

ENGINEERING EVALUATION

Engineering Extensions based on 15 NFPA 285 Tests

Project No. 10123, Revision 100

Prepared for:

Hunter Panels 15 Franklin Street Portland, ME 04101

January 12, 2024

Abstract

Fifteen NFPA 285 test reports on various wall designs have been submitted to determine Engineering Extensions on several aspects of wall designs. These include cavity insulation, exterior sheathing, water-resistive barrier (WRB), exterior insulation, exterior WRB, air gaps, claddings, window details, and base wall framing. We have determined that engineering extensions on various components of the tested wall designs can meet the criteria of NFPA 285 with specific limitations.

The conclusions reached by this evaluation are true and correct, within the bounds of sound engineering practice. All reasoning for our decisions is contained within this document.

Submitted by,

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January 12, 2024

Reviewed and approved,

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January 12, 2024



INTRODUCTION

The purpose of this evaluation is to determine engineering extensions for the components that can meet the requirements of NFPA 285. Fifteen NFPA 285 tests were conducted on various configurations of exterior wall system designs. The designs incorporated many variables, including cavity insulation, exterior sheathing, water-resistive barrier (WRB), exterior insulation, exterior WRB, air gaps, claddings, and window details. An analysis is conducted on the elements tested from the wall systems, forming a base wall system from which replacement components can be added. Additionally, several ESR-approved competing wall systems incorporate similar features to the submitted wall systems. This evaluation will also examine some of the engineering extensions of those systems.

SUBSTITUTION TABLES

The analysis results are presented in the following tables, which list the allowable substitutions based on the tests submitted and Engineering Extensions as detailed in the appendix of this report.

Wall Component	Table 1: Xci Foil (Class A) or XCi-286 Exterior Insulation		
	Substitution Options		
Base Wall	1) Cast Concrete Walls		
Use either 1, 2, 3 or	2) CMU Concrete Walls		
4	3) 25 GA. min. 3% in. (min.) steel studs spaced 24 in. OC (max.)		
	a. % In. type X Gypsum Wallboard Interior		
	b. Lateral Bracing every 4 ft		
	4) FRIW (fire-retardant-treated wood) studs: min. nominal 2 x		
	dimension, spaced 24 in. OC (max.)		
	a. % In. type X Gypsum Wallboard Interior		
	b. Bracing as required by code		
Fire-Stopping at	1) Any approved mineral fiber-based sating insulation in each stu		
Floor Lines	cavity at the floor line. Safing thickness must match stud cavit		
	depth.		
	2) Solid FRIW fire blocking at floor line following building cod		
One its langed at its a	requirements for Type III construction.		
Cavity Insulation	1) None (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (
Use any item 1 - 15	2) 1½ In. (min.) of Carlisle SPI Seal Life PRO (up to full cavit thickness) Scalifite DDO Closed Call or Scalifite DDO On		
ltama 9 0 10 11	Inickness), Searnie PRO Closed Cell, or Searnie PRO On Zere (up to full equity thickness for each)		
10, 12, 14, or 15	2) 11/ in (min) of BASE Molitite SDE (up to total aquity thickness		
12, 13, 14, 01 15	3) 1/2 In. (min.) of BASE wantile SPE (up to total cavity thickness		
may only be used	4) Any noncombustible insulation per ASTM E136		
Shoothing 2 or the	6) Any Milleral Fiber (Board type faced of unlaced)		
sheathing thickness	 Any Fiberglass (Datt type faced of unfaced) Any form plastic insulation (SDE or board type) that has been seen as the second type in the second type in the second type in the second type in the second type is the se		
sneathing thickness	tested per ASTM E1354 (at a minimum of 20 kW/m ² beat flux		
specified.	and shown by analysis to be less flammable (improved Time D		
	HPR) than Covertro EcoBay CC or BASE Walltite		
	8) NCEI InsulBloc SPE (up to full cavity thickness)		
	9) Icynene MD-C-200v3 (Proseal) un to $5^{1/3}$ inches (only with $\frac{1}{3}$ ir		
	(min) exterior gynsum sheathing)		
	10) SWD Urethane Ouik-Shield 112 up to 6 inches in 6-inch (max		
	stud cavities with an air gap not exceeding 21/2 inches		
	11) $1\frac{1}{2}$ in (min) ThermoSeal 2000 (up to full cavity thickness)		
	12) Carlisle SealTite PRO High Yield SealTite PRO Open Cel		
	SealTite PRO No Mix. SealTite PRO No Trim 21 or SealTite		
	PRO OCX – up to full cavity thickness with $\frac{1}{2}$ in (min) exterior		
	avosum sheathing		
	13) Gaco (Firestone) F6500R. 052N. F4500. 183M. F1850. F188		
	- 3.5 in. (max.) for use with % in. Exterior Gypsum Sheathing		
	 gypsum sheathing 13) Gaco (Firestone) F6500R, 052N, F4500, 183M, F1850, F188 – 3.5 in. (max.) for use with % in. Exterior Gypsum Sheathing 		

Table 1: Xci Foil (Class A) or XCi-286 Exterior Insulation (See Notes 1 through 8)



Wall Component	Table 1: Xci Foil (Class A) or XCi-286 Exterior Insulation Substitution Options		
	14) JM Corbond III or Corbond IV – Full stud cavity depth or less for		
	use with 5⁄₄ in. exterior gypsum sheathing		
	15) Huntsman ProSeal HFO (8 in. max. thickness with no air gap, 6-		
	inch max. thickness with air gap) for use with $\frac{1}{2}$ in. or thicker		
Extorior Shoothing	exterior gypsum sneatning.		
Use Items 1 2 or 3	2) ½ in or thicker exterior gypsum sheathing		
	3) $\frac{1}{2}$ in. (min.) FRTW structural panels in Type III construction		
Multi-Function	1) USG Securock [®] Exoair [®] 430 System		
Sheathing & WRB	2) 5/8 inch Georgia Pacific DensElement, flashed with Prosoco R-		
Products	Guard FastFlash on sheathing joints		
Use Item 1 or 2	Note: Item 1 or 2 replaces the exterior sheathings above. When either of		
	these items is used, do not use exterior sheatnings or WRBs on the base wall surface in Table 6		
WRB over Base	See Table 6		
Wall Surface			
Exterior Insulation	1) 3 ¹ / ₂ in. thick (max.) Xci Foil (Class A) or Xci-286 for all claddings		
Use Item 1 or 2	listed		
depending on the	2) 4 in. thick Xci Foil (Class A) or Xci-286 for Claddings 1 - 6		
cladding.			
Insulation	See Table 6		
Insulation	The exterior insulation may be used with or without CavClear® Masonry		
	Mat over the insulation with a maximum 1 in. air gap between the		
	LavClear and the cladding. When CavClear is used, this may only be		
	as long as the total thickness is $\frac{3}{2}$ in min		
Exterior Cladding	1) Brick – Nominal 4 in. clay or concrete brick or veneer with a		
Use any Item 1 - 17	maximum 2 in. air gap behind the brick		
	Brick Ties/Anchors 24 in. OC (max.)		
Item 7 may use any	2) Stucco – minimum $\frac{3}{4}$ in. thick exterior cement plaster and lath		
tested/approved	 Limestone – minimum 2 in. thick using any standard non-open joint installation technique such as shiplan. 		
technique	4) Natural Stone Veneer – minimum 2 in thick using any		
tooliiniquo.	standard non-open joint installation technique such as		
Items 8, 9, or 12	grouted/mortared stone		
may use any	5) Cast Artificial Stone – minimum 1½ in. thick complying with		
standard installation	ICC-ES AC 51 using any standard non-open joint installation		
technique.	technique such as shiplap		
If Claddings 2, 3, 4	by weight) using any standard non-open joint installation		
5. 13. 14. 15. or 16	technique such as shiplap		
are on stucco base	7) Any MCM that has successfully passed NFPA 285		
with lath, a	8) Uninsulated sheet metal building panels, including steel, copper,		
secondary WRB	aluminum, or zinc		
(WRB Items above	9) ¼ in. (min.) uninsulated fiber-cement siding or porcelain or		
can be installed	10) Stone porcelain ceramic/aluminum honevcomb composite		
between the	building panels that have successfully passed NFPA 285 criteria		
insulation and lath	11) Autoclaved-aerated-concrete (AAC) panels that have		
and must not be full	successfully passed NFPA 285 criteria		
coverage asphalt or butyl based self-	12) Terracotta Cladding – Any Rain-screen Terracotta (min. ½ in.		
adhering membranes.	thick) with ventilated shiplap		
but may be asphalt or	13 /2 III. SUCCO – ANY ONE COAL SUCCO ($\frac{1}{2}$ IN. MIN.) that meets		
butyl based slip sheet	construction or has been tested per NFPA 285 or stays in place		



