insulation which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than those listed above</p> <p>4) None</p>
<p>WRB over Exterior Insulation Use any Item 1 - 6</p>	<p>1) None</p> <p>2) Prosoco R-Guard VB</p> <p>3) Prosoco R-Guard Cat 5 or Sprayable Cat 5</p> <p>4) Prosoco R-Guard Cat 5 Rain Screen</p> <p>5) Prosoco SprayWrap MVP</p> <p>6) Spay Wrap RS</p>
<p>Exterior Cladding Use any Item 1 - 12</p>	<p>1) Brick – Nominal 4" clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick Ties/Anchors 24" OC (max.)</p> <p>2) Stucco – minimum ¾" thick exterior cement plaster and lath</p> <p>3) Limestone – minimum 2" thick using any standard non-open joint installation technique such as shiplap</p>



	<ol style="list-style-type: none"> 4) Natural Stone Veneer – minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone 5) Cast Artificial Stone – minimum 1½" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap 6) Terra Cotta Cladding – minimum 1¼" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap 7) Any MCM that has successfully passed NFPA 285 8) Uninsulated sheet metal building panels including steel, copper, or aluminum 9) Uninsulated Fiber-cement siding 10) Stone/Aluminum honeycomb composite building panels that have successfully met NFPA 285 criteria 11) Autoclaved-aerated-concrete (AAC) panels that have successfully met NFPA 285 criteria 12) Terra Cotta Cladding – Any rain-screen Terra Cotta (min. ½" thick) with ventilated shiplap
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Table 3: R2+ SILVER Exterior Insulation

Wall Component	
Base Wall Use Item 1, 2 or 3	<ol style="list-style-type: none"> 1) Cast Concrete Walls 2) CMU Concrete Walls 3) 25 GA. min. 3⁵/₈" (min.) steel studs spaced 24" OC (max.) <ol style="list-style-type: none"> a. 5⁵/₈" type X Gypsum Wallboard Interior b. Lateral Bracing every 4 ft
Fire-Stopping at Floor Lines	Any approved mineral fiber-based safing insulation in each stud cavity at floor line Safing thickness must match stud cavity depth.
Cavity Insulation Use any Item 1 - 7	<ol style="list-style-type: none"> 1) None 2) 1½" (min.) of Bayer EcoBay CC SPF (up to full cavity thickness) 3) 1½" (min.) of BASF Walltite SPF (up to full cavity thickness) 4) Any noncombustible insulation per ASTM E136 5) Any Mineral Fiber (Board type Class A ASTM E84 faced or unfaced) 6) Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced) 7) Any foam plastic insulation (SPF or board type), which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than Bayer EcoBay CC or BASF Walltite
Exterior Sheathing	½" or thicker exterior gypsum sheathing
WRB Over Base Wall Surface Use any Item 1 - 6	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
Exterior Insulation Use any Item 1 - 4	<ol style="list-style-type: none"> 1) 3½" thick (max.) R2+ SILVER 2) Any Noncombustible insulation (faced or unfaced) 3) Any exterior insulation which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than those listed above. 4) None
WRB Over Exterior Insulation Use any Item 1 - 6	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS



<p>Exterior Cladding Use any Item 1 - 6</p>	<ol style="list-style-type: none"> 1) Brick – Nominal 4" clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick Ties/Anchors 24" OC (max.) 2) Stucco – minimum ¾" thick exterior cement plaster and lath 3) Limestone – minimum 2" thick using any standard non-open joint installation technique such as shiplap 4) Natural Stone Veneer – minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone 5) Cast Artificial Stone – minimum 1½" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap 6) Terra Cotta Cladding – minimum 1¼" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap
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Table 4: R2+ BASE Exterior Insulation

<p>Wall Component</p>	
<p>Base Wall Use Item 1, 2 or 3</p>	<ol style="list-style-type: none"> 1) Cast Concrete Walls 2) CMU Concrete Walls 3) 25 GA. min. 3⅝" (min.) steel studs spaced 24" OC (max.) <ol style="list-style-type: none"> a. ⅝" type X Gypsum Wallboard Interior b. Lateral Bracing every 4 ft
<p>Fire-Stopping at Floor Lines</p>	<p>Any approved mineral fiber-based safing insulation in each stud cavity at floor line Safing thickness must match stud cavity depth.</p>
<p>Cavity Insulation Use any Item 1 - 7</p>	<ol style="list-style-type: none"> 1) None 2) 1½" (min.) of Bayer EcoBay CC SPF (up to full cavity thickness) 3) 1½" (min.) of BASF Walltite SPF (up to full cavity thickness) 4) Any noncombustible insulation per ASTM E136 5) Any Mineral Fiber (Board type Class A ASTM E84 faced or unfaced) 6) Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced) 7) Any foam plastic insulation (SPF or board type), which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than Bayer EcoBay CC or BASF Walltite
<p>Exterior Sheathing</p>	<p>½" or thicker exterior gypsum sheathing</p>
<p>WRB Over Base Wall Surface Use any Item 1 - 6</p>	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
<p>Exterior Insulation Use any Item 1 - 4</p>	<ol style="list-style-type: none"> 1) 3.6" (max.) R2+ BASE 2) Any Noncombustible insulation (faced or unfaced) when any of cladding Options 1 - 8 are used Any Unfaced noncombustible insulation may be used with Claddings 1 - 14 3) Any exterior insulation which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than those listed above 4) None – None except when Thin Brick/TABS II cladding is used since these require use with R2+ Base
<p>WRB Over Exterior Insulation Use any Item 1 - 6</p>	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS



<p>Exterior Cladding Use any Item 1 - 14</p>	<ol style="list-style-type: none"> 1) Brick – Nominal 4" clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick Ties/Anchors 24" OC (max.) 2) Stucco – minimum ¾" thick exterior cement plaster and lath 3) Limestone – minimum 2" thick using any standard non-open joint installation technique such as shiplap 4) Natural Stone Veneer – minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone 5) Cast Artificial Stone – minimum 1½" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap 6) Terra Cotta Cladding – minimum 1¼" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap 7) Thin brick/cultured stone set in thin-set adhesive and metal lath that has been tested to ASTM E119 (brick exposed to furnace) and remains in place for a minimum of 30 minutes, or has passed an NFPA 285 test Minimum ¾" (for use with R2+ BASE). 8) TABS II Panel System with ½" thick bricks using TABS Wall Adhesive. For use with R2+ BASE 9) Any MCM that has successfully passed NFPA 285 10) Uninsulated sheet metal building panels including steel, copper, or aluminum 11) Uninsulated Fiber-cement siding 12) Stone/Aluminum honeycomb composite building panels that have successfully met NFPA 285 criteria 13) Autoclaved-aerated-concrete (AAC) panels that have successfully met NFPA 285 criteria 14) Terra Cotta Cladding – Any Rain-screen Terra Cotta (min. ½ "thick) with ventilated shiplap
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Note 1: CCW LM 800 XL adhesive applied discontinuously at a rate of ¾" x 3" dabs, 16" OC may be used to adhere exterior insulation to WRB over sheathing, concrete, or CMU for those applications requiring this adhesive to be used.

