Welcome

ccSPF
Closed Cell Spray Polyurethane Foam

Much more than an Insulation!

April 23, 2025

The Chemical Company

Construction Products Representatives

Introductions

Michael Pace

- Building Resource Inc.
  - President
  - BSS Building Science Specialist, 2008
  - Member CSC, OBEC, OACETT

Steven Cole

- BASF Canada
  - Key Account Manager Spray - Central & Western Canada

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Resources

Gary Chu

- BASF Canada Inc.
  - Senior Construction and Standards Regulations Specialist
  - Participates in Codes and Standards Development

Ibrahim Huseen, M.Eng.

- BASF Canada Inc
  - Construction and Standards Regulations Specialist

Learning Objectives

1. Define what Closed Cell Spray Polyurethane Foam (ccSPF) is and how it compares to Open Cell Spray Polyurethane (ocSPF) and other insulation types
2. Describe the product standard for ccSPF and the required and optional testing manufactures can undertake
3. Review the many applications for ccSPF within the building envelope including Fire Rated assemblies

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Closed Cell Spray Polyurethane Foam

ccSPF

Foam Types

CLOSED cell ccSPF (WALLTITE)	Property	OPEN cell ocSPF (ENERTITE)
CAN/ULC S705.1:2018-REV1 Included in NBC since 1990's	**Standard**	CAN/ULC S712.1 Not in the NBC
Medium	**Density**	low
HFO	**Blowing Agent**	Water (CO2)
30psi Rigid	**Strength**	<4psi Soft
25-40X	**Expansion (liquid)**	100-120X
Low	Acoustic STC	High
Minimal	Water Absorption	High
Standard: High R insulation, air and vapour barrier **Optional**: Radon barrier, Air Barrier System, Fire Rated Systems	**Functions**	Insulation Air Barrier

Foam Types

ccSPF applied as ci
Self Supporting

ocSPF
must be scarfed and supported

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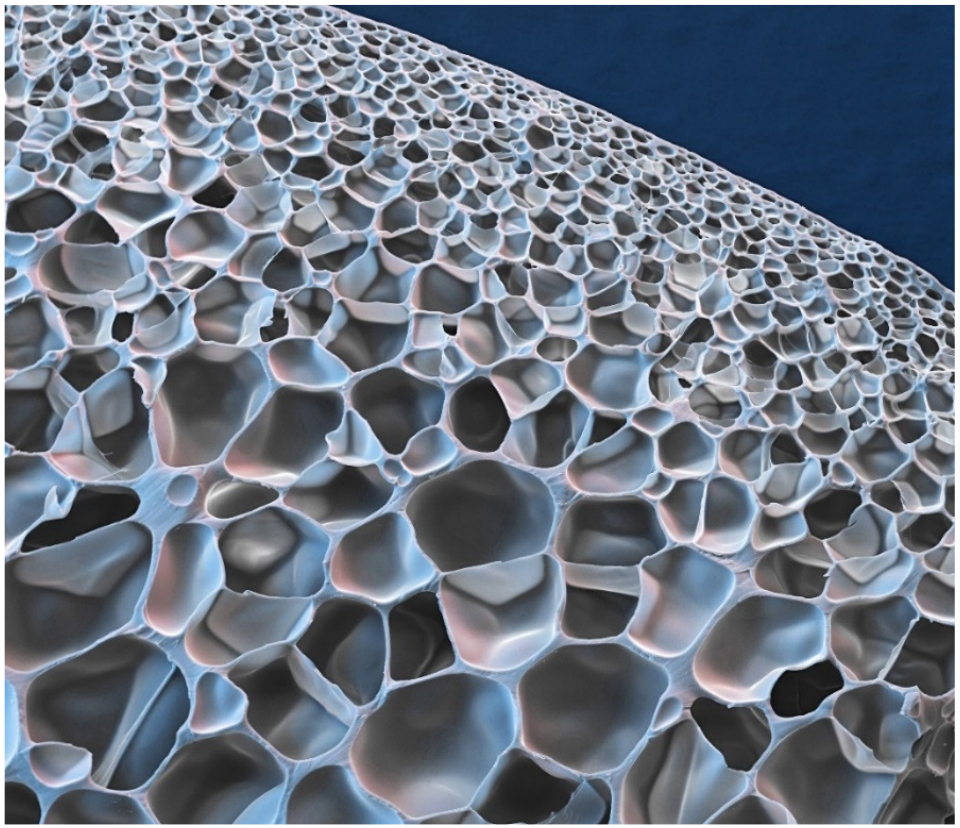
ccSPF Composition