Wall Component	Т	able 1: Xci Foil (Class A) or XCi-286 Exterior Insulation Substitution Options
(stapled) with no		when tested per ASTM E119 (stucco exposed to fire) for at least
adhesive.		30 minutes
	14)	Thin brick/cultured stone set in thin-set adhesive and metal lath
		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 in
	15)	Glen Gery Thin Tech Elite Series Masonry Veneer or Glen-Gery
		Tru-Brix (only with optional noncombustible mortar) or TABS II
		Panel System with 1/2 in. thick bricks using TABS Wall Adhesive
	16)	Natural Stone Veneer - minimum 11/4 in. thick using any
		standard installation technique
	17)	FunderMax M.Look – minimum ¼ inch thick using any standard
		installation technique

Table 2: Xci CG or Xci CG ((Class A)	Exterior Insulation	(See Notes 1	through 8)	
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Wall Component	Table 2: Xci CG or Xci CG (Class A) Exterior Insulation
	Substitution Options
Base Wall	1) Cast Concrete Walls
Use Items 1, 2, 3 or	2) CMU Concrete Walls
4	3) 25 GA. min. 3 ⁵ / ₈ in. (min.) steel studs spaced 24 in. OC (max.)
	a. 🛭 🕺 in. type X Gypsum Wallboard Interior
	b. Lateral Bracing every 4 ft
	 FRTW studs: min. nominal 2 x 4 dimension, spaced 24 in. OC
	(max.)
	a. 🛯 ¼ in. type X Gypsum Wallboard Interior
	b. Bracing as required by building code
Fire-Stopping at	1) Any approved mineral fiber-based safing insulation in each stud
Floor Lines	cavity at the floor line. Safing thickness must match stud cavit
Use Item 1 or 2	depth.
	2) Solid FRTW fire blocking at floor line following building code
	requirements for Type III construction.
Cavity Insulation	1) None
Use any Item 1 - 15	2) 1 ¹ / ₂ in. (min.) of Carlisle SPI SealTite PRO (up to full cavit
	thickness), SealTite PRO Closed Cell, or SealTite PRO On
Items 8 - 15 may	Zero (up to full cavity thickness for each)
only be used with	3) 1 ¹ / ₂ in. (min.) of BASF Walltite SPF (up to total cavity thickness
Exterior Sheathing 2	4) Any noncombustible insulation per ASTM E136
or the specified	5) Any Mineral Fiber (Board type faced or unfaced)
thickness.	6) Any Fiberglass (Batt Type faced or unfaced)
	7) Any foam plastic insulation (SPF or board type) that has been
	tested per ASTM E1354 (at a minimum of 20 kW/m ² heat flux
	and shown by analysis to be less flammable (improved Tign, Pk
	HRR) than Covestro EcoBay CC or BASF Walltite
	8) NCFI InsulBloc SPF (up to full cavity thickness)
	9) Icynene MD-C-200v3 (Proseal) up to 5½ inches (only with ½ in
	(min.) exterior avpsum sheathing)
	10) SWD Urethane Quik-Shield 112 up to 6 inches in 6-inch (max.
	stud cavities with an air gap not exceeding 2½ inches.
	11) $1\frac{1}{2}$ in (min) ThermoSeal 2000 (up to full cavity thickness)
	12) Carlisle SealTite PRO High Yield, SealTite PRO Open Cell
	SealTite PRO No Mix. SealTite PRO No Trim 21, or SealTite
	PRO OCX – up to full cavity thickness with $\frac{1}{2}$ in. (min.) exterio
	avpsum sheathing
	13) Gaco (Firestone) F6500R, 052N, F4500, 183M. F1850. or F188
	- 3½ in. (max.) for use with 5% in. Exterior Gypsum Sheathing



Wall Component	Table 2: Xci CG or Xci CG (Class A) Exterior Insulation Substitution Options
	14) JM Corbond III or Corbond IV – Full stud cavity depth or less for
	use with 5⁄4 in. exterior gypsum sheathing
	15) Huntsman ProSeal HFO (8 in. max. thickness with no air gap, 6-
	inch max. thickness with air gap) for use with $\frac{1}{2}$ in. or thicker
Exterior Cheething	exterior gypsum sheathing.
Lise Item 1 2 or 3	1) None (only with Claddings $1 - 6$ and Cavity Insulations 1, 2, 3, $4, 5, 6$)
	2) ½ in or thicker exterior avosum sheathing
	3) $\frac{1}{2}$ (min.) FRTW structural panels in Type III construction
Multi-Function	1) USG Securock [®] Exoair [®] 430 System
Sheathing & WRB	2) 5% inch Georgia Pacific Denselement flashed with Prosoco R-
Products	Guard FastFlash on sheathing joints
Use Item 1 or 2	
	Note: Item 1 or 2 replaces the exterior sheathings above. When either of
	these items is used, do not use exterior sheatnings or WRBs on the base wall surface in Table 6
WRB on Base Wall	See Table 6
Exterior Insulation	1) 3½ in. thick (max.) Xci CG or Xci CG (Class A) for all claddings
USE TOF Z	IISLED 2) 1 in thick (max) Yei CG or Yei CG (Close A) for Claddings 1
cladding	6
oladanig	5
WRB on Insulation	See Table 6
	The exterior insulation may be used with or without CavClear® Masonry
	Mat over the insulation with a maximum 1 in. air gap between the
	CavClear and the cladding. When CavClear is used, this may only be
	Used with Cladding 1 - 6 or with thin brick/thin stone adhered to stucco
Exterior Cladding	1) Brick – Nominal 4 in clay or concrete brick or veneer with a
Use any Item 1 - 17	maximum 2 in. air gap behind the brick. Brick Ties/Anchors 24
,	in. OC (max.)
Item 7 may use any	2) Stucco – minimum ³ / ₄ in. thick exterior cement plaster and lath
tested/approved	3) Limestone – minimum 2 in. thick using any standard non-open
installation	joint installation technique such as shiplap
technique.	4) Natural Stone Veneer – minimum 2 in. thick using any standard
Items 8 9 or 12	stone
may use any	5) Cast Artificial Stone – minimum 1½ in thick complying with ICC-
standard installation	ES AC 51 using any standard non-open joint installation
technique.	technique such as shiplap
	6) Terracotta Cladding – minimum 1¼ in. thick (solid or equivalent
If claddings 2, 3, 4,	by weight) using any standard non-open joint installation
5, 13, 14, 15, or 16	technique such as shiplap
are on stucco base	 Any MCM that has successfully passed NFPA 285 Uninsulated about metal building papels including steel, connect
secondary W/RR	o) omnoulated sheet metal building parties including steel, copper, aluminum (or zinc only with Yci-CC (Class Δ))
(WRB items above	9) ¹ / ₄ in. (min.) uninsulated fiber-cement siding or porcelain or
allowed over foam)	ceramic tile mechanically attached
can be installed	10) Stone, porcelain, ceramic/aluminum honeycomb composite
between the	building panels that have successfully passed NFPA 285 criteria
Insulation and lath	11) Autoclaved-aerated-concrete (AAC) panels that have
coverage asphalt or	successfully passed NFPA 285 criteria
butyl based self-	12) Terracotta Cladding – Any Rain-screen Terracotta (min. ½ in.
-,	tnick) with ventilated shiplap