Note 2: The following may be used as a gap-filler between insulation panels: FOMO HandiFoam FireBlock, and TVM FireBlock.

Note 3: CAV-GRIP™ or Low VOC Travel-Tack may be used as an adhesive (application rate as per mfg. instructions) to attach exterior insulation panels to the WRB surface.

Table 5: R2+ SHEATHE Interior Insulation (See Notes 1 & 2)

<p>Wall Component</p>	
<p>Base Wall Use Item 1 or 2</p>	<ol style="list-style-type: none"> 1) Cast concrete walls (min. 8" thick) 2) CMU concrete walls (min. 8" thick)
<p>Exterior Coating Use any Item 1 - 4</p>	<ol style="list-style-type: none"> 1) Portland cement or Lime Stucco. 2) Any ASTM E84 Class A Paint or Elastomeric Coating 3) Any ASTM E84 Class A Clear Sealer 4) None
<p>Air/Vapor Barrier Membrane Position 1 over Base Wall Interior Use any Item 1 - 6 See Note 1</p>	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
<p>Continuous Insulation</p>	<p>R2+ SHEATHE, 3½" thick (max.)</p>
<p>Air/Vapor Barrier Membrane Position 2 Over Insulation Use any Item 1 - 6</p>	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen



See Note 1	5) Prosoco SprayWrap MVP 6) Spay Wrap RS
Interior Cladding	5/8" type X Interior Gypsum Sheathing installed directly over R2+ SHEATHE insulation or installed over Metal Hat or Z Furring, 2" depth air gap (max.)

Note 1: Membrane used in Position 1 or Position 2, not both.

Note 2: R2+ SHEATHE insulation can be tacked in place with Cav-Grip or Travel-Tack during installation. Follow Instructions on Product Data Sheet.

Owens Corning Tables (with figures)

Wall Component	
Base Wall Use Item 1 - 3	1) Cast Concrete Walls 2) CMU Concrete Walls 3) 20 GA. (min.) 3 5/8" (min.) steel studs spaced 16 in. OC (max.) with lateral bracing every 4 ft vertically. 5/8" type X Gypsum Wallboard Interior
Fire-Stopping in Stud Cavity at Floor Lines	Four pcf mineral fiber insulation (mineral wool) installed with z-clips or equivalent A typical brand is Thermafiber.
Cavity Insulation Use any Item 1 - 4	1) None 2) Any noncombustible insulation (faced or unfaced) 3) Any Fiberglass Batt (faced or unfaced) 4) Demilec Sealection 500 (0.5 pcf) Spray Polyurethane foam (SPF) up to full cavity depth
Exterior Sheathing Use Item 1 or 2	1) 1/2" Exterior Gypsum Sheathing 2) 5/8" Exterior Gypsum Sheathing
WRB Over Sheathing Use any Item 1 - 6	1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
Exterior Insulation Use Item 1 or 2	1) 1/2 inch (min.) to 3 inch (max.) Foamular XPS Type IV or Type X per ASTM C578 – must use Special Condition 1 (see special conditions and drawings below) window/door header details. 2) 1/2 inch (min.) to 5 inch (max.) Foamular XPS Type IV or Type X per ASTM C578 – must use Special Condition 2 (see special conditions and drawings below) window/door header details. Note: Four-inch wide (max.) asphalt or butyl type sealing tape to seal insulation panel joints and/or veneer tie penetrations are allowed.
WRB Over Exterior Insulation Use any Item 1 - 3	1) None 2) Prosoco SprayWrap MVP 3) Spay Wrap RS
Exterior Cladding Use any Item 1 - 8	1) Brick – Nominal 4" clay brick with maximum 2" air gap between exterior insulation and brick. Standard brick ties/anchors installed 24" OC (max.) vertically on each stud 2) Stucco – minimum 7/8" thick exterior cement plaster and lath 3) Concrete – minimum 2" thick with a maximum 2" air gap between exterior insulation and concrete 4) Concrete Masonry Units (CMU) – minimum 4" thick with maximum 2" air gap between exterior insulation and CMU 5) Limestone Veneer – minimum 2" thick using any standard non-open joint installation technique such as ship lap, etc 6) Natural Stone Veneer – minimum 2" thick using any standard non-open



	<p>joint installation technique such as ship lap, etc</p> <p>7) Cast Artificial Stone – minimum 1½" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as ship lap, etc</p> <p>8) Terra Cotta Cladding – minimum 1¼" thick (solid) using any standard non-open joint installation technique such as ship lap, etc</p>
<p>Special Conditions Use Item 1 or 2, depending on the thickness of exterior insulation</p>	<p>1) Use header treatments in Figures 1, 2, 3, or 4 below for all window and door openings in the wall</p> <p>2) Use header treatments in Figures 5, 6, 7, or 8 below for all window and door openings in the wall</p> <p>Note: As an option, flash all window, door and other openings with limited amounts of acrylic, asphalt, or butyl based flashing tape – max. 12" wide.</p>

Special Conditions Header Treatments

See drawings below for Special Conditions referenced in the table above.