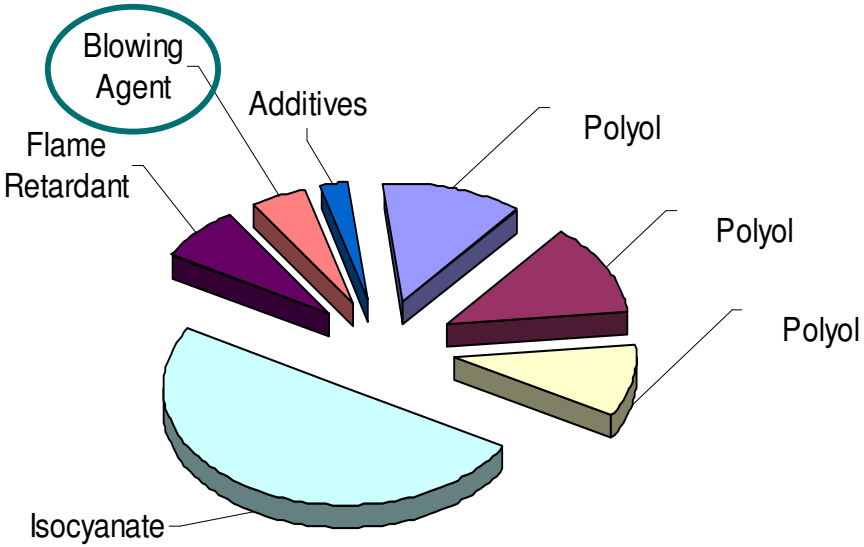
- Blowing Agents occupy 95% of the volume of foams
- **Most of the GWP of foam is from the Blowing Agent**



ccSPF

ccSPF Composition

Isocyanate



Resin

Codes, Standards, Compliances

BASIC Requirements for ALL ccSPF sold in Canada

- Complies with CAN/ULC S705.1 as verified by a third party report
- Accurate Reporting of the Long Term Thermal Resistance (LTTR)

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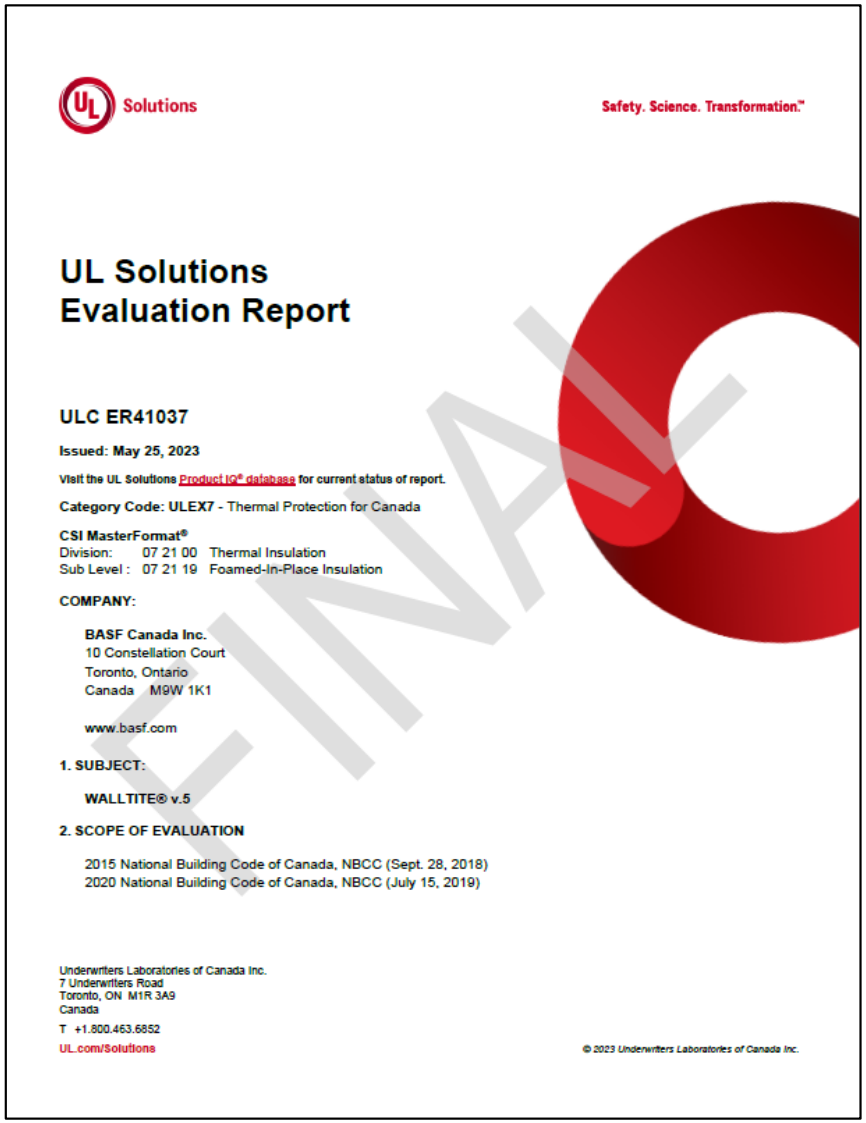
ccSPF Standards