Wall Component	Table 2: Xci CG or Xci CG (Class Substitution O	s A) Exterior Insulation otions
adhering membranes, but may be asphalt or butyl based slip sheet (stapled) with no adhesive.	13) ½ in. Stucco – Any one coat stucc acceptance criteria or is app construction or has been tested p when tested per ASTM E119 (stu 30 minutes	co (½ in. min.) that meets AC11 roved for use in Type I-IV per NFPA 285 or stays in place acco exposed to fire) for at least
	14) Thin brick/cultured stone set in the tested to ASTM E119 (brick export place for a minimum of 30 minute test. Minimum ³ / ₄ in	nin-set adhesive and metal lath psed to furnace) and remains in es or has passed an NFPA 285
	 Glen Gery Thin Tech Elite Series Tru-Brix (only with optional nonc Panel System with ½ in. thick bri 	Masonry Veneer or Glen-Gery ombustible mortar) or TABS II icks using TABS Wall Adhesive
	16) Natural Stone Veneer – minim standard installation technique	num 1¼ in. thick using any
	17) FunderMax M.Look – minimum ½ installation technique	¼ inch thick using any standard

Table 3: Xci Foil Exterior Insulation (See Notes 1 through 8)

Wall Component	Table 3: Xci Foil Exterior Insulation Substitution Options	
Base Wall	1)	Cast Concrete Walls
Use Items 1, 2, 3 or	2)	CMU Concrete Walls
4	3)	25 GA. min. 3 ⁵ / ₄ in. (min.) steel studs spaced 24 in. OC (max.)
		a. 5/8 in. type X Gypsum Wallboard Interior
		b. Lateral Bracing every 4 ft
	4)	FRTW studs: min. nominal 2 x 4 dimension, spaced 24 in. OC
	,	(max.)
		∑ 5∕s in. type X Gypsum Wallboard Interior
		Bracing as required by code
Fire-Stopping at	1)	Any approved mineral fiber-based safing insulation in each stud
Floor Lines	,	cavity at the floor line
Use Item 1 or 2		Safing thickness must match stud cavity depth.
_	2)	Solid FRTW fire blocking at floor line following building code
	,	requirements for Type III construction.
Cavity Insulation	1)	None
Use any Item 1 - 15	2)	1½ in. (min.) of Carlisle SPI SealTite PRO (up to full cavity
	_,	thickness), SealTite PRO Closed Cell, or SealTite PRO One Zero
		(up to full cavity thickness for each)
Items 2 3 8 9 10	3)	1½ in (min) of BASE Walltite SPE (up to total cavity thickness)
11, 12, 13, 14, or 15	4)	Any noncombustible insulation per ASTM E136
may only be used	5)	Any Mineral Fiber (Board type faced or unfaced)
with Exterior	6)	Any Fiberglass (Batt Type faced or unfaced)
Sheathing 2 or the	7)	Any foam plastic insulation (SPE or board type) that has been
specified thickness	.,	tested per ASTM F1354 (at a minimum of 20 kW/m ² heat flux)
		and shown by analysis to be less flammable (improved Time Pk
		HRR) than Covestro EcoBay CC or BASE Walltite
	8)	NCEL InsulBloc SPE (up to full cavity thickness)
	9)	Icvnene MD-C-200v3 (Proseal) up to $5\frac{1}{2}$ inches (only with $\frac{1}{2}$ in
	0)	(min) exterior gypsum sheathing)
	10)	SWD Urethane Quik-Shield 112 up to 6 inches in 6-inch (max)
	10)	stud cavities with an air gan not exceeding 2 ¹ / ₂ inches
	11)	$1\frac{1}{1}$ in (min) ThermoSeal 2000 (up to full cavity thickness)
	12)	Carlisle SealTite PRO High Vield SealTite PRO Open Cell
	12)	SealTite PRO No Mix SealTite PRO No Trim 21 or SealTite
		PRO OCY = up to full cavity thickness with 1/6 in (min) exterior
		gypour choothing
		gypsum sneaming