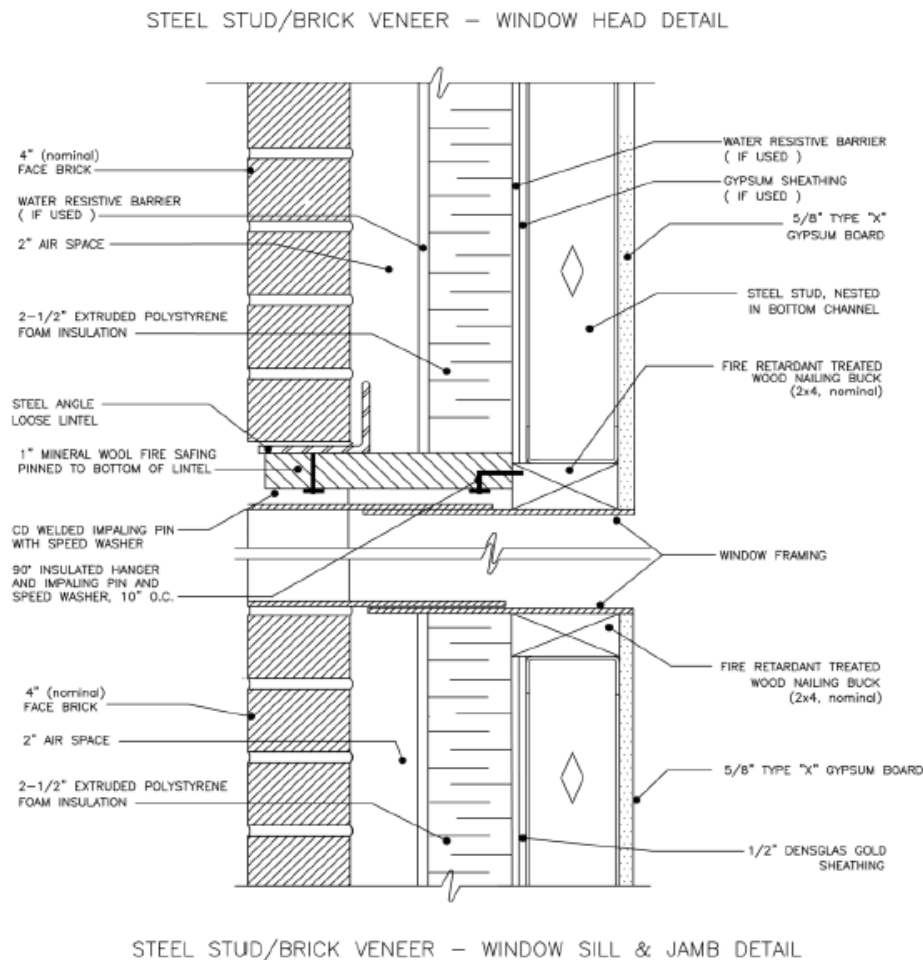
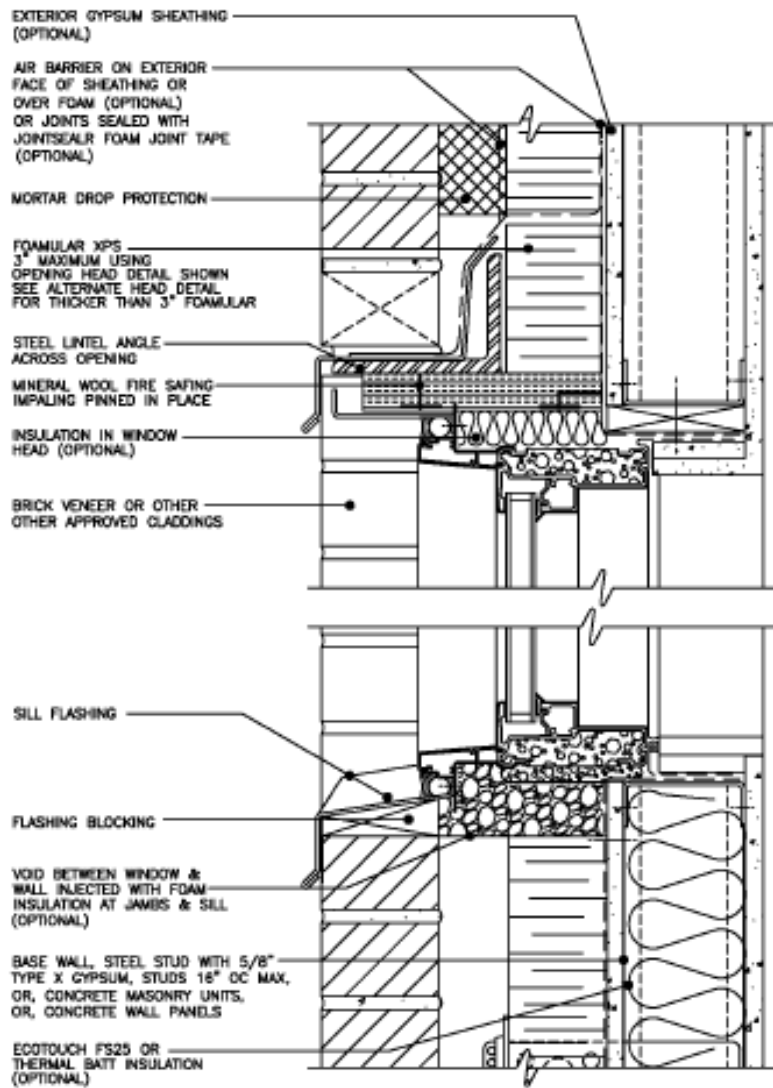


