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NFPA 285:

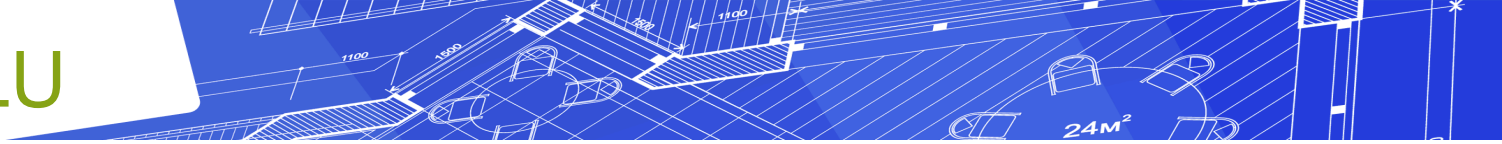
Assembly Test of Exterior Walls with Combustible Components

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1 LU/HSW Hour

**NFPA 285 Assembly Test of Exterior Walls with
Combustible Components**

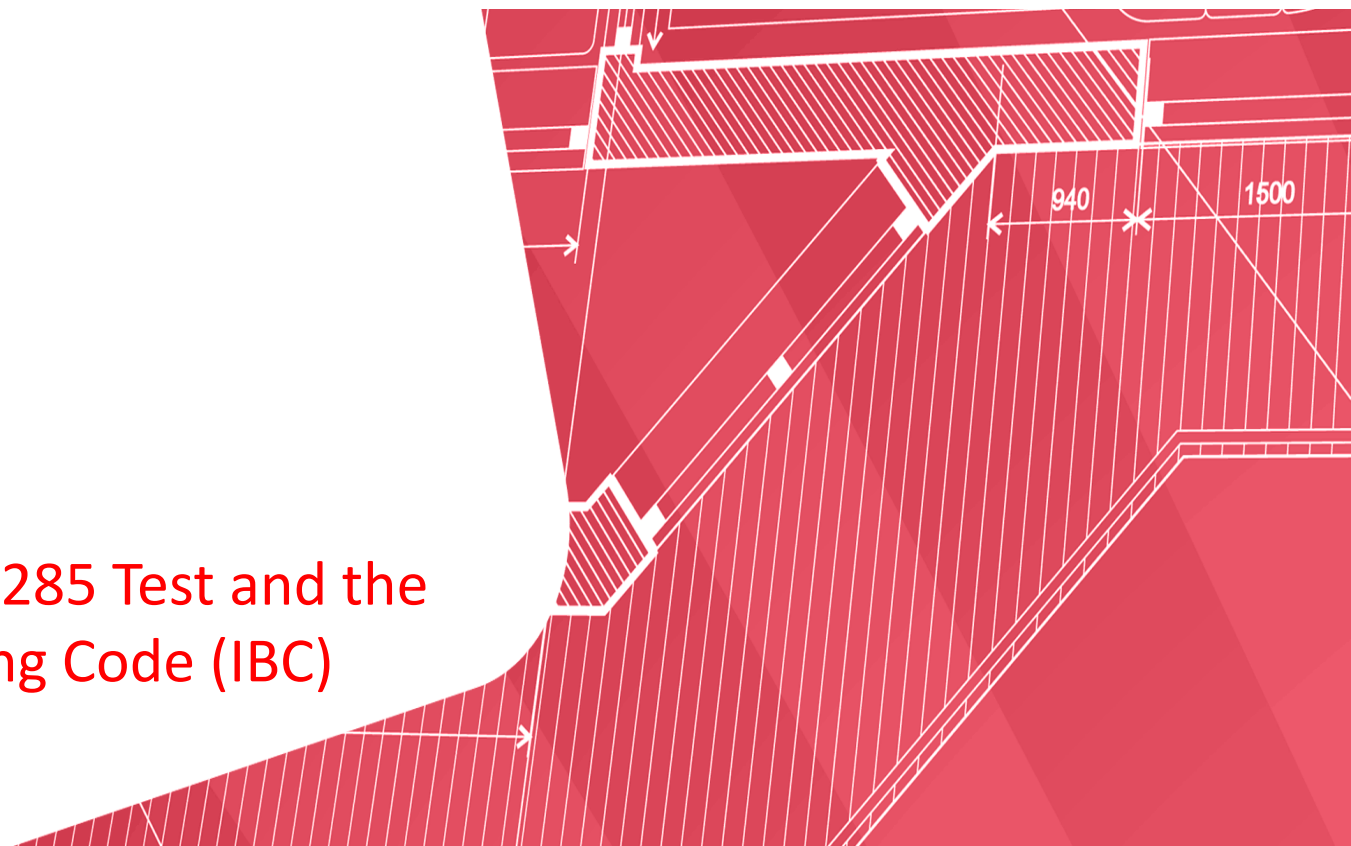
Learning Objectives

- Understand the Impact of the NFPA 285 Test in Relation to the International Building Code
- Apply the NFPA 285 Assembly Test Components and Parameters to Successful Test Performance
- Identify Combustible Components in a Noncombustible Wall Assembly that Trigger NFPA 285 Testing
- Design Building Envelope Systems as Part of NFPA 285 Compliant Assembly Variations



Section 1:

Impact of the NFPA 285 Test and the International Building Code (IBC)



Construction Types (IBC ch 5, 6)

Combustible



Type V Combustible Construction

Type IV Heavy Timber Construction

Type III Non-Combustible Exterior

Type II Non-Combustible Exterior and Components

Type I Non-Combustible Materials and Structure

Non-Combustible

- Each Type has an “A” and a “B” sub-category
- “A” has increased fire protection requirements

Construction Types Examples



Type V



Type IV

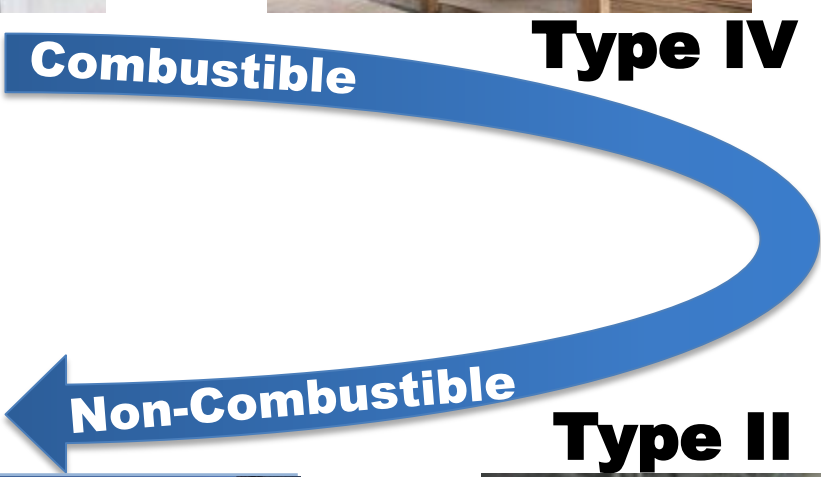


Type III

Type I



Type II



Maximum Building Height (IBC Table 503)

Including 1-story sprinkler system increase

Building Use	Type V Combustible	Type IV Heavy Timber	Type III Non-Combustible Exterior	Type II Non-Combustible Components	Type I Fire-Rated Structure
Assembly***	3	4	4	4	Unlimited
Education	2	4	4	4	Unlimited
Business	4	6	6	6	Unlimited
Factory/Ind	4	6	5	6	Unlimited
High Hazard	4	6	6	6	Unlimited
Institutional	3	5	5	5	Unlimited
Mercantile	4	5	5	5	Unlimited
Residential	4	5	5	5	Unlimited
Storage	5	6	5	6	Unlimited
Utility	3	5	4	5	Unlimited

IBC Fire Related Tests and Reports

Product Properties

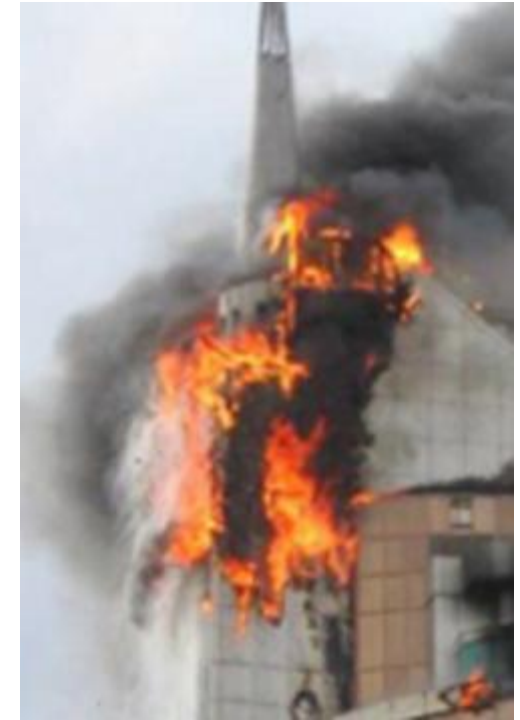
- **ASTM E84** Surface Burning Characteristics
- **ASTM E1354** Cone Calorimeter Test
- **ICC ES Reports** (*compliance aid, not a test method*)

Assembly Properties

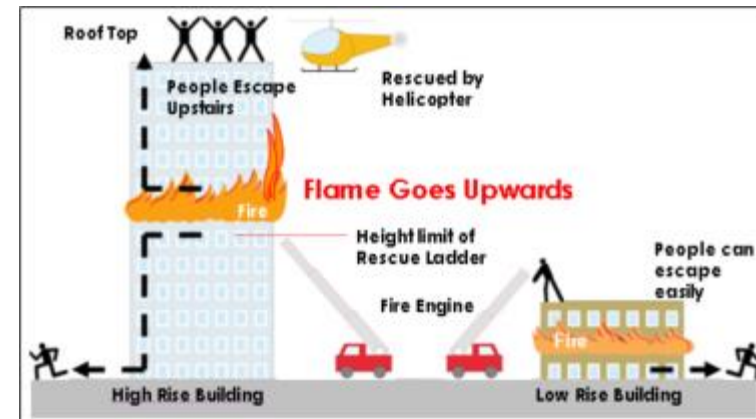
- **ASTM E 119 or UL 263** Fire Rated Walls
- **NFPA 268** Radiant Ignitibility of Assemblies
- **NFPA 285** Walls With Combustible Components

What is NFPA 285?