 13) Gaco (Firestone) F6500R, 052N, F4500, 183M, F1850, or F188 – 3½ in. (max.) for use with ⁵/₈ in. exterior gypsum sheathing 14) JM Corbond III or Corbond IV – Full stud cavity depth or less for use with ⁵/₈ in. exterior gypsum sheathing 15) Huntsman ProSeal HFO (8 in. max. thickness with no air gap, 6 inch max. thickness with air gap) for use with ½ in. or thicket exterior gypsum sheathing. Exterior Sheathing 1) None (only with cavity insulation 1, 4, 5, or 6) 2) ½ in. or thicker exterior gypsum sheathing 3) ½" (min.) FRTW structural panels in Type III construction ar allowed in place of gypsum sheathing when combustible cavit
 - 3½ in. (max.) for use with 5% in. exterior gypsum sheathing 14) JM Corbond III or Corbond IV – Full stud cavity depth or less for use with 5% in. exterior gypsum sheathing 15) Huntsman ProSeal HFO (8 in. max. thickness with no air gap, 6 inch max. thickness with air gap) for use with ½ in. or thicke exterior gypsum sheathing. Exterior Sheathing 1) None (only with cavity insulation 1, 4, 5, or 6) 2) ½ in. or thicker exterior gypsum sheathing 3) ½" (min.) FRTW structural panels in Type III construction ar allowed in place of gypsum sheathing when combustible cavit
 14) JM Corbond III or Corbond IV – Full stud cavity depth or less for use with ⁵/₈ in. exterior gypsum sheathing 15) Huntsman ProSeal HFO (8 in. max. thickness with no air gap, 6 inch max. thickness with air gap) for use with ¹/₂ in. or thicker exterior gypsum sheathing. Exterior Sheathing Use Item 1, 2, or 3 1) None (only with cavity insulation 1, 4, 5, or 6) 2) ¹/₂ in. or thicker exterior gypsum sheathing 3) ¹/₂" (min.) FRTW structural panels in Type III construction ar allowed in place of gypsum sheathing when combustible cavit
 use with ⁵/₄ in. exterior gypsum sheathing 15) Huntsman ProSeal HFO (8 in. max. thickness with no air gap, 6 inch max. thickness with air gap) for use with ¹/₂ in. or thicke exterior gypsum sheathing. Exterior Sheathing Use Item 1, 2, or 3 1) None (only with cavity insulation 1, 4, 5, or 6) 2) ¹/₂ in. or thicker exterior gypsum sheathing 3) ¹/₂" (min.) FRTW structural panels in Type III construction ar allowed in place of gypsum sheathing when combustible cavit
15) Huntsman ProSeal HFO (8 in. max. thickness with no air gap, 6 inch max. thickness with air gap) for use with ½ in. or thicke exterior gypsum sheathing. Exterior Sheathing 1) None (only with cavity insulation 1, 4, 5, or 6) Use Item 1, 2, or 3 2) ½ in. or thicker exterior gypsum sheathing 3) ½" (min.) FRTW structural panels in Type III construction ar allowed in place of gypsum sheathing when combustible cavit
inch max. thickness with air gap) for use with ½ in. or thicker exterior gypsum sheathing. Exterior Sheathing Use Item 1, 2, or 3 1) None (only with cavity insulation 1, 4, 5, or 6) 2) ½ in. or thicker exterior gypsum sheathing 3) ½" (min.) FRTW structural panels in Type III construction ar allowed in place of gypsum sheathing when combustible cavit
exterior gypsum sheathing. Exterior Sheathing Use Item 1, 2, or 3 1) None (only with cavity insulation 1, 4, 5, or 6) 2) ½ in. or thicker exterior gypsum sheathing 3) ½" (min.) FRTW structural panels in Type III construction ar allowed in place of gypsum sheathing when combustible cavit
Exterior Sheathing1) None (only with cavity insulation 1, 4, 5, or 6)Use Item 1, 2, or 32) ½ in. or thicker exterior gypsum sheathing3) ½" (min.) FRTW structural panels in Type III construction ar allowed in place of gypsum sheathing when combustible cavit
 Use Item 1, 2, or 3 2) ½ in. or thicker exterior gypsum sheathing 3) ½" (min.) FRTW structural panels in Type III construction ar allowed in place of gypsum sheathing when combustible cavit
allowed in place of gypsum sheathing when combustible cavit
allowed in place of gypsum sneatning when compustible cavit
inculation is not used
Multi Eurotion 1) USC Secure all® Exectine 420 System
Sheathing & WRB 2) ⁵ / ₂ inch Georgia Pacific Dens Element flashed with Prosoco E
Products Guard EastFlash on sheathing joints
Use Item 1 or 2
Note: Item 1 or 2 replaces the exterior sheathings above. When either of
these items is used, do not use exterior sheathings or WRBs on the bas
wall surface in Table 6.
WRB over Base See Table 6
Wall Surface
Exterior Insulation 4 in. thick (max.) Xci Foil
WRB over Exterior See Table 6
Insulation
The exterior insulation may be used with or without CavClear [®] Masonr
Mat over the insulation with a maximum 1 in. air gap between th
Cavclear and the cladding. When Cavclear is used, this may only b
used with Cladding 1 - 6 or with thin block/thin stone adhered to stucc
Exterior Cladding 1) Brick Nominal 4 in clay or concrete brick or yopcor with
Lise any item 1 6 maximum 2 in air gan behind the brick Brick Ties/Anchors 2
in OC (max)
If Claddings 2, 3, 4 (2) Stucco – minimum $\frac{3}{4}$ in thick exterior cement plaster and lat
or 5 are on stucco 3 Limestone – minimum 2 in thick using any standard non-ope
base with lath, a joint installation technique such as shiplap
secondary WRB 4) Natural Stone Veneer – minimum 2 in. thick using any standar
(WRB items above non-open joint installation technique such as grouted/mortare
allowed over foam) stone
can be installed 5) Cast Artificial Stone – minimum 1½ in. thick complying with ICC
between the ES AC 51 using any standard non-open joint installatio
insulation and lath technique such as shiplap
and must not be full 6) Terracotta Cladding – minimum 1¼ in. thick (solid or equivaler
by weight) using any standard non-open joint installatio
adhering technique such as shiplap
adhering technique such as shiplap
adhering membranes, but may be asphalt or butyl
adhering membranes, but may be asphalt or butyl based slip sheet
adhering membranes, but may be asphalt or butyl based slip sheet (stapled) with no



Wall Component	Table 4: Xci Ply or Xci Ply (Class A)		
	Exterior Insulation Substitution Options		
Base Wall	1) Cast Concrete Walls		
Use Items 1, 2, 3 or	2) CMU Concrete Walls		
4	3) 25 GA. min. 3 ⁵ / ₄ in. (min.) steel studs spaced 24 in. OC (max.)		
	a.		
	b. Lateral Bracing every 4 ft		
	4) FRTW studs: min. nominal 2 x 4 dimension, spaced 24 in. OC		
	(max.)		
	a. ≸ in. type X Gypsum Wallboard Interior		
	b. Bracing as required by code		
Fire-Stopping at	1) Any approved mineral fiber-based safing insulation in each stud		
Floor Lines	cavity at the floor line		
	Safing thickness must match stud cavity depth.		
	2) Solid FRTW fire blocking at floor line following building code		
	requirements for Type III construction.		
Cavity Insulation	1) None		
Use any Item 1 - 15	2) 1 ¹ / ₂ in. (min.) of Carlisle SPI SealTite PRO (up to full cavity		
, , , , , , , , , , , , , , , , , , ,	thickness), SealTite PRO Closed Cell, or SealTite PRO One		
Items 3, 8, 9, 10, 11,	Zero (up to full cavity thickness for each)		
12, 13, 14, or 15	3) 1 ¹ / ₂ in. (min.) of BASF Walltite SPF (up to total cavity thickness)		
may only be used	4) Any noncombustible insulation per ASTM E136		
with Exterior	5) Any Mineral Fiber (Board type faced or unfaced)		
Sheathing 2 or the	6) Any Fiberglass (Batt Type faced or unfaced)		
specified thickness.	7) Any foam plastic insulation (SPF or board type) that has been		
	tested per ASTM E1354 (at a minimum of 20 kW/m ² heat flux)		
	and shown by analysis to be less flammable (improved Tign. Pk.		
	HRR) than Covestro EcoBay CC or BASF Walltite.		
	8) NCFI InsulBloc SPF (up to full cavity thickness)		
	9) Icynene MD-C-200v3 (Proseal) up to $5\frac{1}{2}$ inches (only with $\frac{1}{2}$ in.		
	(min.) exterior avpsum sheathing)		
	10) SWD Urethane Quik-Shield 112 up to 6 inches in 6-inch (max.)		
	stud cavities with an air gap not exceeding $2\frac{1}{2}$ inches.		
	11) 1 ¹ / ₂ in. (min.) ThermoSeal 2000 (up to full cavity thickness)		
	12) Carlisle SealTite PRO High Yield, SealTite PRO Open Cell,		
	SealTite PRO No Mix, SealTite PRO No Trim 21, or SealTite		
	PRO OCX – up to full cavity thickness with $\frac{1}{2}$ in. (min.) exterior		
	gypsum sheathing		
	13) Gaco (Firestone) F6500R, 052N, F4500, 183M, F1850, or F1880		
	$-3\frac{1}{2}$ in. (max.) for use with $\frac{5}{4}$ in. exterior gypsum sheathing		
	14) JM Corbond III or Corbond IV – Full stud cavity depth or less for		
	use with 5⁄₃ in. exterior gypsum sheathing		
	15) Huntsman ProSeal HFO (8 in. max. thickness with no air gap, 6-		
	inch max. thickness with air gap) for use with 1/2 in. or thicker		
	exterior gypsum sheathing.		
Exterior Sheathing	1) None (only with cavity insulation 1, 2, 4, 5, or 6)		
Use Items 1, 2 or 3	2) $\frac{1}{2}$ in. or thicker exterior gypsum sheathing		
	3) 1/2" (min.) FRTW structural panels in Type III construction.		
Multi-Function	1) USG Securock [®] Exoair [®] 430 System		
Sheathing & WRB	2) 5% inch Georgia Pacific DensElement flashed with Prosoco R-		
Products	Guard FastFlash on sheathing joints		
Use Item 1 or 2			
	Note: Item 1 or 2 replaces the exterior sheathings above. When either of		
	these items is used, do not use exterior sheathings or WRBs on the base		
	wall surface in Table 6.		