Figure 1 – Window / Door Opening Detail – Mineral Wool

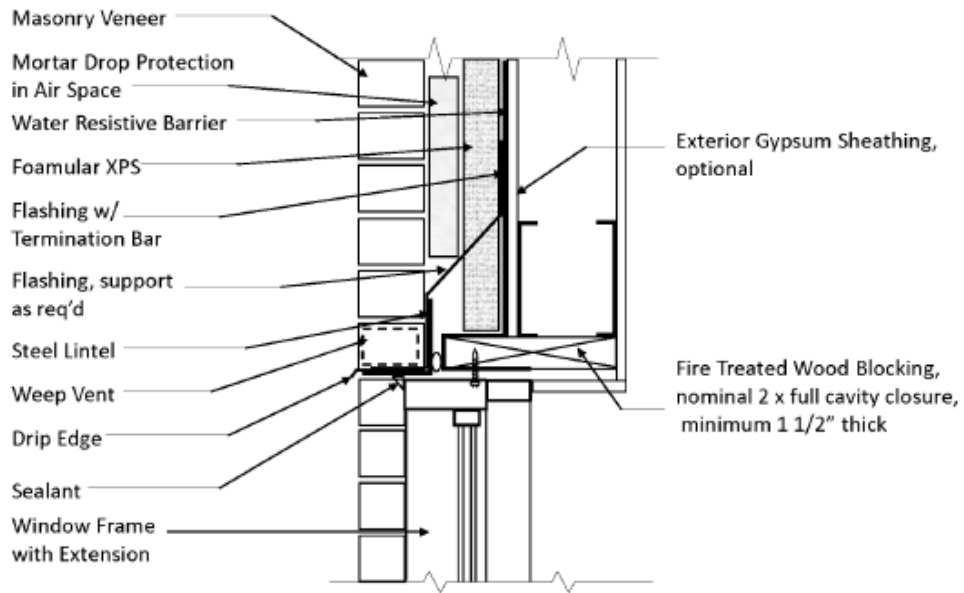




① NFPA 285 HEAD DETAIL: STEEL LINTEL WITH MINERAL WOOL COVER AND SAFING
OWENS CORNING COMMERCIAL COMPLETE WALL SYSTEM

Figure 2 – Steel Lintel with Mineral Wool

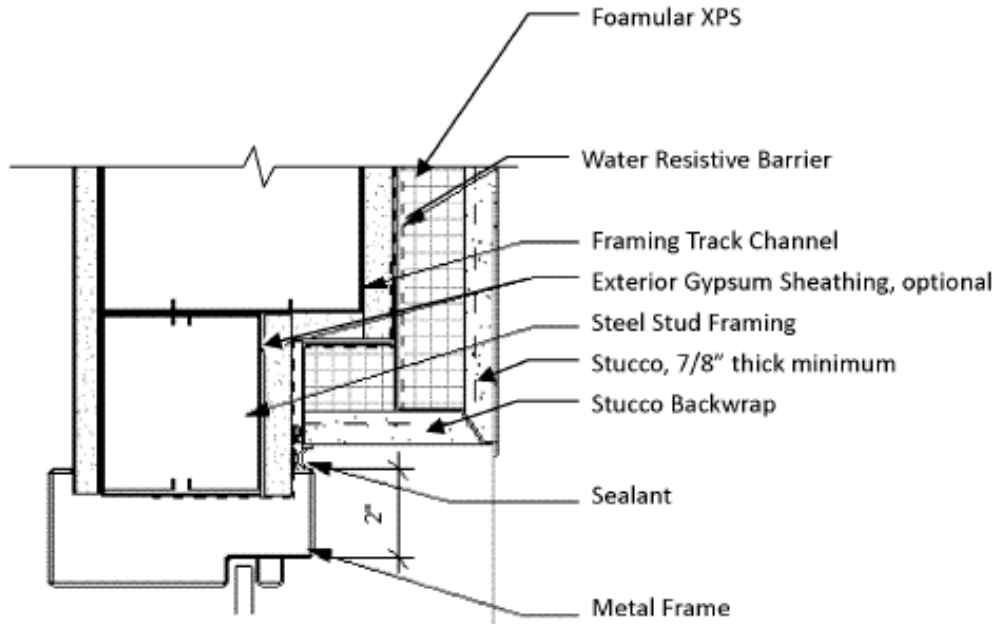




Owens Corning NFPA 285 Head Detail: FRT Firestopping

Figure 3 – FRT Wood Block Head Detail



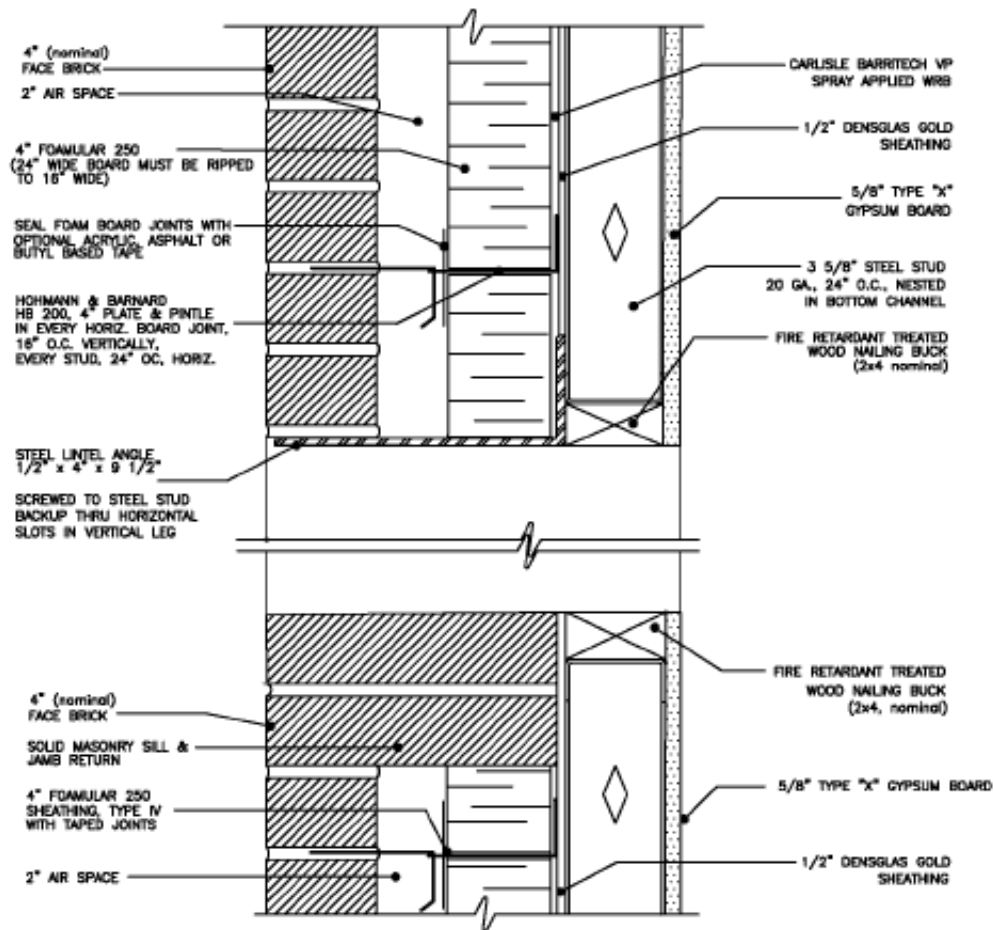


Owens Corning NFPA 285 Head Detail: Stucco Backwrap

Figure 4 – Stucco Backwrap Head Detail



STEEL STUD/BRICK VENEER – WINDOW HEAD DETAIL



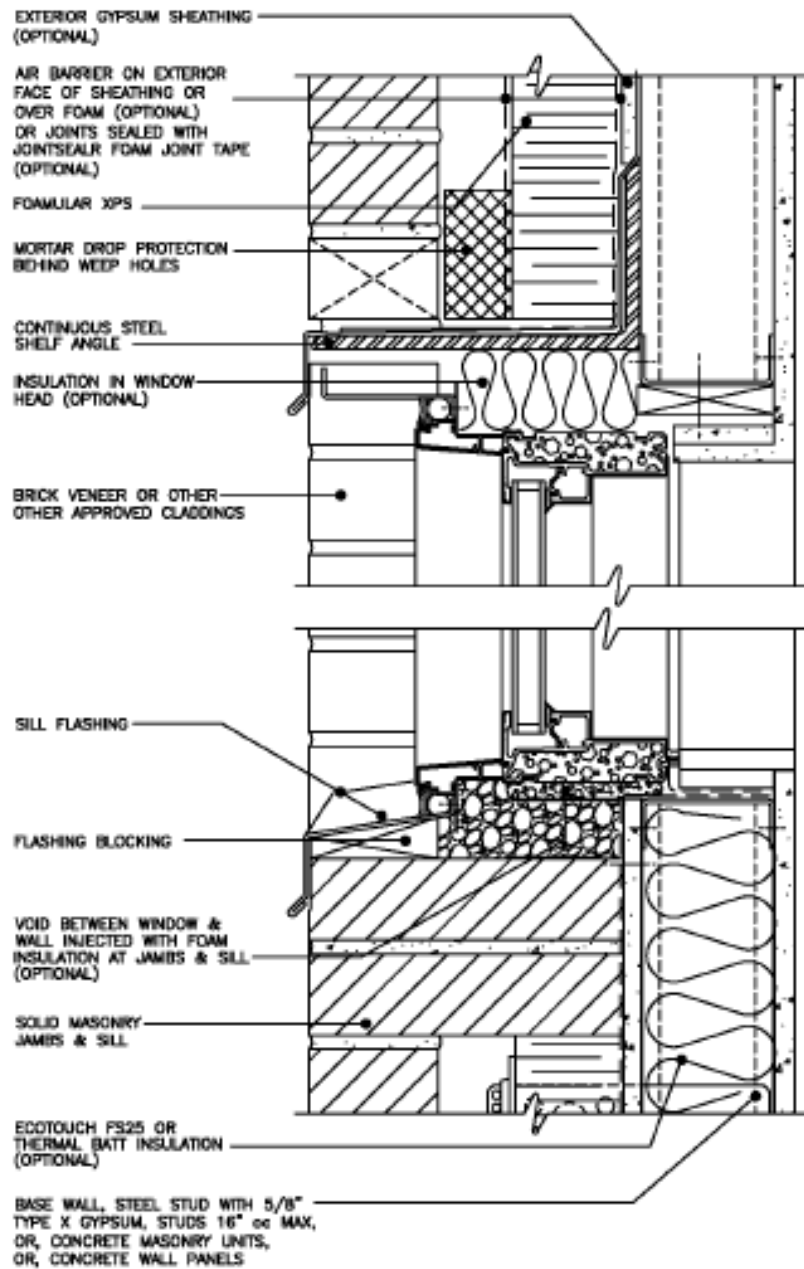
STEEL STUD/BRICK VENEER – WINDOW SILL & JAMB DETAIL