CAN/ULC-S705.1-15 STANDARD FOR THERMAL INSULATION - SPRAY APPLIED RIGID POLYURETHANE FOAM, MEDIUM DENSITY - MATERIAL THIRD EDITION

Third Party Report

Confirmation of Compliance

ULC or CCMC



UL Solutions

Safety. Science. Transformation.™

UL Solutions
Evaluation Report

FINAL

ULC ER41037

Issued: May 25, 2023

Visit the UL Solutions Product iQ® database for current status of report.

Category Code: ULEX7 - Thermal Protection for Canada

CSI MasterFormat®
Division: 07 21 00 Thermal Insulation
Sub Level : 07 21 19 Foamed-In-Place Insulation

COMPANY:

BASF Canada Inc.
10 Constellation Court
Toronto, Ontario
Canada M9W 1K1

www.basf.com

1. SUBJECT:

WALLTITE® v.5

2. SCOPE OF EVALUATION

2015 National Building Code of Canada, NBCC (Sept. 28, 2018)
2020 National Building Code of Canada, NBCC (July 15, 2019)

Underwriters Laboratories of Canada Inc.
7 Underwriters Road
Toronto, ON M1R 3A9
Canada

T +1.800.463.6852

UL.com/Solutions

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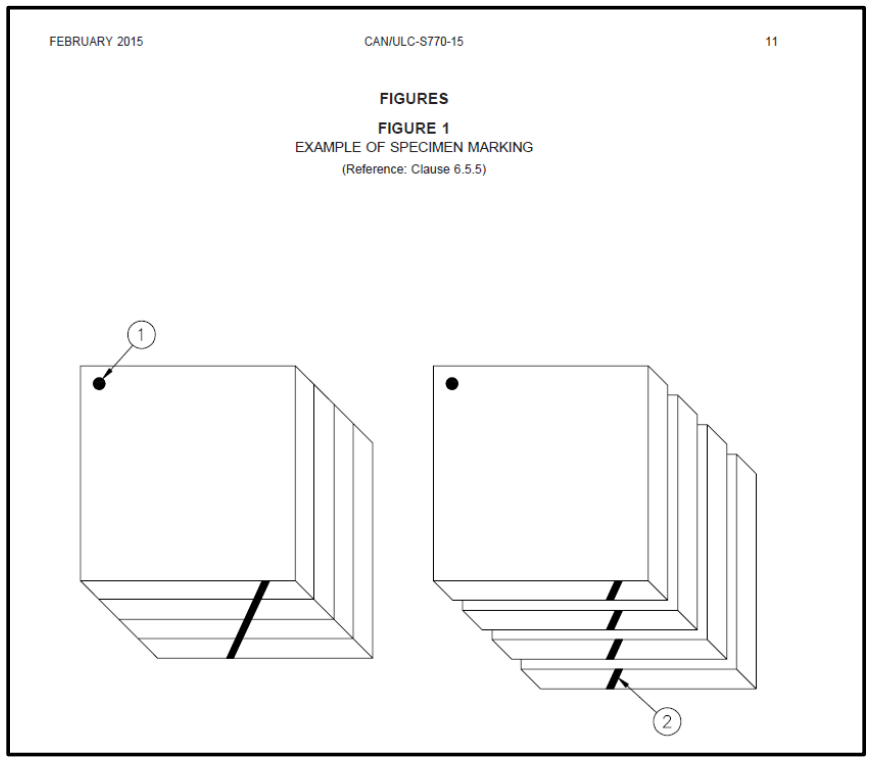
ccSPF Standards