- Test of the actual wall assembly is generally required when “noncombustible” walls contain “combustible” materials.
- Is not new, but awareness has increased due to code changes.
- In high-rise buildings:
Assembly fire performance is critical for evacuation and life safety.



www.bfm.co.th/index.php?m=product&a=index&lang=en



www.bfm.co.th/index.php?m=product&a=index&lang=en

History of NFPA 285

Energy Crisis:
Leads to increased exterior insulation applications

1988:
Uniform Building Code adopts UBC 17-6

1997:
Uniform Building Code adopts UBC 26-9

2000:
IBC begins requiring NFPA 285 testing

1970's

1980's

1990's

2000's

2010's

Late 70's:
SPI develops full-scale test



Full-scale Fire Test
UBC 17-6 / UBC 26-4

1998:
NFPA adopts UBC 26-9 as NFPA 285



Reduced-scale Fire Test
UBC 26-9 / NFPA 285

2012:
IBC expands NFPA 285 testing to WRB

IBC NFPA 285 Testing - Material Triggers

- **Foam Plastic Insulation (Ch. 26)**

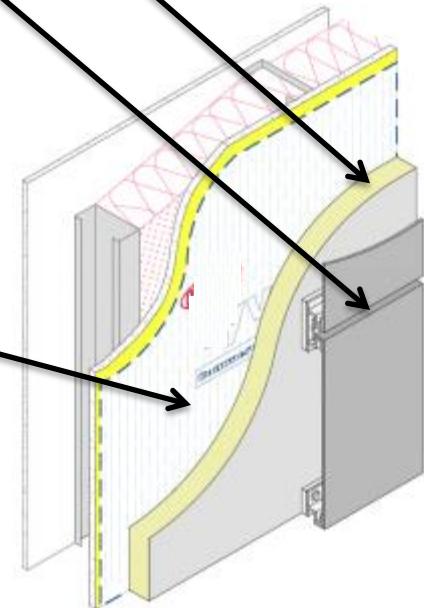
- Applies to Type I – IV construction (~1988)
- Applies to buildings of any height

- **Combustible Exterior Cladding (Ch. 14)**

- EIFS - (~2000 IBC)
- MCMs - (~2003 IBC)
- FRPs - (~2009 IBC)
- HPLs - (~2012 IBC)

- **Water-Resistive Barriers (Ch. 14)**

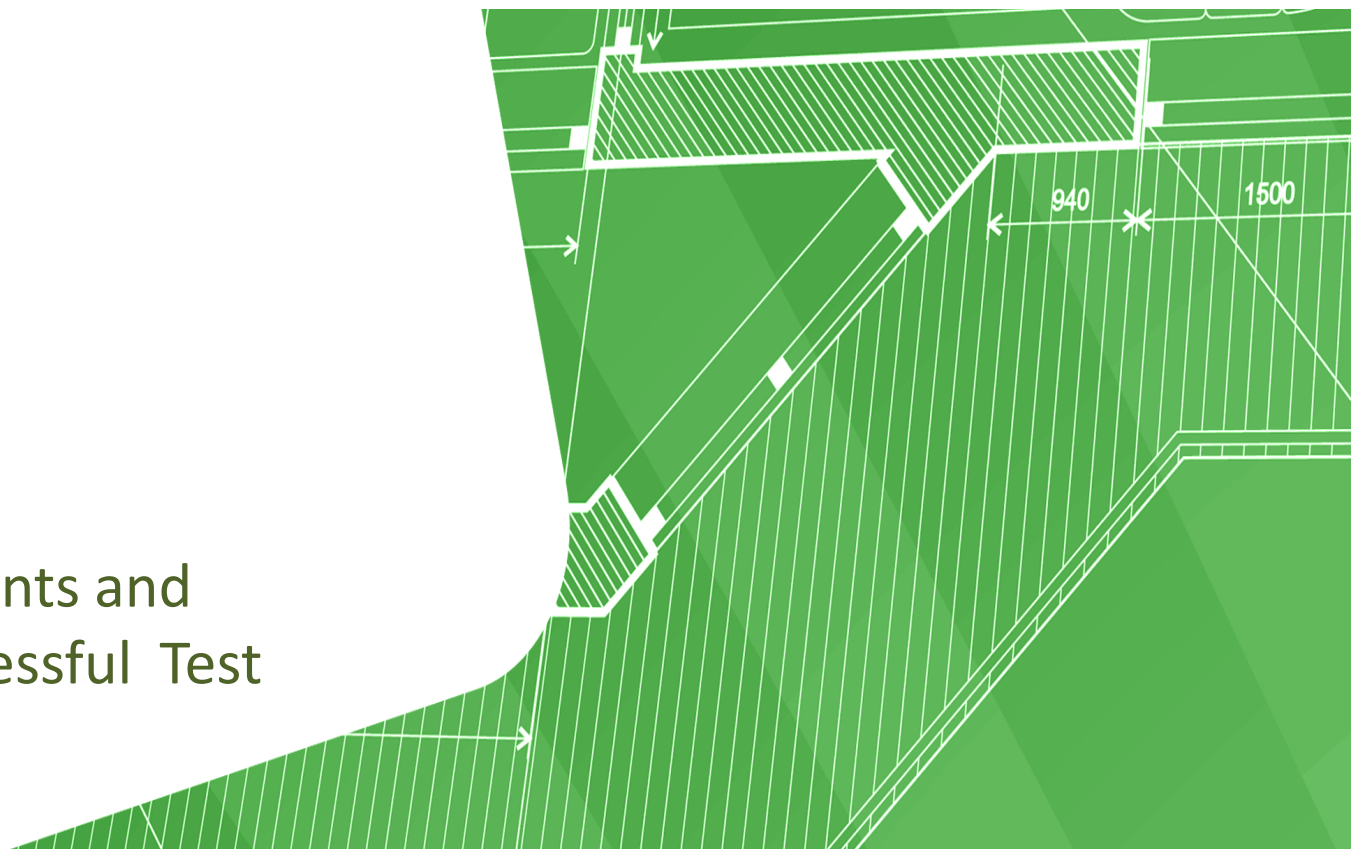
- Applies to Type I, II, III, IV buildings over 40 ft
- Applies to combustible WRB's - (2012 IBC)





Section 2:

NFPA 285 Components and
Parameters to Successful Test
Performance



NFPA 285 Multi-Story Test

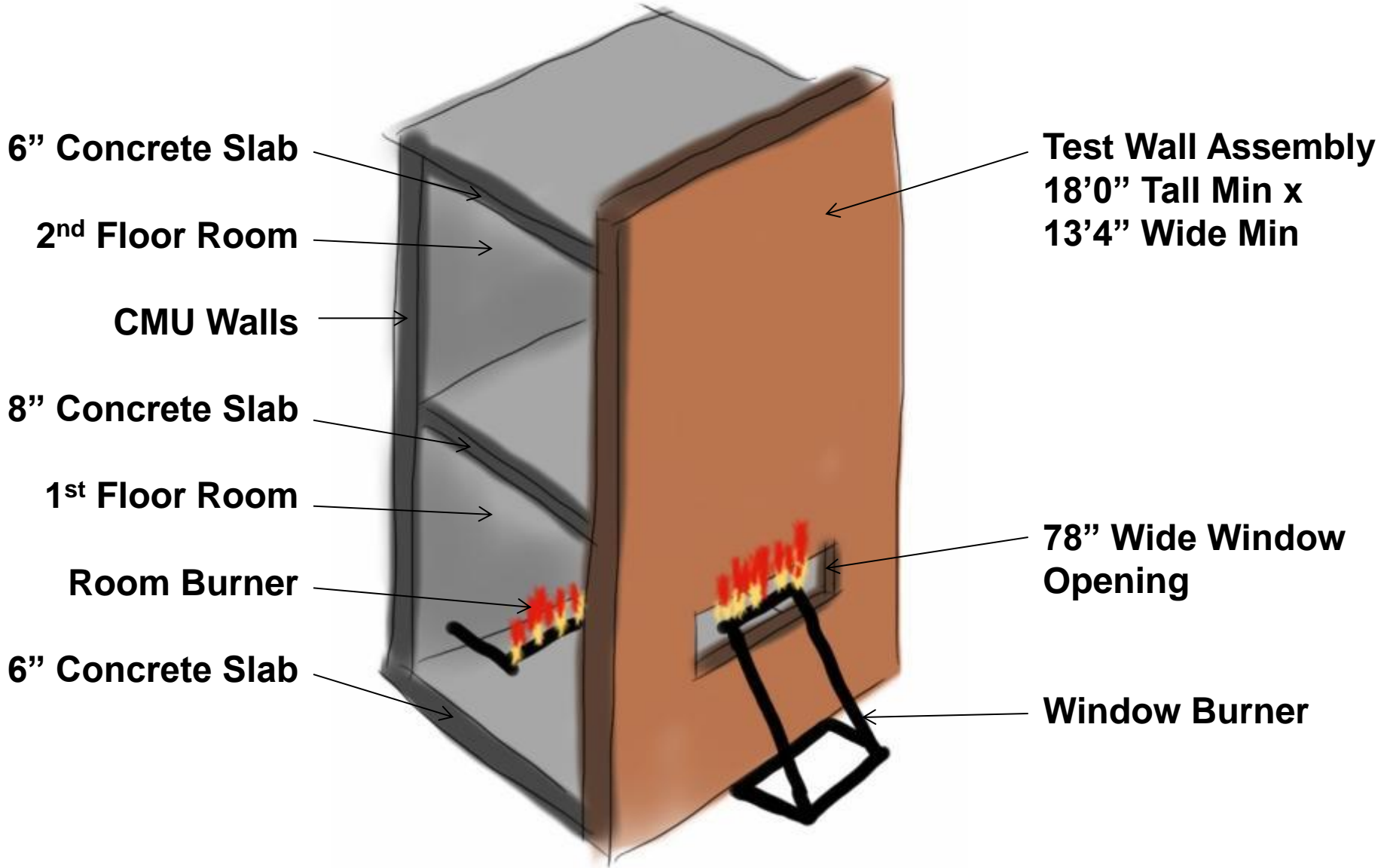
2 Story Test with Interior & Exterior Burners