Herbert Stone, 11/04/10

NFPA 285, TEST WALL SECTION, CONSTRUCTION DETAILS
 STEEL STUD, XPS, BRICK VENEER, WINDOW HEAD, SILL AND JAMB
 Owens Corning
 November 2010

Figure 5 – Steel Shelf Angle – Window/Door Opening Detail

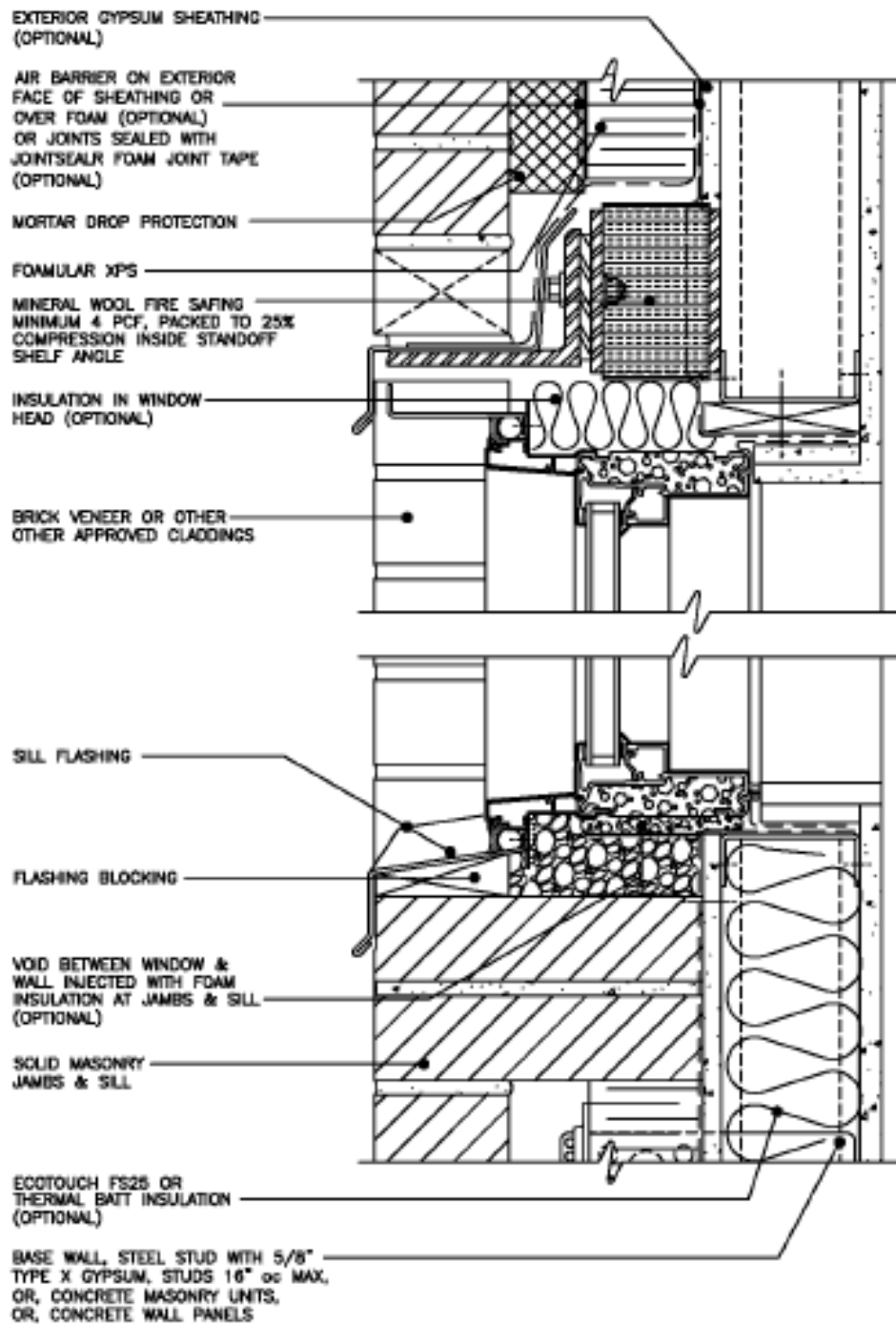




② NFPA 285 HEAD DETAIL: CONTINUOUS SHELF ANGLE ON STEEL FRAMING
OWENS CORNING COMMERCIAL COMPLETE WALL SYSTEM

Figure 6 – Continuous Shelf Angle Detail

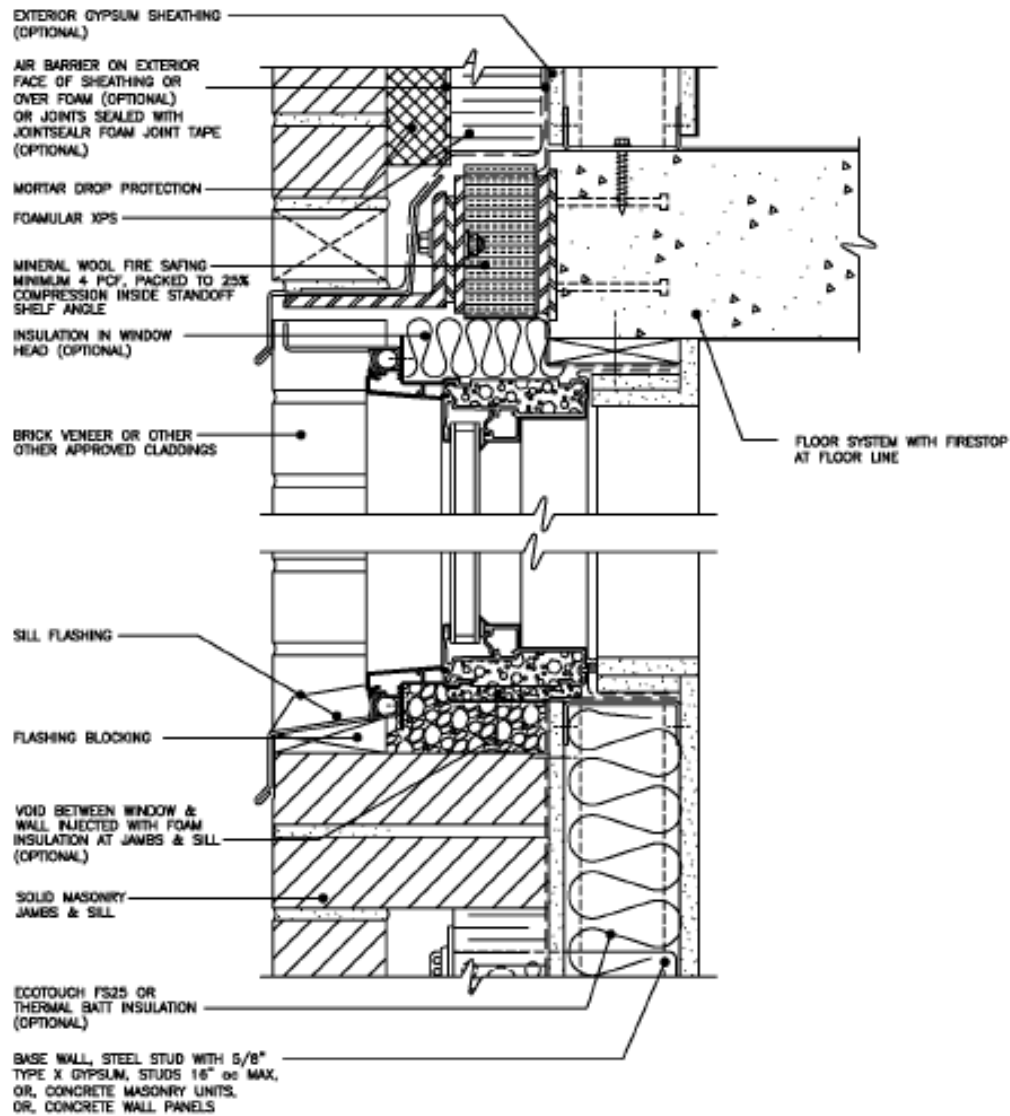




3 NFPA 285 HEAD DETAIL: STANDOFF SHELF ANGLE ON STEEL FRAMING
 OWENS CORNING COMMERCIAL COMPLETE WALL SYSTEM

Figure 7 – Standoff Shelf Angle Detail





4 NFPA 285 HEAD DETAIL: STANDOFF SHELF ANGLE AT FLOOR LINE
OWENS CORNING COMMERCIAL COMPLETE WALL SYSTEM

Figure 8 – Shelf Angle at Floor Line Detail



DOW Tables (with figures)

Wall Component	
Base Wall Use Item 1, 2 or 3	<ol style="list-style-type: none"> 1) Cast Concrete Walls 2) CMU Concrete Walls 3) 20 GA. (min.) 3⁵/₈" (min.) steel studs spaced 16 in. OC (max.) with lateral bracing every 4 ft vertically. 5⁸/₈" type X Gypsum Wallboard Interior
Fire-Stopping in Stud Cavity at Floor Lines	Four pcf mineral fiber insulation (mineral wool) installed with z-clips or equivalent
Cavity Insulation Use Item 1, 2 or 3	<ol style="list-style-type: none"> 1) None 2) Any noncombustible material 3) Any Fiberglass Batt (faced or unfaced)
Exterior Sheathing Use Item 1 or 2	<ol style="list-style-type: none"> 1) 1/2" (min.) Exterior Gypsum Sheathing 2) 5/8" Exterior Type X Gypsum Sheathing
WRB Over Sheathing Use any Item 1 - 6	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