Table 4: Xci Ply or Xci Ply (Class A) Exterior Insulation (See Notes 1 through 8)



Wall Component	Table 4: Xci Ply or Xci Ply (Class A)		
•	Exterior Insulation Substitution Options		
WRB over Base Wall Surface	See Table 6		
Exterior Insulation	1) $4\frac{1}{4}$ in. (max.) Xci Ply or Xci Ply (Class A) ($3\frac{1}{2}$ in. foam max., $\frac{3}{4}$		
Use Item 1 or 2	in. FR Plywood max.) with all claddings listed		
depending on the	2) 4 ³ / ₄ in. (max.) Xci-Ply or Xci Ply (Class A) (4 in. foam max., ³ / ₄		
cladding	in. FR Plywood max.) may be used with Claddings 1 - 6		
WRB over Exterior	See Table 6		
Insulation	The exterior insulation may be used with or without CavClear® Masonry		
	Mat over the insulation with a maximum 1 in. air gap between the		
	CavClear and the cladding. When CavClear is used, this may only be		
	used with Cladding 1 - 6 or with thin brick/thin stone adhered to stucco		
Futurian Oladalinan	as long as the total thickness is ³ / ₄ in. min.		
Exterior Cladding	1) Brick – Nominal 4 In. clay, concrete brick, or veneer with a movimum of 2 in , or gon behind the brick. Brick Tice/Anabara		
Use any item 1 - To	24 in OC (max)		
Item 9 may use any	 Stucco – minimum ³/₂ in thick exterior cement plaster and lath 		
tested/approved	3) Limestone – minimum 2 in thick using any standard non-open		
installation	joint installation technique such as shiplap		
technique.	4) Natural Stone Veneer – minimum 2 in. thick using any standard		
-	non-open joint installation technique such as grouted/mortared		
Items 10, 11, and 14	stone		
may use any	5) Cast Artificial Stone – minimum $1\frac{1}{2}$ in. thick complying with ICC-		
standard installation	ES AC 51 using any standard non-open joint installation		
lechnique.	 Example 2 (and a single p) Example 2 (and a single p)		
If Claddings 2, 3, 4	by weight) using any standard non-open joint installation		
5 7 8 15 or 16 are	technique such as shiplap		
on stucco base with	7) Thin brick/cultured stone set in thin-set adhesive and metal lath		
lath, a secondary	tested to ASTM E119 (brick exposed to furnace) and remains in		
WRB (WRB items	place for a minimum of 30 minutes or has passed an NFPA 285		
above allowed over	test. Minimum ¾ in.		
foam) can be installed	8) Glen Gery Thin Tech Elite Series Masonry Veneer or Tru-Brix		
insulation and lath	(only with optional noncombustible mortar) or TABS II Panel		
and must not be full	System with $\frac{1}{2}$ In. thick blocks using TABS wall Adhesive		
coverage asphalt or	10) Uninsulated sheet metal building passed Ni FA 200		
butyl based self-	aluminum (or zinc only with Xci-Ply (Class A))		
adhering membranes,	11) 1/4 in. (min.) uninsulated fiber-cement siding or porcelain or		
but may be asphalt or	ceramic tile mechanically attached		
(stapled) with no	12) Stone, porcelain, ceramic/aluminum honeycomb composite		
adhesive.	building panels that have successfully passed NFPA 285 criteria		
	13) Autoclaved-aerated-concrete (AAC) panels that have		
	successionly passed NFPA 285 chiefia		
	thick) with ventilated shinlan		
	15) ½ in. Stucco – Any one coat stucco (½ in. min.) that meets AC11		
	acceptance criteria or is approved for use in Type I-IV		
	construction or has been tested per NFPA 285 or stays in place		
	when tested per ASTM E119 (stucco exposed to fire) for at least		
	30 minutes		
	16) Natural Stone Veneer – minimum $1\frac{1}{4}$ in. thick using any standard		
	Installation technique		
	installation technique		



Wall Component	Table 4: Xci Ply or Xci Ply (Class A) Exterior Insulation Substitution Options
	18) AFC Terraslat by Tonality - Tonality Classic26 or Tonality Classic22

Table 5: Xci Foil (Class A) PLUS (See Notes 1 through 8)

Wall Component	Table 5: Xci Foil (Class A) PLUS Exterior Insulation Substitution
	Options
Base Wall	1) Cast Concrete Walls
Use either 1, 2, 3 or	2) CMU Concrete Walls
4	3) 25 GA. min. 3 ¹ / ₈ in. (min.) steel studs spaced 24 in. OC (max.)
	a. 5⁄8 in. type X Gypsum Wallboard Interior
	b. Lateral Bracing every 4 ft
	4) FRTW (fire-retardant-treated wood) studs: min. nominal 2 x 4
	dimension, spaced 24 in. OC (max.)
	a. 5∕₃ in. type X Gypsum Wallboard Interior
	b. Bracing as required by code
Fire-Stopping at	1) Any approved mineral fiber-based safing insulation in each stud
Floor Lines	cavity at the floor line. Safing thickness must match stud cavity
	depth.
	2) Solid FRTW fire blocking at floor line following building code
	requirements for Type III construction.
Cavity Insulation	1) None
Use any Item 1 - 15	2) 1 ¹ / ₂ in. (min.) of Carlisle SPI SealTite PRO (up to full cavity
	thickness), SealTite PRO Closed Cell, or SealTite PRO One
Items 8, 9, 10, 11,	Zero (up to full cavity thickness for each)
12, 13, 14, or 15	3) 1 ¹ / ₂ in. (min.) of BASF Walltite SPF (up to total cavity thickness)
may only be used	4) Any noncombustible insulation per ASTM E136
with Exterior	5) Any Mineral Fiber (Board type faced or unfaced)
Sheathing 2 or the	6) Any Fiberglass (Batt type faced or unfaced)
sheathing thickness	7) Any foam plastic insulation (SPF or board type) that has been
specified.	tested per ASTM E1354 (at a minimum of 20 kW/m ² heat flux)
	and shown by analysis to be less flammable (improved Tign, Pk.
	HRR) than Covestro EcoBay CC or BASE Walltite
	8) NCFI InsulBioc SPF (up to full cavity thickness)
	9) Icynene MD-C-200V3 (Proseal) up to 5½ Inches (only With ½ In.
	(min.) exterior gypsum sneathing)
	10) SWD Oreinane Quik-Shield 112 up to 6 inches in 6-inch (max.)
	11 stud cavities with an an gap not exceeding $2/2$ inches.
	11) 1/2 III. (IIIII.) Thermoseal 2000 (up to full cavity thickness)
	SoolTito DPO No Mix SoolTito DPO No Trim 21 or SoolTito
	PRO OCY = up to full cavity thickness with 1/2 in (min) exterior
	avosum sheathing
	13) Gaco (Eirestone) E6500R 052N E4500 183M E1850 E1880
	-35 in (max) for use with 5% in Exterior Gynsum Sheathing
	14) IM Corbond III or Corbond IV – Full stud cavity denth or less for
	1^{+} in certain of constant 1^{-} in exterior avosum sheathing
	15) Huntsman ProSeal HEO (8 in max thickness with no air gap 6-
	inch max, thickness with air gap) for use with ½ in. or thicker
	exterior gypsum sheathing.
Estadou Ol III	1) None (only with cavity insulation 1, 2, 3, 4, 5, or 6)
Exterior Sheathing	2) $\frac{1}{2}$ in. or thicker exterior gypsum sheathing
Use items 1, 2 or 3	3) ½ in. (min.) FRTW structural panels in Type III construction