Architectural Testing, Inc. – Informational Bulletin # 61



NFPA 285 Fire Test - Components



NFPA 285 Fire Test - Parameters

**No flame
propagation in
2nd floor room**



NFPA 285 Fire Test - Parameters



Externally, Flames shall not reach 10' above the window's top

Externally, Flames shall not reach 5' laterally from the window's centerline

NFPA 285 Fire Test - Parameters



**Inside wall assembly,
Thermocouples shall
not exceed 1000 °F
during the test.**

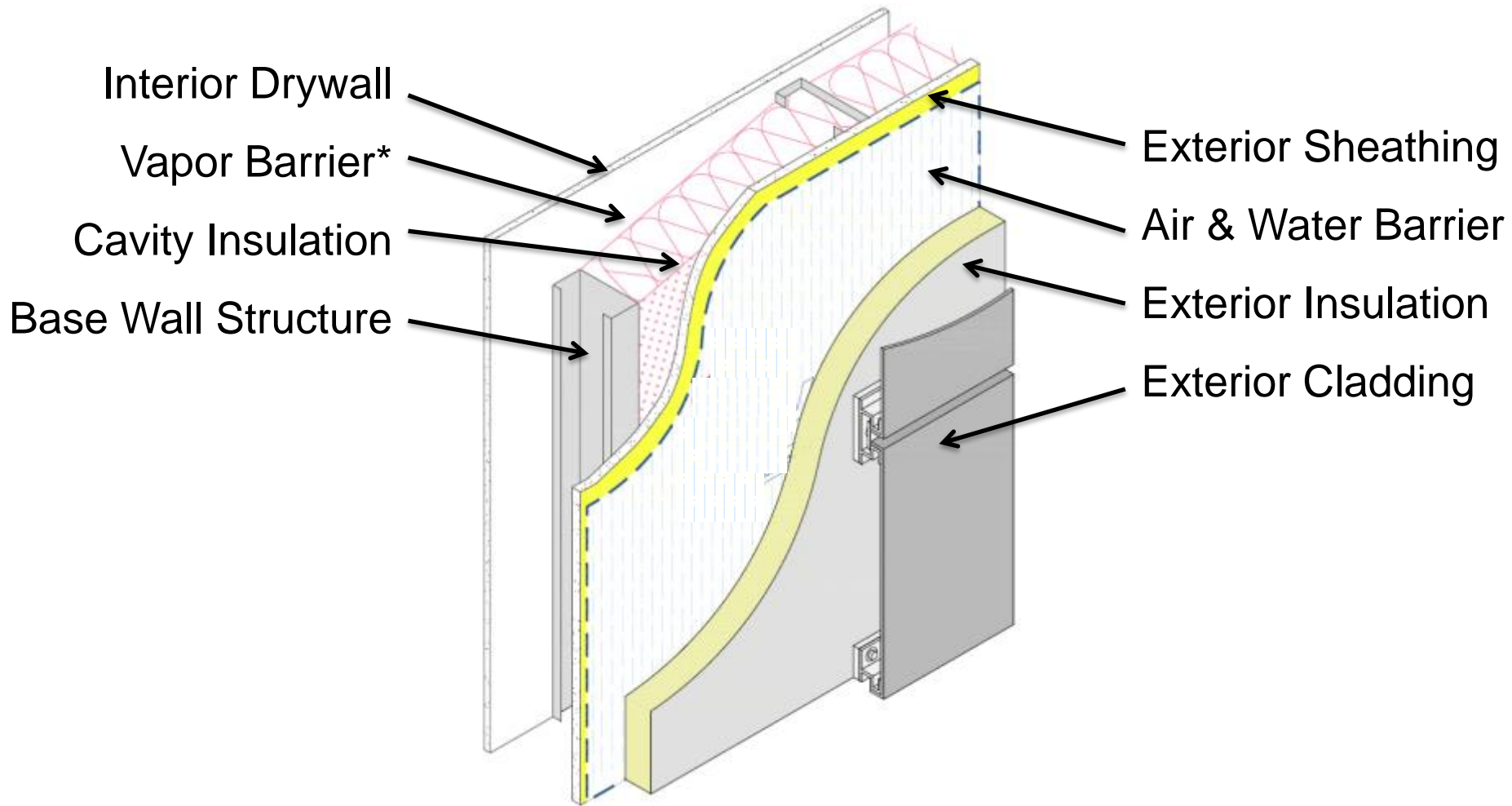


Section 3:

Combustible Components in a
Noncombustible Wall Assembly

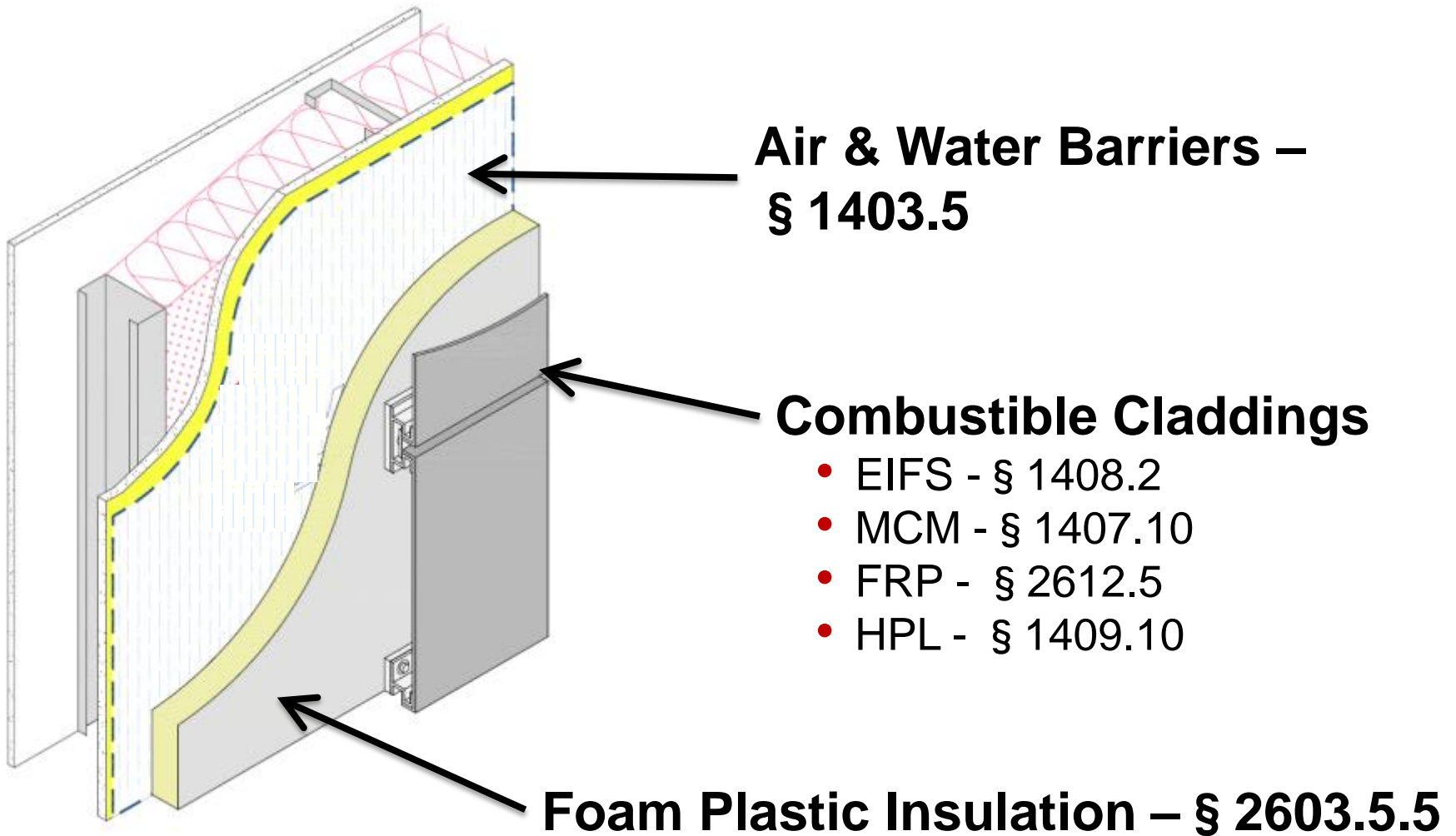


Building Envelope Assembly Components

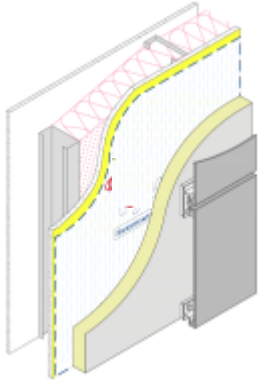


* Vapor Barrier's use and location in the wall is climate specific

IBC Combustible Component Requirements



IBC **Combustible Component** Requirements

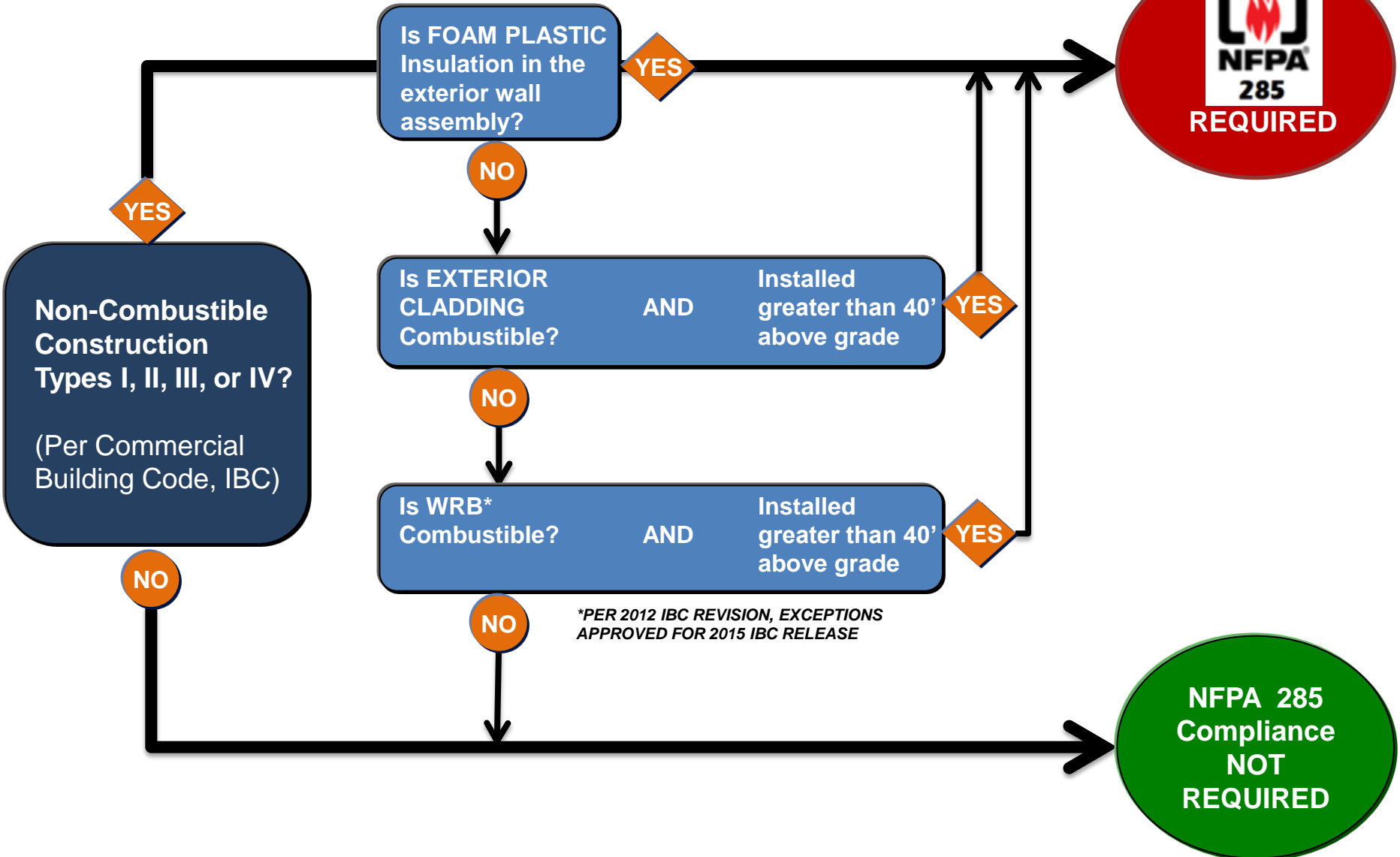


- **Foam Plastic Insulation**
- **Combustible Claddings** (EIFS, MCM, FRP, HPL)
- **Air & Water Barriers**

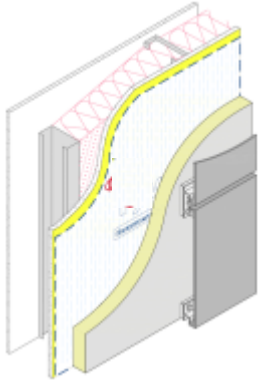
Design Conditions Requiring NFPA 285

- Installations over 40' (Type I, II, III, or IV)
- “Foam Plastic” and “Foam Plastic” core materials

IBC NFPA 285 Testing Requirements



IBC **Combustible Component** Requirements

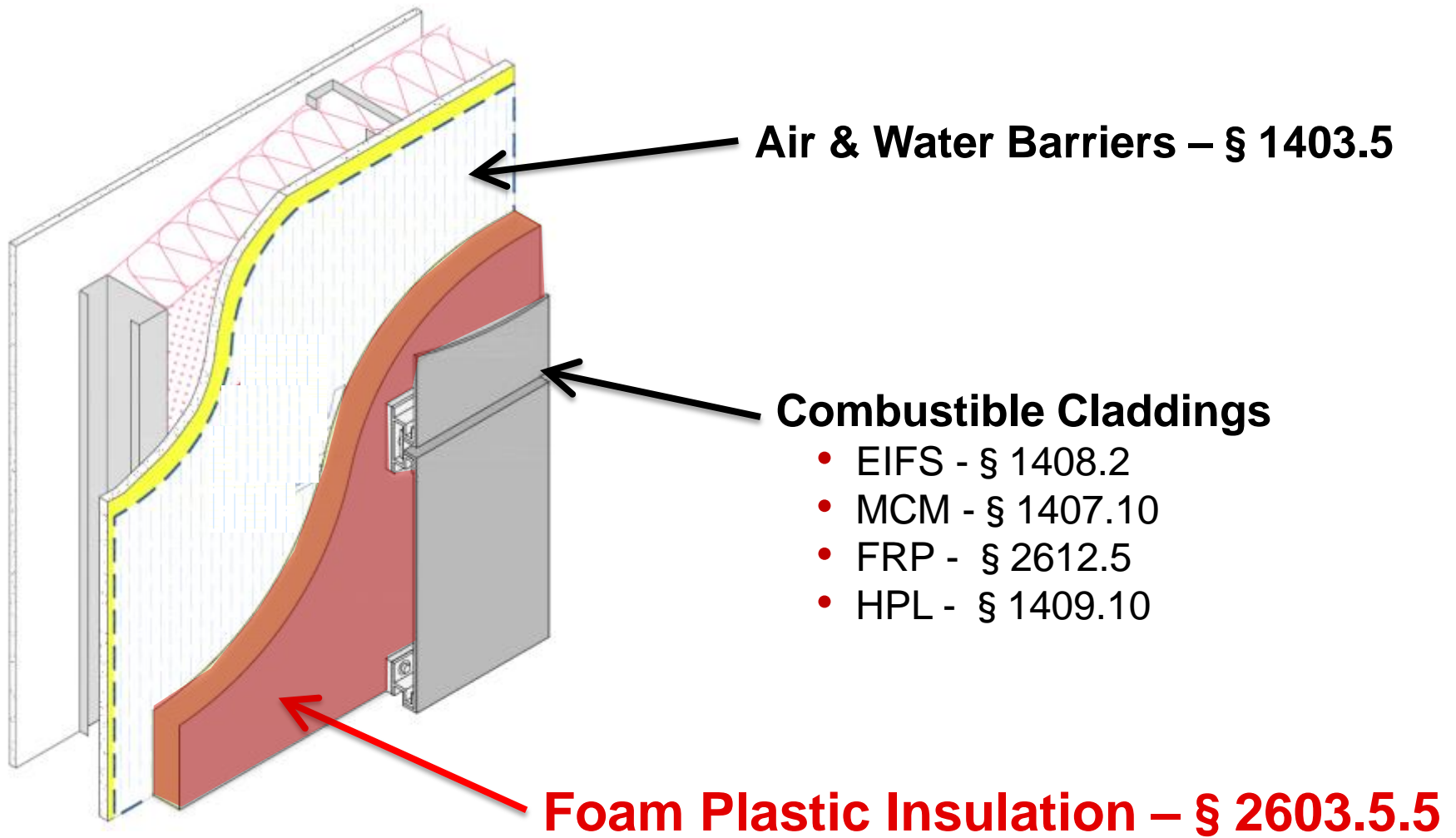


- **Foam Plastic Insulation**
- **Combustible Claddings** (EIFS, MCM, FRP, HPL)
- **Air & Water Barriers**

Material Requirements, IBC Type I-IV Taller than 40'

- Products are Labeled and Identified by manufacturer
- Flame Spread Index ≤ 25 (ASTM E84)
- Smoke Development Index ≤ 450 (ASTM E84) } **Class A**
- Maintain assembly fire rating (ASTM E119 or UL 263)
- Separated from interior by a Thermal Barrier (gyp. bd)

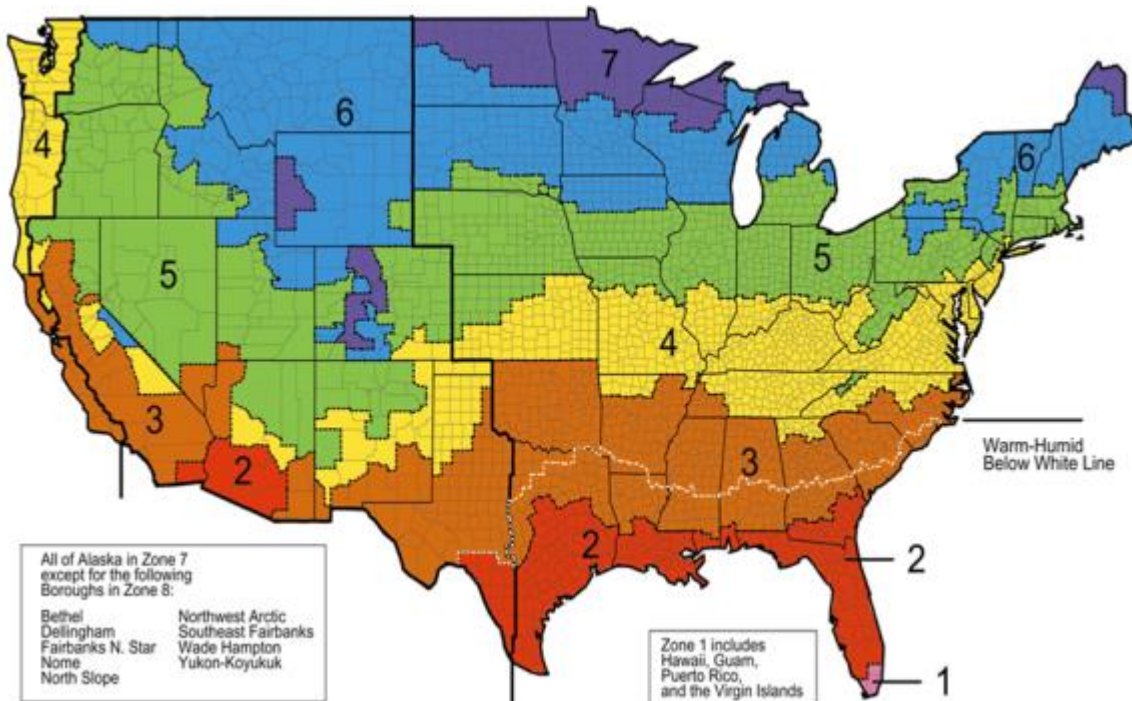
NFPA 285 Wall Assembly: **Exterior Insulation**