Exterior Insulation Four-inch wide (max.) asphalt or butyl type sealing tape to seal insulation panel joints is allowed	1/2 inch (min.) to 3 inch (max.) DOW Styrofoam Type IV ASTM C578 – must use special window/door header details below.
WRB Over Exterior Insulation Use any Item 1 - 3	<ol style="list-style-type: none"> 1) None 2) Prosoco SprayWrap MVP 3) Spay Wrap RS
Exterior Cladding Use any Item 1 - 7	<ol style="list-style-type: none"> 1) Brick – Nominal 4" clay brick with maximum 2" air gap between exterior insulation and brick. Standard brick ties/anchors installed 24" OC (max.) vertically on each stud 2) Concrete – minimum 2" thick with a maximum 2" air gap between exterior insulation and concrete 3) Concrete Masonry Units (CMU) – minimum 4" thick with maximum 2" air gap between exterior insulation and CMU 4) Limestone– minimum 2" thick using any standard non-open joint installation technique such as shiplap 5) Natural Stone Veneer – minimum 2" thick using any standard non-open joint installation technique such as shiplap 6) Pre-Cast Artificial Stone – minimum 1 1/2" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as ship lap, etc 7) Terra Cotta Cladding – minimum 1 1/4" thick (solid) using any standard non-open joint installation technique such as ship lap, etc
Special Conditions	Use header treatments in Figures 5, 6 & 7 below for all window and door openings in the wall.



Special Conditions Header Treatments

See drawings below for Special Conditions referenced in the table above (Fig 5, 6 & 7 Ref. 1).