Wall Component	Table 5: Xci Foil (Class A) PLUS Exterior Insulation Substitution Options
Multi-Function Sheathing & WRB Products Use Item 1 or 2	 USG Securock[®] Exoair[®] 430 System 5% inch Georgia Pacific DensElement, flashed with Prosoco R- Guard FastFlash on sheathing joints Note: Item 1 or 2 replaces the exterior sheathings above. When either of these items is used, do not use exterior sheathings or WRBs on the base wall surface in Table 6.
WRB over Base Wall Surface	See Table 6
Exterior Insulation	4 in. thick (max.) Xci Foil (Class A) PLUS for all claddings listed
WRB over Exterior	See Table 6
Insulation	The exterior insulation may be used with or without CavClear [®] Masonry
	Mat over the insulation with a maximum 1 in. air gap between the
	CavClear and the cladding. When CavClear is used, this may only be
	used with Cladding 1 - 6 or with thin brick/thin stone adhered to stucco
	as long as the total thickness is $\frac{3}{4}$ in. min.
Exterior Cladding	1) Brick – Nominal 4 in. clay or concrete brick or veneer with a
Use any Item 1 - 17	maximum 2 in. air gap behind the brick
	Brick Ties/Anchors 24 in. OC (max.)
Item 7 may use any	2) Stucco – minimum $\frac{3}{4}$ in. thick exterior cement plaster and lath
tested/approved	3) Limestone – minimum 2 in. thick using any standard non-open
	Joint installation technique such as shiplap
technique.	4) Natural Stone Veneer – minimum 2 in. Linck using any standard
Items 8 9 or 12	stone
may use any	5) Cast Artificial Stone – minimum 1½ in thick complying with ICC-
standard installation	ES AC 51 using any standard non-open joint installation
technique.	technique such as shiplap
	6) Terracotta Cladding – minimum 1¼ in. thick (solid or equivalent
If Claddings 2, 3, 4,	by weight) using any standard non-open joint installation
5, 13, 14, 15, or 16	technique such as shiplap
are on stucco base	7) Any MCM that has successfully passed NFPA 285
with lath, a	8) Uninsulated sheet metal building panels, including steel, copper,
(WRB items above	9) $\frac{1}{4}$ in (min) uninsulated fiber-cement siding or porcelain or
allowed over foam)	ceramic tile mechanically attached
can be installed	10) Stone, porcelain, ceramic/aluminum honeycomb composite
between the	building panels that have successfully passed NFPA 285 criteria
and must not be full	11) Autoclaved-aerated-concrete (AAC) panels that have
coverage asphalt or	successfully passed NFPA 285 criteria
butyl based self-	12) Terracotta Cladding – Any Rain-screen Terracotta (min. /2 in.
adhering membranes,	13) $\frac{1}{16}$ in Stucco - Any one coat stucco ($\frac{1}{6}$ in min) that meets AC11
but may be asphalt or	acceptance criteria or is approved for use in Type I-IV
butyl based slip sheet	construction or has been tested per NFPA 285 or stays in place
adhesive	when tested per ASTM E119 (stucco exposed to fire) for at least
	30 minutes
	14) Thin brick/cultured stone set in thin-set adhesive and metal lath
	tested to ASTM E119 (brick exposed to furnace) and remains in
	place for a minimum of 30 minutes or has passed an NFPA 285
	Itest. Minimum 74 In. 15) Clen Cerv Thin Tech Elite Series Mesonny Veneer or TAPS II.
	Panel System with ¹ / ₂ in thick bricks using TARS Wall Adhesive
	16) Natural Stone Veneer – minimum $1\frac{1}{4}$ in thick using any
	standard installation technique



Wall Component	Table 5: Xci Foil (Class A) PLUS Exterior Insulation Substitution Options
	 FunderMax M.Look – minimum ¼ inch thick using any standard installation technique