Properties	Requirements	Results
Density (minimum site specified density)	≥ 28 kg/m^3	32.5 kg/m^3
Air Permeance	≤ 0.02 L/(s·m^2)@75Pa	Compliant
Compression Strength	≥ 170 kPa	203 kPa
Dimensional Stability		
28 d at -20±3°C, ambient humidity	-2 to +5%	-0.5%
28 d at 80±2°C, ambient humidity	-2 to +8%	+1.0%
28 d at 70±2°C, 97±3% R.H	-2 to +14%	+8.0%
Fungi Resistance	No Growth	Compliant
Long Term Thermal Resistance		
@ 50mm thickness	≥ 1.80 m^2·K/W	1.95 m^2·K/W
@ 75mm thickness	Declare	3.00 m^2·K/W
Open-Cell Content	≤ 10%	7 %
Surface Burning Characteristics		
Flame Spread Rating (CAN/ULC-S102)	≤ 500	Compliant
Flame Spread Rating (CAN/ULC-S127)	≤ 500	Compliant
Tensile Strength	≥ 200 kPa	267 kPa
Time to Occupancy	< 30 Days	25 hrs.
Water Absorption by Volume	≤ 4.0 %	1.9 %
Water Vapour Permeance @ 50mm thickness	≤ 60 ng/(Pa·s·m^2)	56 ng/(Pa·s·m^2)

ccSPF Thermal Performance

What is Long Term Thermal Resistance (LTTR)?

- Test method to estimate the future thermal resistance for insulation products, with captive blowing agents; ccSPF, XPS, Polyiso…
- Required for ALL ccSPF products sold in Canada



FEBRUARY 2015 CAN/ULC-S770-15 11

FIGURES

FIGURE 1
EXAMPLE OF SPECIMEN MARKING
(Reference: Clause 6.5.5)

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ccSPF Thermal Performance

Why is this important?

- Used for energy modelling
- To prove compliance with codes; Step Code, Passive House…

EXAMPLE OF R Value Variation Same product		
Method	**Result R/inch (RSI/25mm)**	**Variance (%)**
Initial R value	7.1 (1.25)	
ASTM C518 Aging (USA)	6.5 (1.14)	9
CAN/ULC S770 (LTTR)	**5.2 (0.92)**	**27**

ccSPF Thermal Performance

CAN/ULC-S770 STANDARD TEST METHOD FOR DETERMINATION OF LONG-TERM THERMAL RESISTANCE OF CLOSED-CELL THERMAL INSULATING FOAMS

CAN/ULC S770 updated in 2025

Notes to Table A-9.36.2.4 (1)

(6) All types of cellular foam plastic insulation manufactured to be able to retain a blowing agent, other than air, for a period longer than 180 days shall be tested for long-term thermal resistance (LTTR) in accordance with CAN/ULC-S770, “Standard Test Method for Determination of Long-Term Thermal Resistance of Closed-Cell Thermal Insulating Foams.” This LTTR value shall be input as the design thermal resistance value for the purpose of energy calculations in Section 9.36. Product standards contain a baseline LTTR for a thickness of 50 mm, from which the LTTR for other thicknesses can be calculated.

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Codes, Standards, Compliances

Optional Testing

- Air Barrier System or Assembly
- Radon Barrier
- Environmental Product Declaration (EPD)
- Part of a Fire Rated Assembly

Codes, Standards, Compliances

Air Barrier System or Assembly

CAN/ULC S742

- Allows for use without the need for a separate, full coverage, AVB
- Variables
  - Transition membrane requirements
  - Treatment at board joints, penetrations…
- Substrates; GMGB and/or CMU

CONFIRM by reading ULC or CCMC Report

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Codes, Standards, Compliances

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Codes, Standards, Compliances

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Codes, Standards, Compliances

Radon Barrier: ISO 11665 Measurement of Radioactivity in the Environment – Air

- Confirmed by a third party report
- Allows for use without the need for a separate under slab vapour barrier (poly)
- Eliminates almost all sealants and tapes
- Typically applied at 50mm or greater