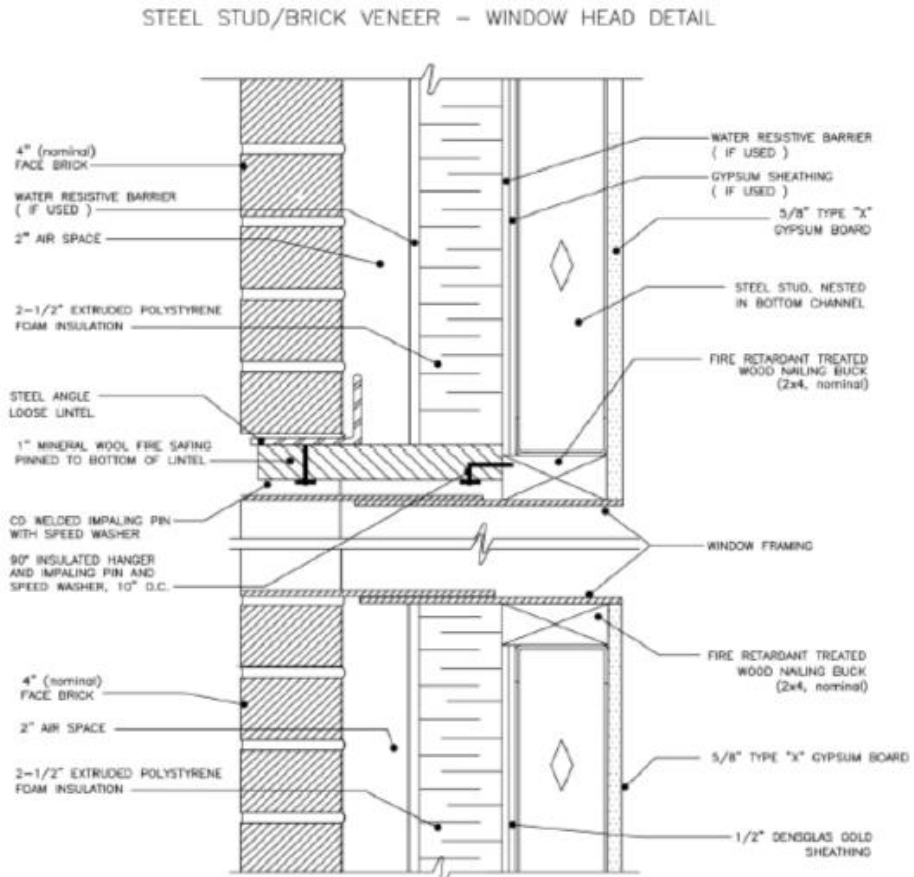


FIGURE 5—WINDOW SILL AND JAMB DETAIL—MINERAL WOOL



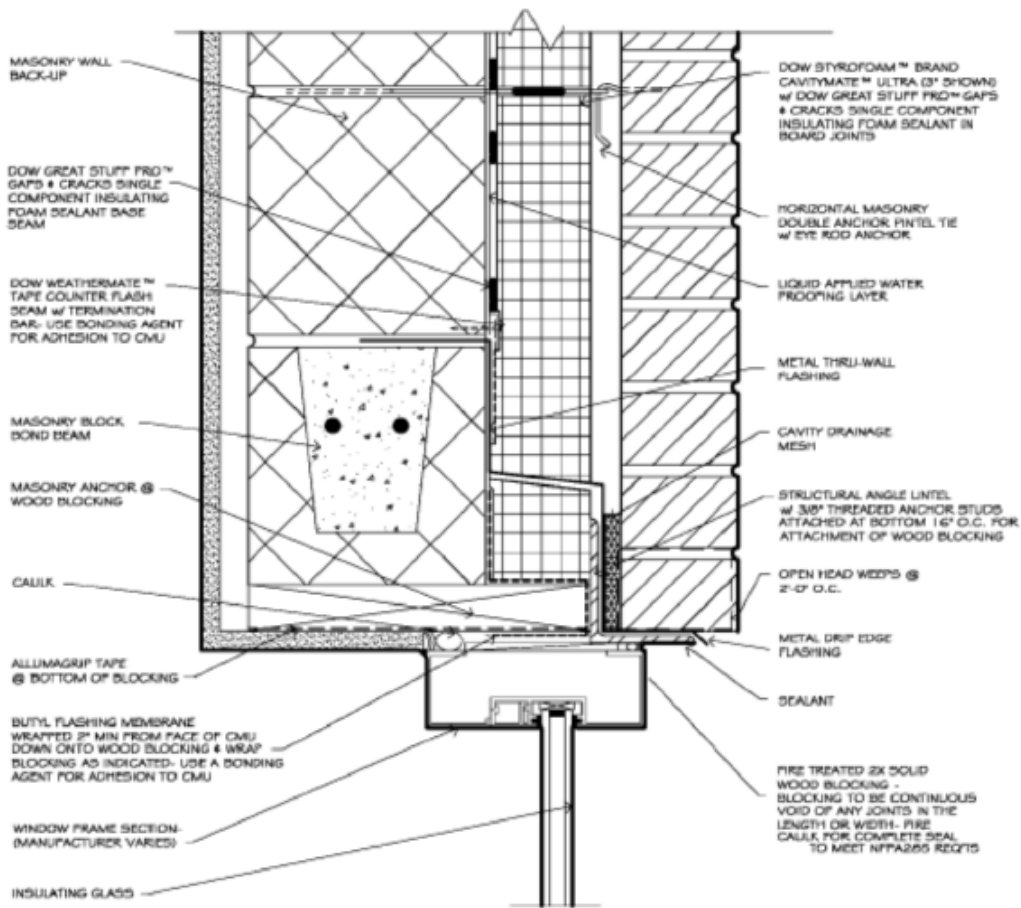


FIGURE 6—WINDOW HEAD DETAIL—FRTW WOOD BLOCKING—MASONRY WALL

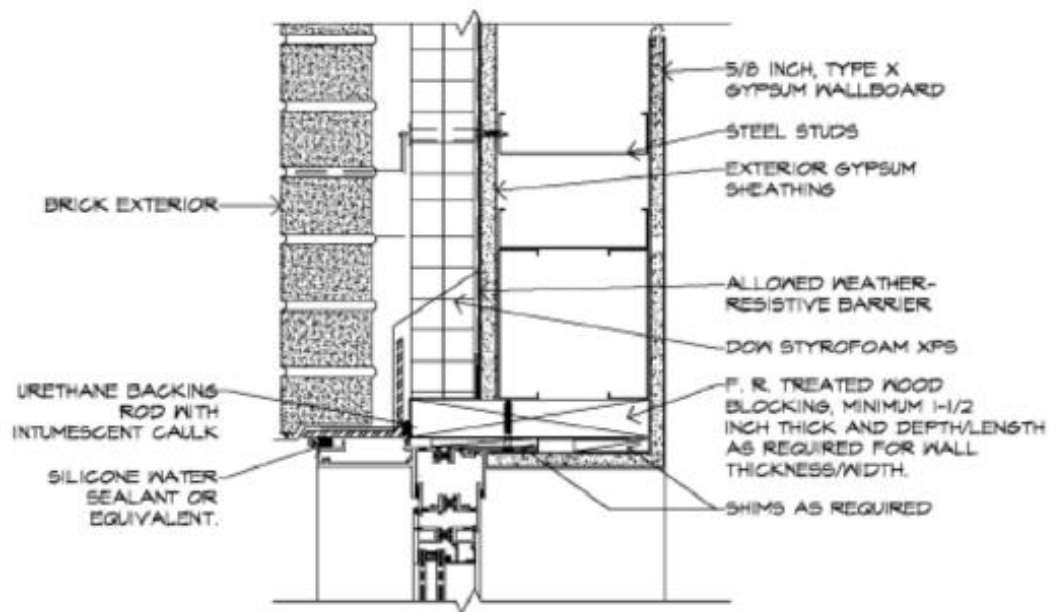


FIGURE 7—WINDOW HEAD DETAIL—FRTW WOOD BLOCKING—FRAMED WALL



For all constructions below, the window header shall consist of a minimum of 25 GA. sheet steel flashing.