Table 6. Allowable WRBs for Tables 1 - 5

Wall Component		Table 6. Allowable WRBs
WRB over Base	1)	Hunter Xci VP-SA WRB
Wall Surface	2)́	Carlisle Fire Resist 705 RS, Fire Resist Barrithane VP, Fire Resist
Use any of Items 1 –	,	705 VP, Fire Resist 705 FR-A, Fire Resist Barritech NP (or NP LT),
34 or None		Fire Resist Barritech VP (or VP LT). Fire Resist 705 VP may be
		used with 702 WB, Cav-Grip, or Low VOC Travel-Tack adhesives.
Note - Some W/PBs		Fire Resist 705 FR-A may be used with CCW 702, 702LV, 702 WB.
Note - Some WKBs		CAV-Grip, and Low VOC Travel Tack adhesives.
are only allowed with	3)	CCW-705 (with 702 LV, 702 WB, Cav-Grip, Low VOC Travel-Tack,
specific systems.	-,	or 702 adhesives) may be used with Xci Class A (or Xci-286) or
11		unfaced noncombustible insulation and cladding Options 1 - 6.
Item 24 (Securock	4)	GE Momentive SEC 2500 SilShield, Elemax 2600
Exoair 430) or 25	5)	VaproShield WrapShield SA, RevealShield SA, BlockShield SA,
(DensElement with	- /	PanelShield SA
FastFlash) replaces	6)	WR Grace Permabarrier VPS. Perm-A-Barrier NPL (AKA: PAB
the exterior	-,	NP20), Perm-A-Barrier [®] VPL, Perm-A-Barrier Aluminum Wall
sheathings in Tables		Membrane (AWM) Perm-A-Barrier VPI IT The following may only
1 - 4. When either of		be used with Claddings 1 - 6 - Perm-A-Barrier NPL 10. Perm-A-
these items is used,		Barrier VPL 50
do not use exterior	7)	StoGuard Vaporseal
sheathings listed in	8)	3M 3015 (with Hold Fast 70 adhesive @ six mils) or 3M 3015 NP or
Tables 1 - 4 or	- /	3015 VP
WRBs on the base	9)	Henry Air-Bloc [®] 17MR, Air-Bloc [®] 21S, All Weather STPE, Blueskin
wall surface in this	,	SA (only with Xci-Class A and Claddings 1 - 6), Air-Bloc 16MR,
table (Table 6)		Blueskin VP 160. Henry Blueskin MetalClad
	10)	Tyvek CommercialWrap, CommercialWrap D, StuccoWrap, Fluid
	- /	Applied WB (only with Xci-Foil (Class A) or Xci-Ply, or Xci-Ply (Class
		A))
	11)	PolyGuard Sprav-N-Roll (STPE). Air Lok Sheet UV400 NP. Air Lok
	,	Flex VP. FlexGuard, Stretch Flex, Air Lok Sheet 400 NP (Only with
		Cladding 1-6)
	12)	Prosoco R-Guard Cat 5, R-Guard Cat 5 Rainscreen, R-Guard VB,
	,	or R-Guard Spray Wrap MVP
	13)	Dryvit Backstop NT
	14)́	WR Meadows Air Shield LMP (Gray), Air Shield LMP (Black), Air
	,	Shield TMP, Air Shield LSR, or Air-Shield SMP
	15)	Dörken Systems Inc., Delta-Vent SA, Delta-Vent S, Delta-Fassade
	,	S, Delta Maxx, Delta Stratus SA
	16)	Any WRB that has been tested per ASTM E1354 (at a minimum of
		20 kW/m ² heat flux) and shown by analysis to be less flammable
		(improved T _{ign} , Pk. HRR) than those listed above
	17)	BASF Enershield HP or Enershield I
	18)	Soprema Sopraseal Stick VP, Soprasolin HD, LM 204 VP, Stick
		1100T with Elastocol 600c Primer (1100T only for use with Xci-CG,
		Xci-CG (Class A), Xci Foil (Class A), Xci-Ply or Xci-Ply (Class A)
	19)	Pecora XL-Perm ^{ULTRA} VP, XL-Perm ^{ULTRA} NP, ProPerm VP
	20)	Siga Majvest or Majvest 500 SA
	21)	Sto Gold Coat or Emerald Coad
	22)	Tremco ExoAir 230 and ExoAir 130
	23)	Fortifiber Building Systems Group WeatherSmart Housewrap,
	,	WeatherSmart Drainable, WeatherSmart Commercial or Super
		Jumbo Tex 60



Wall Component		Table 6. Allowable WRBs
	24)	USG Securock Exoair 430 System
	25)	% inch Georgia Pacific DensElement flashed with Prosoco R-Guard
		FastFlash on sheathing joints
	26)	Dow Chemical DefendAir 200 (or LT version) or DefendAir 200C
	27)	Hohmann & Barnard Enviro Barrier and Enviro Barrier VP
	28)	STS FW100 or FW100A
	29)	Karnak 321 K-NRG
	30)	NaturaSeal AirSeal NS-A-250LP, AirSeal NS-A-250HP
	31)	Jumpstart HWW-65A, HWW-65B, HWHP-80A, HWMP-90A,
		HWD2-72A, HWHPT-92A, HWMPC-105A
	32)	Master Wall Rollershield
	33)	Parex WeatherSeal Spray & Roll-On
	34)	Protecto Wrap Protecto Wall VP or Universal Primer Free
WRB over Exterior	1)	Hunter Xci VP-SA WRB
	2)	Carlisle Fire Resist 705 RS, Fire Resist Barrithane VP, Fire
28 or Nono		adhasiyas) Fire Desist 705 ED A (with CCW/ 702, 702) // 702
		WB CAV-Grin and Low VOC Travel Tack adhesives) Fire
Note – Some WRBs		Resist Barritech VP (or VP LT) Fire Resist Barritech NP (or NP
are only allowed with		LT)
specific systems.	3)	GE Momentive SEC 2500 SilShield, Elemax 2600
	4)	VaproShield WrapShield SA, RevealShield SA, PanelShield SA
	5)	Grace Perm-A-Barrier NPL (AKA: PAB NP20), Perm-A-Barrier®
		VPL, Perm-A-Barrier Aluminum Wall Membrane (AWM), Perm-
		A-Barrier VPL LT, Perm-A-Barrier VPS
	6)	Henry Air-Bloc [®] 17MR, Air-Bloc [®] 21S, Blueskin [®] VP160 (only
	_	with Xci-Ply), All Weather STPE, and Air-Bloc 16MR
	()	Tyvek CommercialWrap, StuccoWrap, or CommercialWrap D
	8)	PolyGuard Air Lok Sneet UV400 NP, Stretch Flex (only with
		listed or over the other Xci foams listed with Claddings 1 6)
		ElexGuard (over Xci-Ply with any cladding listed or over the
		other Xci foams listed with Claddings 1 - 6)
	9)	Prosoco R-Guard Cat 5, R-Guard Cat 5 Rainscreen, R-Guard
	,	VB, or R-Guard Spray Wrap MVP
	10)	Sto Gold coat or Emerald Coat (only with Xci-Ply)
	11)	Dryvit Backstop NT
	12)	Any WRB that has been tested per ASTM E1354 (at a minimum
		of 50 kW/m ² heat flux) and shown by analysis to be less
	40)	flammable (Improved Tign, Pk. HRR) than those listed above
	13)	3 In. AlumaGRIP /01 or 4 In. FG-1402 joint tape may be
	14)	MP Moodows Air Shield I MP (Grov) Air Shield I MP (Plack) Air
	14)	Shield TMP Air Shield I SR or Air-Shield SMP
	15)	Dörken Systems Inc. Delta-Vent SA Delta-Vent S Delta-
	10)	Fassade S. Delta Maxx
	16)	Soprema Sopraseal Stick VP (with Claddings 1 - 6, not with Xci-
	,	Foil), Soprasolin HD
	17)	Pecora XL-Perm ^{ULTRA} VP, XL-Perm ^{ULTRA} NP, ProPerm VP
	18)	Siga Majvest (for all claddings) or Majvest 500 SA (only with
		Claddings 1 - 6)
	19)	Fortitiber Building Systems Group WeatherSmart Housewrap,
	00)	WeatherSmart Drainable, or WeatherSmart Commercial.
	20)	Dow Chemical DefendAir 200 (or LT Version) or DefendAir 200C



Wall Component	Table 6. Allowable WRBs
	21) Hohmann & Barnard Enviro Barrier VP
	22) STS FW100A
	23) Karnak 321 K-NRG
	24) Jumpstart HWW-65A, HWW-65B, HWHP-80A, HWMP-90A,
	HWD2-72A, HWHPT-92A, HWMPC-105A
	25) Master Wall Rollershield
	26) Parex WeatherSeal Spray & Roll-On
	27) 3M 3015 VP
	28) Protecto Wrap Protecto Wall VP or Universal Primer Free
	Membrane

Note 1: The following adhesives may be used to attach the polyisocyanurate (polyiso) insulation.

- Adhesive applied discontinuously at a rate of ¾ in. x 3 in. dabs, 16 in. OC: LM 800 XL or BarriBond or BarriBond XL
- 2) Aerosol adhesive at the application rate as per mfg. instructions: CAV-GRIP™ or Low VOC Travel-Tack

Note 2: The following may be used as a gap-filler between insulation panels: FOMO HandiFoam Fireblock or TVM Fireblock

Note 3: These CCW detailing materials may be used over the base wall assembly and alone or with any approved WRB for the construction.