SECTION 3

Climate Zones & Continuous Insulation Requirement's

Increasing Mandatory use of Continuous Insulation (ci) in EVERY climate zone



Climate Zone	IECC 2009	IECC 2012
8	R13 + R7.5ci	R13 + R7.5ci
7	R13 + R7.5ci	R13 + R7.5ci
6	R13 + R7.5ci	R13 + R7.5ci
5	R13 + R7.5ci	R13 + R7.5ci
4	R13 + R7.5ci	R13 + R7.5ci
3	R13 + R3.8ci	R13 + R5ci
2	R13	R13 + R5ci
1	R13	R13 + R5ci

Climate Zone	ASHRAE 90.1 2010	ASHRAE 90.1 2012
8	R13 + R7.5ci	R13 + R18.8ci
7	R13 + R7.5ci	R13 + R12.5ci
6	R13 + R7.5ci	R13 + R12.5ci
5	R13 + R7.5ci	R13 + R10ci
4	R13 + R7.5ci	R13 + R7.5ci
3	R13 + R3.8ci	R13 + R5ci
2	R13	R13 + R3.8ci
1	R13	R13

All of Alaska in Zone 7 except for the following Boroughs in Zone 8:
 Bethel
 Delillingham
 Fairbanks N. Star
 Nome
 North Slope

Northwest Arctic
 Southeast Fairbanks
 Wade Hampton
 Yukon-Koyukuk

Zone 1 includes Hawaii, Guam, Puerto Rico, and the Virgin Islands

Warm-Humid Below White Line

Impact of Thermal Bridging

on Effective Installed R-Value for Steel-Framed Walls

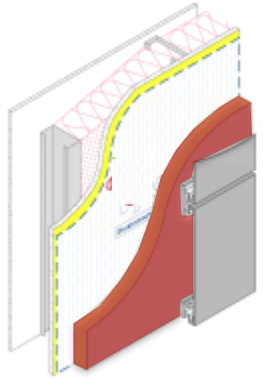
Actual Cavity Depth, inch	Rated R-Value	Effective R-Value
3.5 in. depth	R-11	R-5.5
	R-13	R-6.0
	R-15	R-6.4
6.0 in. depth	R-19	R-7.1
	R-21	R-7.4
3.5 in. depth	R-11	R-6.6
	R-13	R-7.2
	R-15	R-7.8
6.0 in. depth	R-19	R-8.6
	R-21	R-9.0

16" o.c.

24" o.c.

Source: TABLE A3.3 Assembly U-Factors for Steel-Frame Walls, ASHRAE 90.1-2007

NFPA 285 Wall Assembly: **Exterior Insulation**



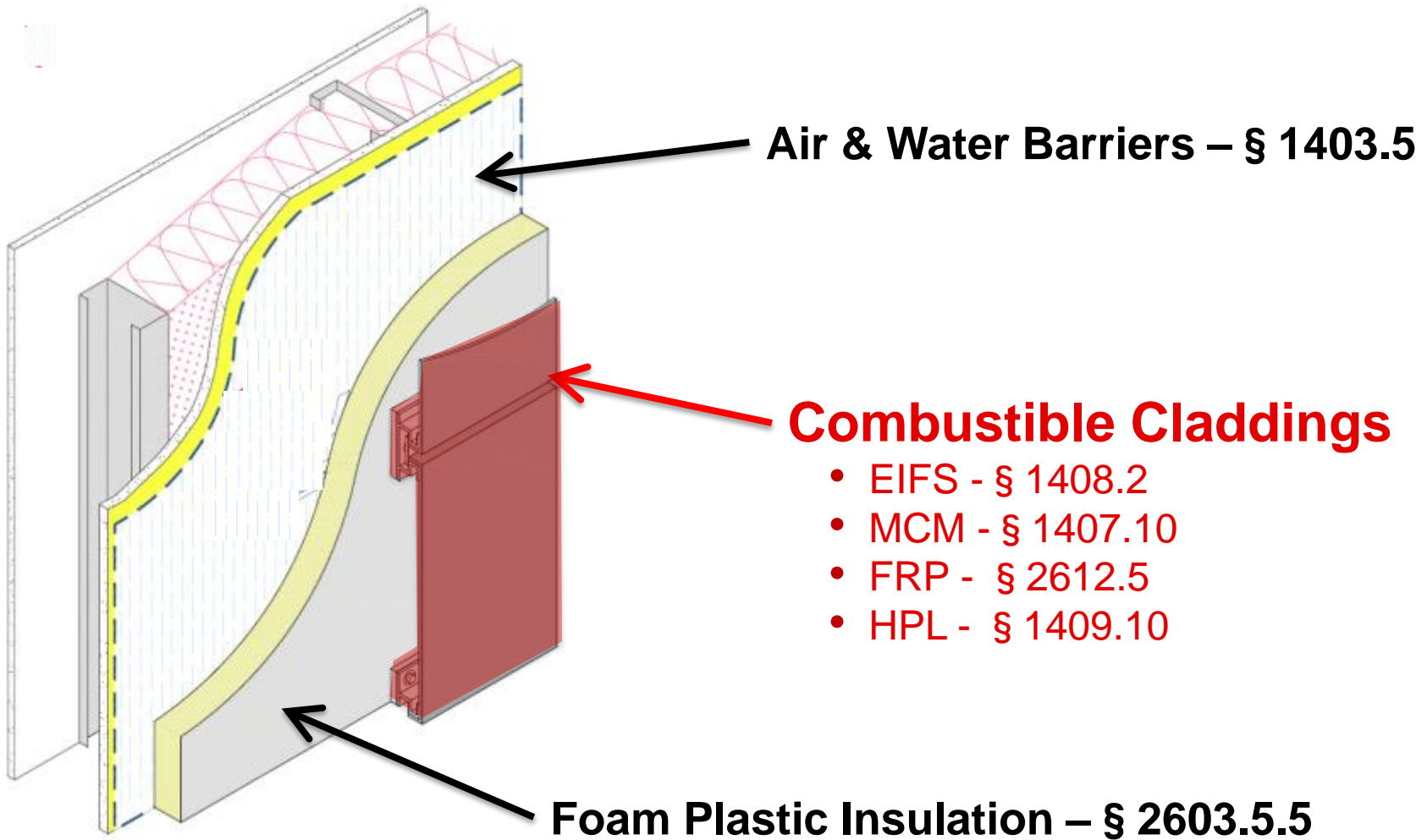
Common Insulation Types

**Most Common
Continuous Insulation
Types Used**

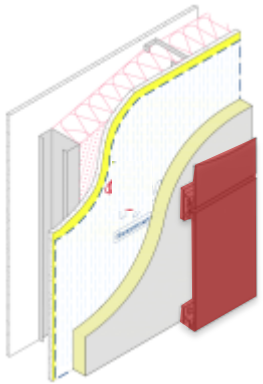
- **XPS (Extruded Polystyrene)**
 - R-value: ~5 R/in
 - Permeability: ~0.8 perm-in
- **Polyisocyanurate**
 - R-value: ~6 R/in
 - Permeability: ~0.75 perm-in
- **Mineral Fiber**
 - R-value: ~4 R/in
 - Permeability: ~54 perm-in

SECTION 3

NFPA 285 Wall Assembly: **Combustible Claddings**



NFPA 285 Wall Assembly: **Exterior Cladding**



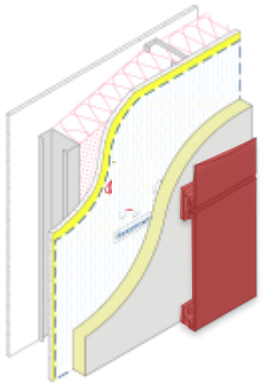
COMBUSTIBLE

- Exterior Insulation Finishing Systems (EIFS)
- Metal Composite Materials (MCMs)
- Fiber Reinforced Plastics (FRPs)
- High Pressure Laminates (HPLs)

NON-COMBUSTIBLE

- Brick / Masonry / Stone / Terracotta
- Concrete / Cementitious Stucco
- Fiber Cement Boards / Panels

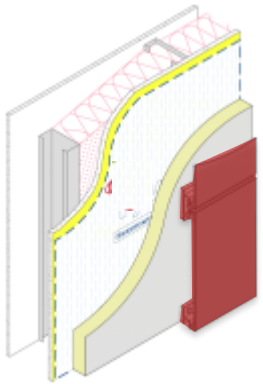
NFPA 285 Wall Assembly: **Exterior Cladding**



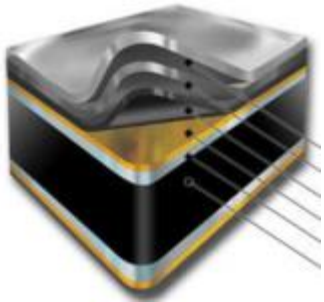
- **Exterior Insulation Finishing Systems (EIFS)**
 - IBC regulates under “Foam Plastic” Requirements
 - Meets the EIFS performance requirements of ASTM E2568
- Metal Composite Materials (MCMs)
- Fiber Reinforced Plastics (FRPs)
- High Pressure Laminates (HPLs)

SECTION 3

NFPA 285 Wall Assembly: **Exterior Cladding**

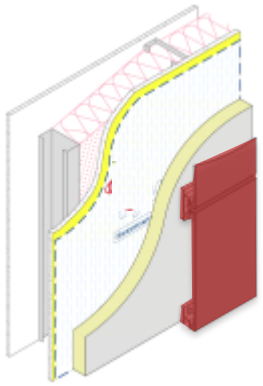


- Exterior Insulation Finishing Systems (EIFS)
- **Metal Composite Materials (MCMs)**
 - Excludes “Foam Plastic” core materials
 - Different core materials have different fire performance characteristics
 - Available in Open and Closed Joint Systems
 - Approximate 4mm-12mm panel thickness
- Fiber Reinforced Plastics (FRPs)
- High Pressure Laminates (HPLs)