Wall Component	
Base Wall Use Item 1 - 4	1) Cast Concrete Walls 2) CMU Concrete Walls 3) Standard Clay Brick Walls 4) 20 GA. (min.) 3 ⁵ / ₈ " (min.) steel studs spaced 24 in. OC (max.) with lateral bracing every 4 ft. vertically. 5/8" type X Gypsum Wallboard Interior
Fire-Stopping in Stud Cavity at Floor Lines	Four pcf mineral fiber insulation (mineral wool) installed with z-clips or equivalent
Cavity Insulation Use Item 1, 2 or 3	1) None 2) Full stud depth (max.) Dow Styrofoam Spray Polyurethane Foam CM2030, 2045, or 2060 complying with ESR 2670. Apply to interior side of exterior sheathing. 3) Any Fiberglass Batt insulation (faced or unfaced) complying with the applicable code
Exterior Sheathing Use Item 1 or 2	1) 1/2" Exterior Gypsum Sheathing 2) 5/8" Exterior Gypsum Sheathing
WRB Over Sheathing Use any Item 1 - 6	1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
Exterior Insulation Use either a, b, c, or d for cladding Options 1 - 6. Use either a. or e., for cladding Options 7 - 11 Flashing tape to cover insulation joints and/or cladding ties and connections consisting of 4 inch (max.) Dow Weathermate Flashing, or asphalt or Butyl based flashing tape (complying with AAMA 71 or ICC-ES AC 148) is allowed.	1) For Claddings 1 - 6 a. None (only with exterior WRB 1 or 2 below) b. 5/8 inch (min.) to 4 1/4 inch (max.) DOW Thermax Insulation c. 3 1/2 inch (max.) Dow Styrofoam Spray Polyurethane Foam CM2030, 2045, or 2060 complying with ESR 2670 d. Combination of exterior insulation 2 and 3 in any order not to exceed 4 1/4 inches 2) For Claddings 7 - 11 e. 5/8 inch (min.) to 3 inch (max.) DOW Thermax Insulation
WRB Over Exterior Insulation Use any Item 1 - 3	1) None 2) Prosoco SprayWrap MVP 3) Spay Wrap RS
Exterior Cladding Use Item 1 - 6 for Exterior Insulation 1 (a-d) <u>Use Item 7 - 11 for exterior insulation 1a or 2e</u>	1) Brick – Nominal 4" clay brick with maximum 2" air gap between exterior insulation and brick. Standard brick ties/anchors installed 24" OC (max.) vertically on each stud. 2) Stucco – 3/4 inch (min.) exterior cement plaster and lath An optional secondary WRB (not full coverage asphalt or butyl based self-adhered membrane) may be applied between the exterior insulation and the lath. Fasteners must attach to base wall framing and designed to withstand wind and cladding load per applicable code. 3) Limestone– minimum 2" thick using any standard non-open joint



	<p>installation technique such as shiplap</p> <ol style="list-style-type: none"> 4) Natural Stone Veneer – minimum 2" thick using any standard non-open joint installation technique such as shiplap 5) Cast Artificial Stone – minimum 1½" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap 6) Terra Cotta Cladding – minimum 1¼" thick (solid) using any standard non-open joint installation technique such as shiplap Fasteners must attach to base wall framing and be designed to withstand wind and cladding load per applicable code. 7) Use any MCM system that has successfully passed NFPA 285 (must have test report or ESR report) 8) Terra Cotta Cladding – minimum 1¼" thick installed using standard installation technique 9) Metal exterior panels (steel, aluminum, copper) installed using standard installation technique 10) Cement Board Siding – Installed per manufacturer instructions or ICC-ES ESR report for a specific product 11) StoneLite wall panels manufactured by Stone Panels per ESR 1500
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Johns Manville Table

For all constructions, the window header shall consist of a minimum of 25 GA. sheet steel flashing

Wall Component	
Base Wall Use Item 1 - 4	<ol style="list-style-type: none"> 1) Cast Concrete Walls 2) CMU Concrete Walls 3) Standard Clay Brick Walls 4) 25 GA. (min.) 3⁵/₈" (min.) steel studs spaced 24 in. OC (max.). 5⁸/₈" type X Gypsum Wallboard Interior
Fire-Stopping in Stud Cavity at Floor Lines	Friction fit four pcf mineral fiber insulation (mineral wool such as Thermafiber)
Cavity Insulation Use any Item 1 - 5	<ol style="list-style-type: none"> 1) None 2) Fiberglass Batt insulation (faced or unfaced) complying with the applicable code 3) Spray-in Fiberglass Insulation. 4) Mineral Wool insulation (faced or unfaced) 5) Sprayed cellulose insulation complying with IBC section 702 and ASTM C739
Exterior Sheathing Use either 1 or 2	<ol style="list-style-type: none"> 1) ½" Exterior Gypsum Sheathing 2) 5⁸/₈" Type X Exterior Gypsum Sheathing
WRB Over Sheathing Use any Item 1 - 6	<ol style="list-style-type: none"> 1) None 2) Prosoco R-Guard VB 3) Prosoco R-Guard Cat 5 or Sprayable Cat 5 4) Prosoco R-Guard Cat 5 Rain Screen 5) Prosoco SprayWrap MVP 6) Spay Wrap RS
Exterior Insulation	<p>4½ inch (max.) Johns Manville AP Foil Faced Sheathing Board installed with offset joints or non-staggered. Note: Insulation joints may be covered with 6 inch (max.) acrylic, asphalt, or butyl based flashing tape.</p>
WRB Over Exterior Insulation	See Note for Flashing Tape for Exterior Insulation
Exterior Cladding Use any Item 1 - 7	<ol style="list-style-type: none"> 1) Brick – Nominal 4" clay brick with maximum 1" air gap between exterior insulation and brick Standard brick ties/anchors installed 24" OC (max.) vertically on



	<p>each stud.</p> <ol style="list-style-type: none"> 2) Stucco – ¾ inch (min.) exterior cement plaster and lath An optional secondary WRB (not full coverage asphalt or butyl based, self-adhered membrane) may be applied between the exterior insulation and lath. Fasteners must attach to base wall framing and designed to withstand wind and cladding load per applicable code. 3) Natural Stone Veneer (Limestone, granite, marble, sandstone) – minimum 2" thick using any standard non-open joint installation technique such as ship lap 4) Cast Artificial Stone – minimum 1½" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap 5) Terra Cotta Cladding – minimum 1¼" thick (solid) using any standard non-open joint installation technique such as shiplap Fasteners must attach to base wall framing and designed to withstand wind and cladding load per applicable code. 6) Concrete – minimum 2 inches thick with a maximum 1-inch air gap between exterior insulation and concrete. 7) Concrete Masonry Units (CMU) – minimum 4 inches thick with a maximum 2-inch air gap between exterior insulation and CMU
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