- 1) Board Joint Treatments:
 - a. 2 in. x 40 mil ribbon of BarriBond or BarriBond XL
 - b. 4 in. DCH Reinforcing Fabric embedded in Fire-Resist Barritech VP/NP/NP LT or embedded in Fire Resist Barrithane VP
 - c. 4 in. Foil-GRIP 1402*
 - d. 4 in. AlumaGRIP 701*
- 2) Termination Mastic for Flashing/Membrane: 1 in. X 40 mil ribbon or tooled 3/8 in. bead of SURE-SEAL Lap Sealant, CCW-704, LM 800 XL, BarriBond, or BarriBond XL
- 3) Detail Flashing, 3 in. on each side, at Openings, Terminations, Penetrations, Transitions, and Angle Changes.
 - a. CCW-705/XLT*, CCW-705 TWF/XLT* or Fire Resist 705 FR-A/XLT*
 - b. SURE-SEAL P/S Elastoform* or SURE-SEAL P/S Cover Strip*
 - c. LiquiFiber or DCH Reinforcing Fabric embedded in Barritech VP/NP/NP LT
 - d. 40 mil application of BarriBond, BarriBond XL, or Barrithane VP
 *Prepare the surface as CCW recommends using CCW-702, CCW-702 LV, CCW-702 WB, CCW-715, Low VOC Travel-Tack, CAV-GRIP, HP 250 Primer, or Low VOC EPDM Primer per instructions on Product Data Sheet.

Note 4: These CCW detailing materials may be used over the polyiso insulation and alone or with any approved WRB for the assembly.

- 1) Board Joint Treatments:
 - a. 2 in. x 40 mil ribbon of BarriBond or BarriBond XL
 - b. 4 in. DCH Reinforcing Fabric embedded in Fire-Resist Barritech VP/NP/NP LT or embedded in Fire Resist Barrithane VP
 - c. 4 in. Foil-GRIP 1402*
 - d. 4 in. AlumaGRIP 701*
- 2) Termination Mastic for Flashing/Membrane: 1 in. X 40 mil ribbon or tooled ¾ in. bead of SURE-SEAL Lap Sealant, LM 800 XL, BarriBond, or BarriBond XL
- 3) Detail Flashing, 3 in. on each side at Openings, Terminations, Penetrations, Transitions, and Angle Changes
 - a. Fire Resist 705 FR-A/XLT*
 - b. SURE-SEAL P/S Elastoform* or SURE-SEAL P/S Cover Strip*
 - c. LiquiFiber or DCH Reinforcing Fabric embedded in Barritech VP/NP/NP LT



d. 40 mil application of BarriBond, BarriBond XL, or Barrithane VP

*Prepare the surface as CCW recommends using CCW-702, CCW-702 LV, CCW-702 WB, CCW-715, Low VOC Travel-Tack, CAV-GRIP, HP 250 Primer, or Low VOC EPDM Primer per instructions on Product Data Sheet.

Note 5: In the NFPA 285 test, flashings for fenestration, including through-wall flashing "TWF," are not considered part of the WRB (Ref: 2015 IBC Sec. 1403.5). Therefore, suitable combustible or noncombustible *flashings* are permitted in wall assemblies as required in Building Code (Ref: 2015 IBC Sec. 1405.4). Through-Wall Flashing "TWF" is allowed for use in wall assemblies clad with masonry or stone at the base of wall, head of wall, relieving angle, window head, window sill, and at other interruptions in the exterior cavity. TWF shall be applied a maximum of 8 in. onto the back-up wall and terminate at daylight or onto a drip edge. The following "TWF" products may be used:

- e. CCW-705 TWF/XLT*
- f. Pre-Kleened EPDM TWF loose-laid or adhered with SURE-SEAL 90-8-30A bonding Adhesive or SURE-SEAL Low VOC Bonding Adhesive
- g. Metal TWF by others

Note 6: BRT-801 tape may be used over Fire-Resist 705 RS at membrane splices, terminations, and penetrations. Fire-Resist 705 RS and the substrate may be treated with CCW-702, CCW-702 LV, CCW-702 WB, or Low VOC Travel-Tack to promote adhesion of BRT-801.

Note 7: Fire-Resist 705 RS may be used in the following applications:

- 1) Over the exterior insulation, while another approved WRB is used over the base wall assembly.
- 2) Over a WRB on the base wall assembly while no exterior insulation is used. Use only WRBs listed below:
 - a. CC Fire Resist 705 FR-A
 - b. Other WRBs that produce no ignition when tested per ASTM E1354 at a heat flux of 50 kW/m².

Note 8: Insulating coating over a noncombustible substrate can mitigate thermal bridging at wall assembly terminations and penetrations. Coating in these conditions covers a small percentage of the total wall surface area. The following products are allowed:

- 1) Aerolon 945 tape with primer by Tnemec
- 2) Aerolon 971 coating with primer by Tnemec

Table 7: Mass Wall Interior Insulation (See Notes 1, 2 & 3)

Wall Component	Table 7: Mass Wall Interior Insulation Substitution Options
Base Wall	1) Cast concrete walls (min. 2 in. thick)
Use either 1 or 2	2) CMU concrete walls (min. 4 in. thick)
Exterior Coating	3) Portland cement or Lime Stucco
Use either 1, 2, 3 or	Any ASTM E84 Class A Paint or Elastomeric Coating
4	5) Any ASTM E84 Class A Clear Sealer
	6) None
Air/Vapor Barrier	See Table 6 – WRB over Base Wall Surface
Membrane	
Position 1 over	
Base Wall Interior	
Continuous	1) 3 ¹ / ₂ in. thick (max.) Xci Foil (Class A) (or Xci-286)
Insulation	 3½ in. thick (max.) Xci CG or Xci CG (Class A)
Use 1, 2 or 3	3) 3½ in. thick (max.) Xci Foil
Air / Vapor Barrier	See Table 6 – WRB over Base Wall Surface
Membrane	
Position 2 over	Insulation joints may be taped with Foil-Grip 1402, 4 in. width (max.)
Insulation	
Interior Cladding	5% in. type X Interior Gypsum Sheathing installed directly over the
	insulation or installed to 3 ⁵ ⁄₂ in. (max. depth) steel studs or Metal
	Hat or Z Furring directly (no gap between stud/hat/Z and



Wall Component	Table 7: Mass Wall Interior Insulation Substitution Options
	insulation – see drawing below). If an air gap between the stud/hat/Z and insulation is created, fire blocking with mineral wool per IBC section 718 shall be installed. See the drawings below.
	Mass wall designs are assumed to use platform construction (concrete floor line intersects exterior concrete, creating a firestop at floor lines). If the floor line is separated from the exterior concrete, fireblocking with mineral wool must be installed to prevent uncontrolled vertical flame spread. See the drawing below.

Note 1: Left Blank – per Rev. 50

Note 2: WRBs used in Position 1 or Position 2, not both

Note 3: The insulation can be tacked in place with Cav-Grip or Travel-Tack during installation. Follow the instructions on the Product Data Sheet.



The Air Gap between the stud face and insulation requires fireblocking per IBC 718.

~~ End of Summary ~~