SECTION 3

NFPA 285 Wall Assembly: **Exterior Cladding**



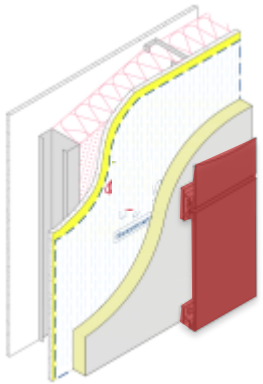
- Exterior Insulation Finishing Systems (EIFS)
- Metal Composite Materials (MCMs)
- **Fiber Reinforced Plastics (FRPs)**
 - Foam cores comply with “Foam Plastic” Req’s
 - Installations less than 40’ above grade
 - Limited to 10% area when separation <10’
 - Flame Spread Index ≤ 200 (ASTM E84)
 - Fireblocking Required
- High Pressure Laminates (HPLs)



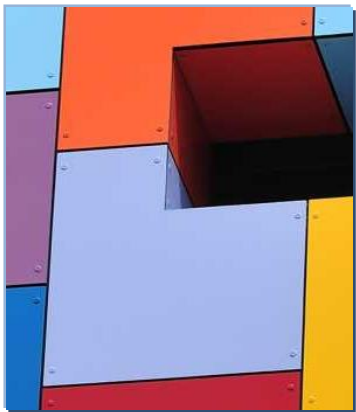
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SECTION 3

NFPA 285 Wall Assembly: **Exterior Cladding**

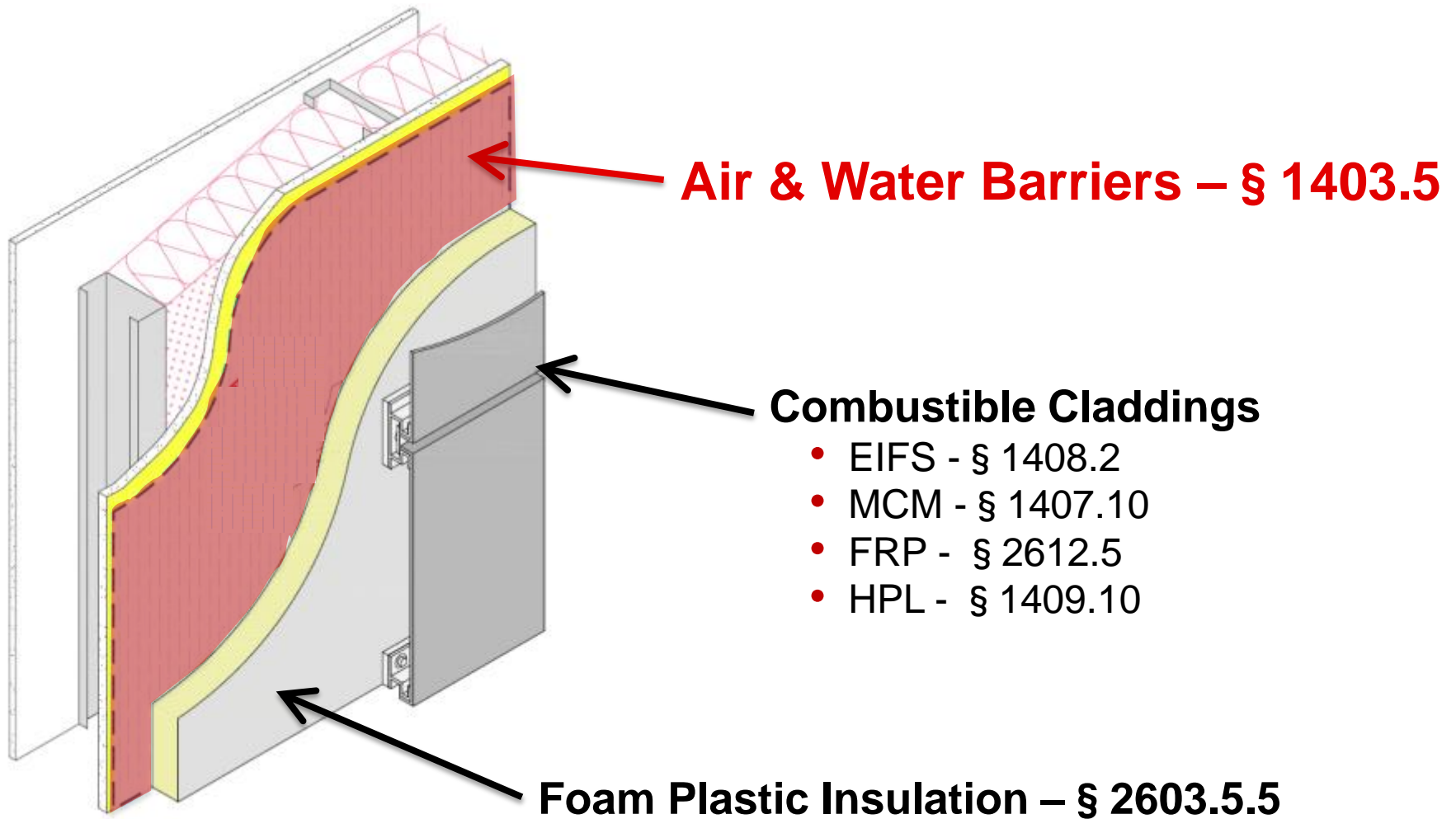


- Exterior Insulation Finishing Systems (EIFS)
- Metal Composite Materials (MCMs)
- Fiber Reinforced Plastics (FRPs)
- **High Pressure Laminates (HPLs)**
 - Available in Open and Closed Joint Systems
 - Approximate 4mm-12mm panel thickness
 - Different core materials have different fire performance characteristics
 - Installations less than 40' above grade
 - Limited to 10% area when separation < 5'

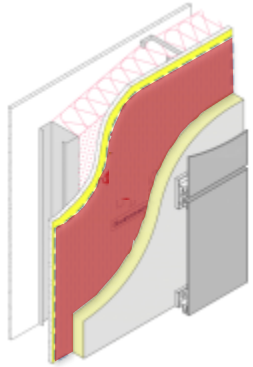


SECTION 3

NFPA 285 Wall Assembly: **Air & Water Barrier**



NFPA 285 Wall Assembly: **Air & Water Barrier**



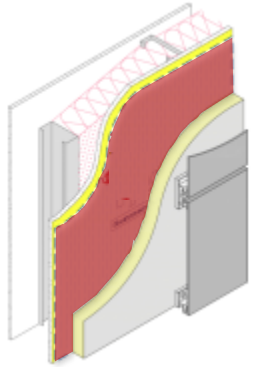
COMBUSTIBLE

- **Water Resistive Barriers (WRBs)**
 - **Building Wraps**
 - **Self Adhered Building Wraps**
 - **Self Adhered Membranes**
 - **Fluid Applied Membranes**
- 2012 IBC: Installations over 40' above grade must meet the requirements of NFPA 285 (Type I, II, III, or IV)

2015 IBC has approved WRB exceptions based on material properties and fuel load potential

SECTION 3

NFPA 285 Wall Assembly: **Air & Water Barrier**



IBC NFPA 285 Test Requirements for WRBs

	Pre-2012	2012	2015
NFPA 285 Test Req's	None	Installations over 40' above grade must meet the requirements of NFPA 285 (Type I, II, III, or IV)	
Exceptions	N/A	None	<ol style="list-style-type: none">WRB is the only combustibile wall component and the wall has a non-combustible covering (Table 1405.2)WRB is the only combustibile wall component and:<ul style="list-style-type: none">-ASTM E84 Product Test:<ul style="list-style-type: none">-flame spread index of 25 or less-smoke-developed index of 450 } Class A-ASTM E1354 (Cone Calorimeter)Product Test:<ul style="list-style-type: none">-Incident radiant heat flux of 50 kW/m².-Effective Heat of Combustion of less than 18 MJ/kg-Peak Heat Release Rate less than 150 kW/m²-Total Heat Release of less than 20 MJ/m²Windows and doors, and window/door flashings



Section 4:

Building Envelope Systems Part of
NFPA 285 Compliant Assemblies



NFPA 285 Test Logistics

Limited Testing Laboratory Availability

- Intertek (San Antonio, TX)
- Southwest Research (San Antonio, TX)
- Architectural Testing (York, PA)

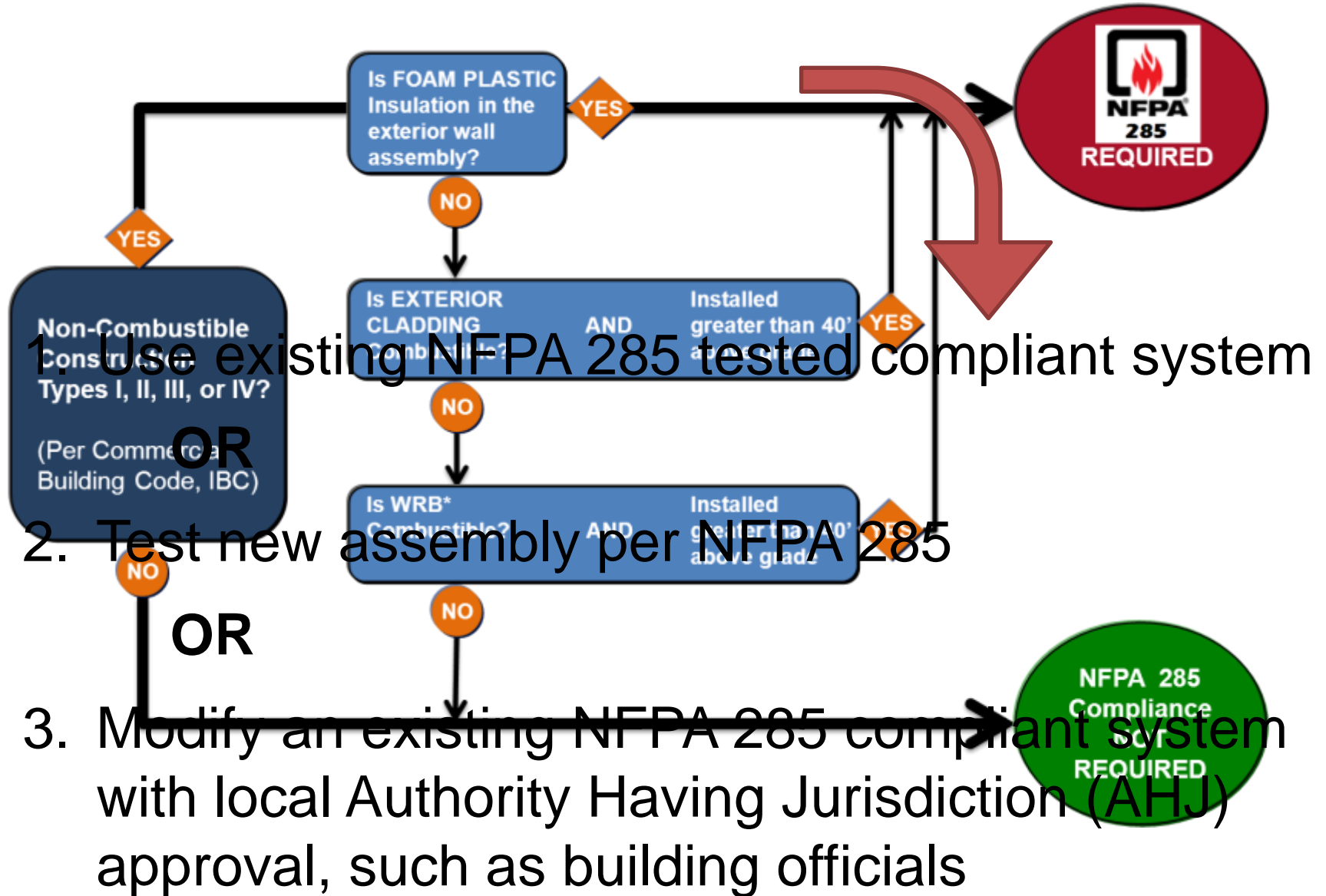
Potentially High Project Costs

- High Testing Cost → **Product Selection**
- Long Lead Time → **Planning in Design**

Results are owned by the company paying for the test

- No directory of listed assemblies
- No direct method for substituting assembly components

Wall Designs with **Combustible** Components



NFPA 285 Compliant Assemblies are Specific

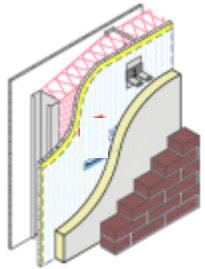
- Required for various components in all configurations
- For example, There is no one test or test assembly to qualify a WRB for use in all assemblies
- Changes in configurations (air gaps, attachment systems, etc.) can cause different results
- If a “New” combustible component is added in the wall assembly, then new testing required for all of the various configurations.



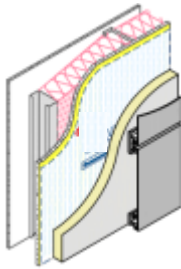
SECTION 4

Variations in Wall Assemblies = Many Tests

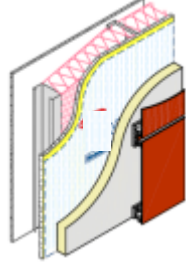
WRB / Polyiso
/ Brick



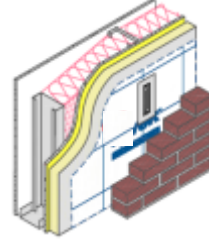
WRB / Polyiso
/ MCM



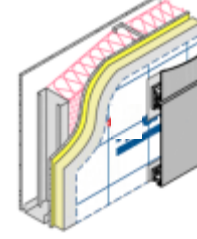
WRB / Polyiso
/ HPL



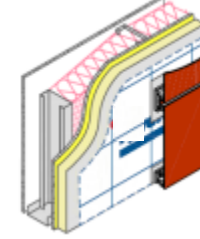
WRB Over / Polyiso
/ Brick



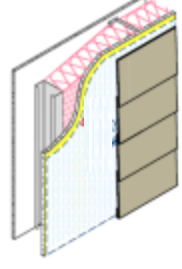
WRB Over / Polyiso
/ MCM



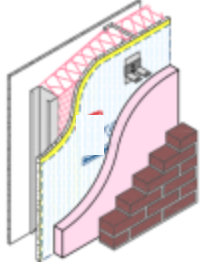
WRB Over / Polyiso
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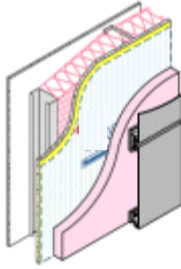
WRB
/ Fiber Cement



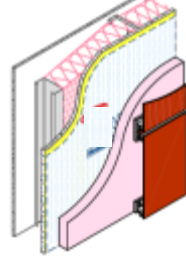
WRB / XPS
/ Brick



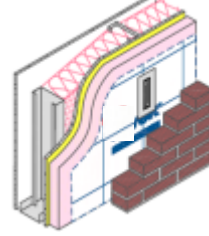
WRB / XPS
/ MCM



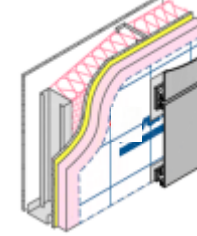
WRB / XPS
/ HPL



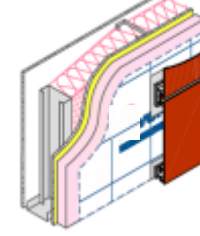
WRB Over /
XPS / Brick



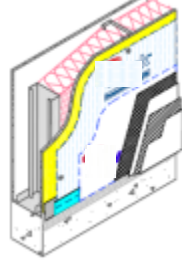
WRB Over /
XPS / MCM



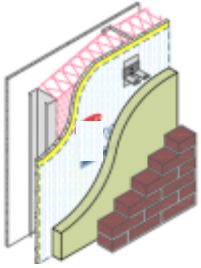
WRB Over /
XPS / HPL



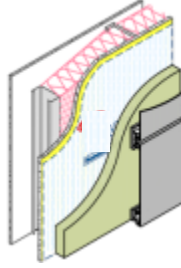
WRB
/ Stucco



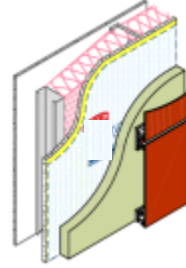
WRB / Mineral Fiber
/ Brick



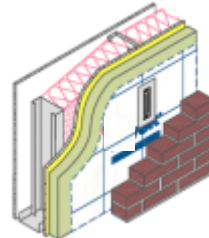
WRB / Mineral Fiber
/ MCM



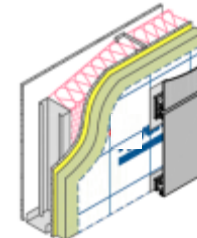
WRB / Mineral Fiber
/ HPL



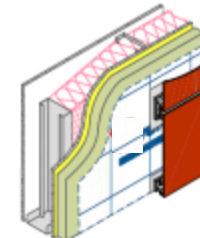
WRB Over / Mineral Fiber
/ Brick



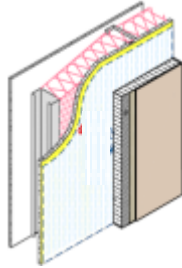
WRB Over / Mineral Fiber
/ MCM



WRB Over / Mineral Fiber
/ HPL



WRB
/ EIFS



NFPA 285 Assembly Compliance Considerations

- Substitutions of one material for another can cause different test results
- Addition of combustibles (insulation, WRBs, etc.) can cause different test results
- Wall systems made of a number of previously NFPA 285 tested materials does not ensure a successful NFPA 285 test
- Tests are required for many various claddings and other combustible wall components – insulation, WRBs



Engineering Judgment Letter

- Written by a independent source,
 - approved by the building official
 - competent and experienced
 - in engineering principles of materials, methods or system analysis
- References Specific NFPA 285 “PASS” test results (owned by manufacturer)
- Specifies all corresponding wall components evaluated (structure, insulations, WRB, Claddings ect.)
- Outlines opening details and flashing conditions evaluated

Table I. NFPA 285 Complying Wall Assemblies

Wall Component	Materials
Base wall system – Use either 1, 2, 3, 4 or 5	1 – Concrete wall 2 – Concrete Masonry wall 3 – Standard clay brick wall 4 – Adobe block wall 5 – Steel studs; minimum 3½-inch depth, minimum 20-gauge at a maximum of 24-inch OC with lateral bracing every 4 ft. vertically with 1 layer of ½-inch thick Type X gypsum wallboard on interior face of studs
Floorline Firestopping	With Base Wall System #5 above, 4 lb/cu ft. mineral wool in each stud cavity and at each floorline – attached with Z-clips or equivalent.
Cavity Insulation – Use either 1 or 2	1 – None 2 – Noncombustible insulation (fiberglass or mineral wool) faced or unfaced
Exterior sheathing – Use either 1, 2 or 3	1 – None 2 – ½-inch thick, exterior type gypsum sheathing 3 – ¾-inch thick, exterior type gypsum sheathing
Air/Water-resistive barrier applied to exterior sheathing – Use either 1, 2, 3 or 4	1 – DuPont™ Tyvek® ThermoWrap® 2 – DuPont™ Tyvek® CommercialWrap® 3 – DuPont™ Tyvek® CommercialWrap® D 4 – DuPont™ Tyvek® Fluid Applied WB
Exterior insulation	Unfaced mineral wool insulation that meets ASTM C612 – minimum 2-inch thickness – mechanically attached
Air/Water-resistive barrier applied to exterior mineral wool insulation – Use either 1, 2 or 3 and use only with Exterior Veneer #1 below	1 – DuPont™ Tyvek® ThermoWrap® 2 – DuPont™ Tyvek® CommercialWrap® 3 – DuPont™ Tyvek® CommercialWrap® D
Exterior Veneer – Use either 1 or 2	1 – Any noncombustible exterior wall covering installed per manufacturer’s installation instructions. 2 – Any combustible exterior wall covering that has successfully met the acceptance criteria of NFPA 285 and installed per manufacturer’s installation instructions.
Flashing of window, door and other exterior wall penetrations	As an option, flash window, door and other exterior penetrations with limited amounts of any material listed in Table II – max. 12-inch width

Table II. Allowed Flashing Materials

DuPont™ StraightFlash™ w/primer
DuPont™ FlexWrap™ NF w/primer
DuPont™ StraightFlash™ VF w/primer
DuPont™ Tyvek® Fluid Applied Flashing and Joint Compound
DuPont™ Tyvek® Fluid Applied Flashing – Brush Formulation

Note: all burners to be installed at recommended application rates and per manufacturer’s installation instructions.

Engineering Judgment Letter: WRB Example



August 14, 2012

Mr. Jason D. Martin
 Building Science Lead Engineer
 DuPont Building Innovations
 5401 Jefferson Davis Highway
 Spot 197
 Richmond, VA 23234

Re: Various NFPA 285 Complying Exterior Wall Components and Mineral Wool Exterior Insulation
 HAI Project No.: L1JB00088,000

Dear Mr. Martin:

This analysis provides a summary of various exterior wall constructions that incorporate one or more of the following DuPont™ products and that will meet the requirements of NFPA 285 when used in conjunction with mineral wool insulation:

- DuPont™ Tyvek® ThermoWrap™
- DuPont™ Tyvek® CommercialWrap®
- DuPont™ Tyvek® CommercialWrap® D
- DuPont™ Tyvek® Fluid Applied WB

Section 1403.5 of the 2012 Edition of the International Building Code requires exterior walls on building of Types I-IV construction that are above the ground plane, and that incorporate a combustible water-resistive barrier, to pass NFPA 285 "Standard Fire Test Method for Evaluation of Fire Resistance of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components."

DuPont provides several combustible air/water-resistive barriers. This analysis addresses NFPA 285 complying exterior wall assemblies that incorporate DuPont air/water-resistive barriers listed above and with 2-inch thick mineral wool insulation that will be mechanically attached to the exterior wall system. This noncombustible, fire-resistant, mineral wool insulation provides protection to the air/water-resistive barrier and in this case the use of the air/water-resistive barrier will not affect the NFPA 285 fire performance.



<http://www.exponent.com>

Mr. Jason D. Martin
 August 14, 2012
 Page 3

Table I. NFPA 285 Complying Wall Assemblies

Wall Component	Materials
Base wall system – Use either 1, 2, 3, 4 or 5	1 – Concrete wall 2 – Concrete Masonry wall 3 – Standard clay brick wall 4 – Adobe block wall 5 – Steel studs: minimum 3½-inch depth, minimum 20-gauge at a maximum of 24-inch OC with lateral bracing every 4 ft. vertically with 1 layer of ½-inch thick Type X gypsum wallboard on interior face of studs
Floorline Firestepping	With Base Wall System 05 above, 4 lb/cu ft. mineral wool in each stud cavity and at each floorline – attached with Z-clips or equivalent
Cavity Insulation – Use either 1 or 2	1 – None 2 – Noncombustible insulation (fiberglass or mineral wool) faced or unfaced
Exterior sheathing – Use either 1, 2 or 3	1 – None 2 – ½-inch thick, exterior type gypsum sheathing 3 – ¾-inch thick, exterior type gypsum sheathing
Air/Water-resistive barrier applied to exterior sheathing – Use either 1, 2, 3 or 4	1 – DuPont™ Tyvek® ThermoWrap® 2 – DuPont™ Tyvek® CommercialWrap® 3 – DuPont™ Tyvek® CommercialWrap® D 4 – DuPont™ Tyvek® Fluid Applied WB
Exterior insulation	Unfaced mineral wool insulation that meets ASTM C612 – minimum 2-inch thickness – mechanically attached
Air/Water-resistive barrier applied to exterior mineral wool insulation – Use either (use only with (a) or (b) below)	1 – DuPont™ Tyvek® ThermoWrap® 2 – DuPont™ Tyvek® CommercialWrap® 3 – DuPont™ Tyvek® CommercialWrap® D
Window, door or wall penetration	Use either: 1 – Any noncombustible exterior wall covering installed per manufacturer's installation instructions. 2 – Any combustible exterior wall covering that has successfully met the acceptance criteria of NFPA 285 and installed per manufacturer's installation instructions.
Window, door or wall penetration	As an option, flash window, door and other exterior penetrations with limited amounts of any material listed in Table II – max. 12-inch width.

Table II. Allowed Flashing Materials

DuPont™ StraightFlash™ w/primer
DuPont™ FlexWrap™ NF w/primer
DuPont™ StraightFlash™ VF w/primer
DuPont™ Tyvek® Fluid Applied Flashing and Joint Compound
DuPont™ Tyvek® Fluid Applied Flashing – Brush Formulation

Note: all barriers to be installed at recommended application rates and per manufacturer's installation instructions.

Letter Expands Assembly Test Results by 4 Products

Learning Objectives

- **Understand the Impact of the NFPA 285 Test in Relation to the International Building Code**
- **Apply the NFPA 285 Components and Parameters to Successful Test Performance**
- **Identify Combustible Components in a Noncombustible Wall Assembly that Trigger NFPA 285 Testing**
- **Design Building Envelope Systems as Part of NFPA 285 Compliant Assembly Variations**

Thank you!
Thank you!

Questions?

This concludes the American Institute of
Architects Continuing Education Systems
Program

DuPont Building Innovations

DuPont™ Tyvek®

Weatherization Systems



The miracles of science™



NFPA 285 Fire Testing

Intermediate Scale Multi-story Apparatus Test (ISMA)

DuPont Building Innovations
Commercial Air & Water Barriers

3 Wall Assemblies Tested



- Steel stud framed with exterior gypsum
- DuPont™ Tyvek® Fluid Applied WB
- 2" polyiso exterior insulation
- DuPont™ Tyvek® CommercialWrap® (two tests in one: Wrap over foam and FA under foam)
- ACM Metal Panel Cladding

- Steel stud framed with exterior gypsum
- DuPont™ Tyvek® Fluid Applied WB
- 3" XPS exterior insulation
- DuPont™ Tyvek® CommercialWrap® (two tests in one: Wrap over foam and FA under foam)
- Brick cladding

- Steel stud framed with exterior gypsum
- DuPont™ Tyvek® Fluid Applied WB
- ACM Metal Panel Cladding

We Passed the tests, So...

- **DuPont™ Tyvek® Fluid Applied WB is now part of many NFPA 285 compliant commercial wall assemblies.**
- **All DuPont™ Tyvek® commercial air and water barriers are now part of NFPA 285 compliant tests results owned by DuPont.**

NFPA 285 COMPLIANT WALL ASSEMBLIES WITH DUPONT™ TYVEK® COMMERCIAL AIR AND WATER BARRIER SYSTEMS AND MINERAL WOOL¹ EXTERIOR CONTINUOUS INSULATION (CI)



MineralWool



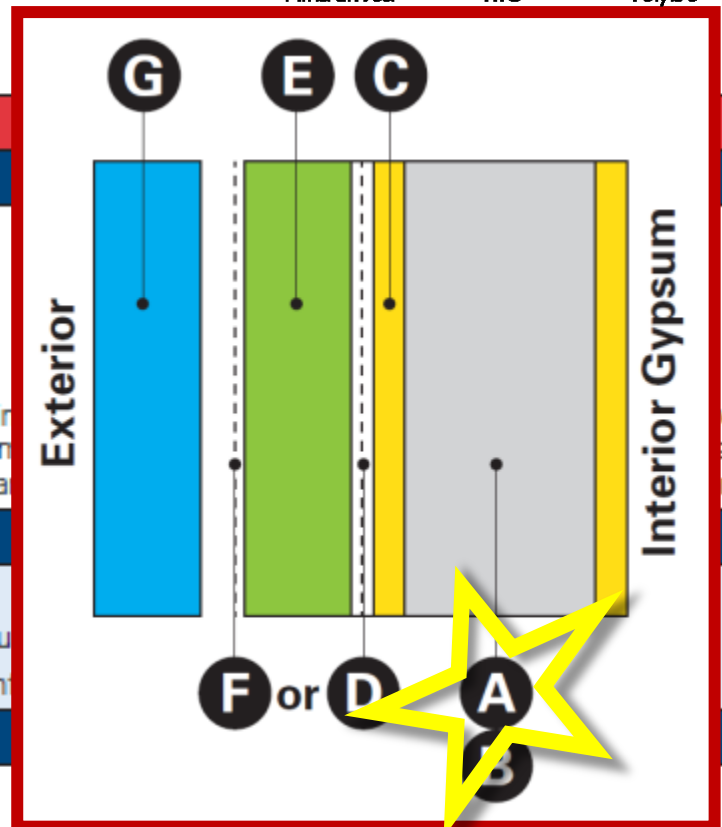
XPS



Polyiso

Component Table – Mineral Wool Insulation

WALL COMPONENT	MATERIAL OPTIONS
A. Base wall structure	
Use 1, 2, 3, 4 or 5	1 – Concrete Masonry Wall (CMU) 2 – Standard Clay Brick Wall 3 – Adobe Block Wall 4 – Concrete Wall 5 – Steel Stud Framed Wall (24" o.c. max.) – Minimum 4 ft. vertically with 1 layer of 5/8" Type X gypsum board and mineral wool floor line fire stopping in each stud cavity and at all penetrations.
B. Cavity and /or Interior insulation	
Use 1, 2 or 3	1 – None 2 – Fiberglass Batt – Cavity insulation (faced or unfaced) 3 – Mineral Wool – Cavity insulation (faced or unfaced)
C. Exterior sheathing	
Use 1, 2 or 3	1 – None 2 – Any 1/2" Type X exterior grade gypsum sheathing complying with the applicable code 3 – Any 5/8" Type X exterior grade gypsum sheathing complying with the applicable code



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D. Air and water barrier systems applied over sheathing (Air barrier installed per DuPont installation instructions.)

Cladding Manufactures w/ NFPA 285 Compliant Wall Assemblies

- Alcoa - Reynobond® FR (ACM)
- Alcotex - ALCOTEX/FR (ACM)
- Mitsubishi Plastics Inc. - Alpolic®/fr (ACM)
- 3A Composites - Alucabond® Plus (ACM)
- Citadel - Envelope2000® (MCM)
- Formica Group - VIVIX™ (HPL)
- Fundermax - Max Exterior F-Quality (HPL)
- Laminators Inc. - Omega-Lite® (ACM)
- Parklex® Façade F (HPL)
- SWISSPEARL® Fiber-Cement Panels (FC)
- Syntheon - ACCEL-E® Wall System (Metal/EPS)
- Trespa® Meteon® FR (HPL)

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