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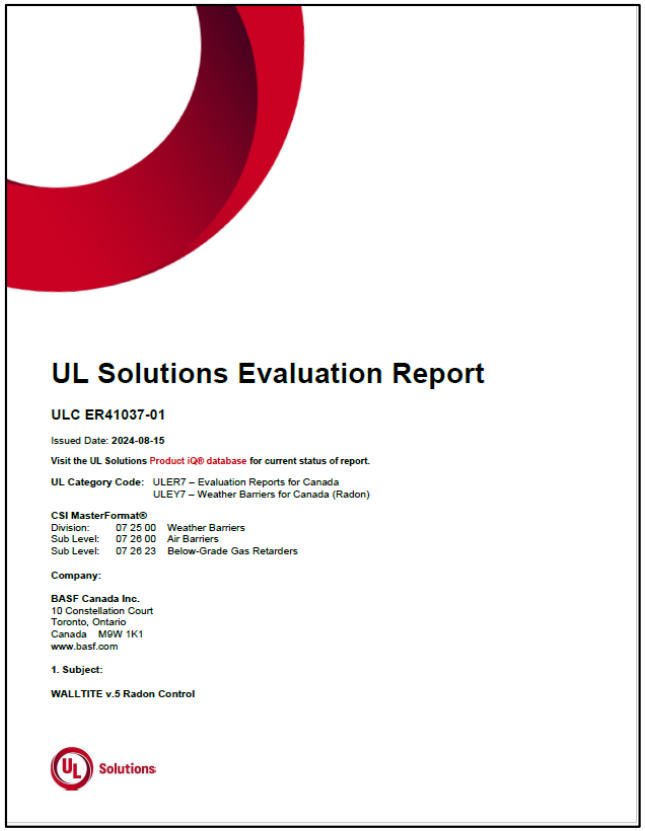
Codes, Standards, Compliances



UL Solutions Evaluation Report

ULC ER41037-01

Issued Date: **2024-08-15**

Visit the UL Solutions Product iQ® database for current status of report.

UL Category Code: ULER7 – Evaluation Reports for Canada
ULEY7 – Weather Barriers for Canada (Radon)

CSI MasterFormat®
Division: 07 25 00 Weather Barriers
Sub Level: 07 26 00 Air Barriers
Sub Level: 07 26 23 Below-Grade Gas Retarders

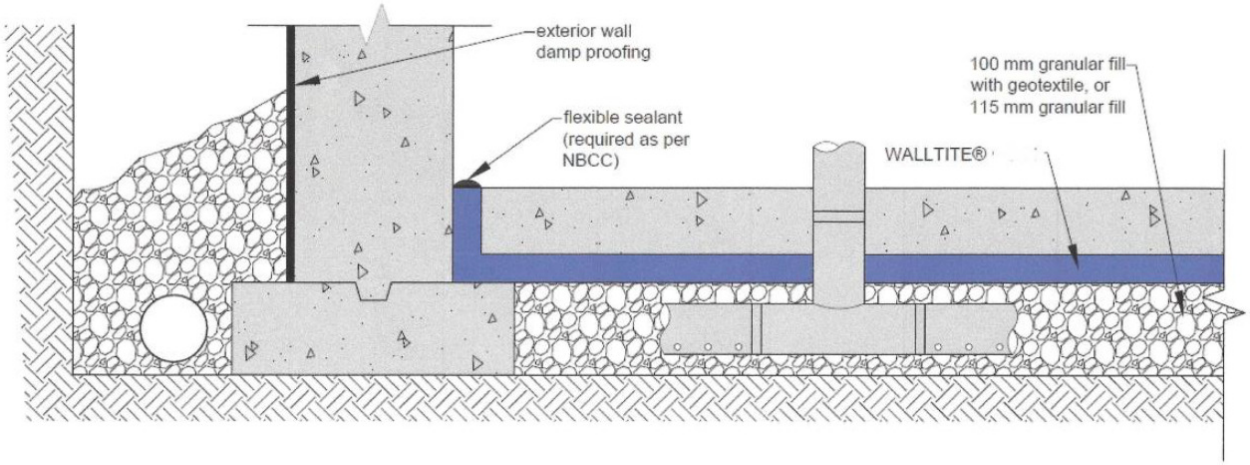
Company:

BASF Canada Inc.
10 Constellation Court
Toronto, Ontario
Canada M9W 1K1
www.basf.com

1. Subject:

WALLTITE v.5 Radon Control

UL Solutions



ULC ER41037-01 WALLTITE v.5 Radon Control
Testing indicated that (WALLTITE v5) exceeded the performance of 6 mil poly for any thickness above 15 mm

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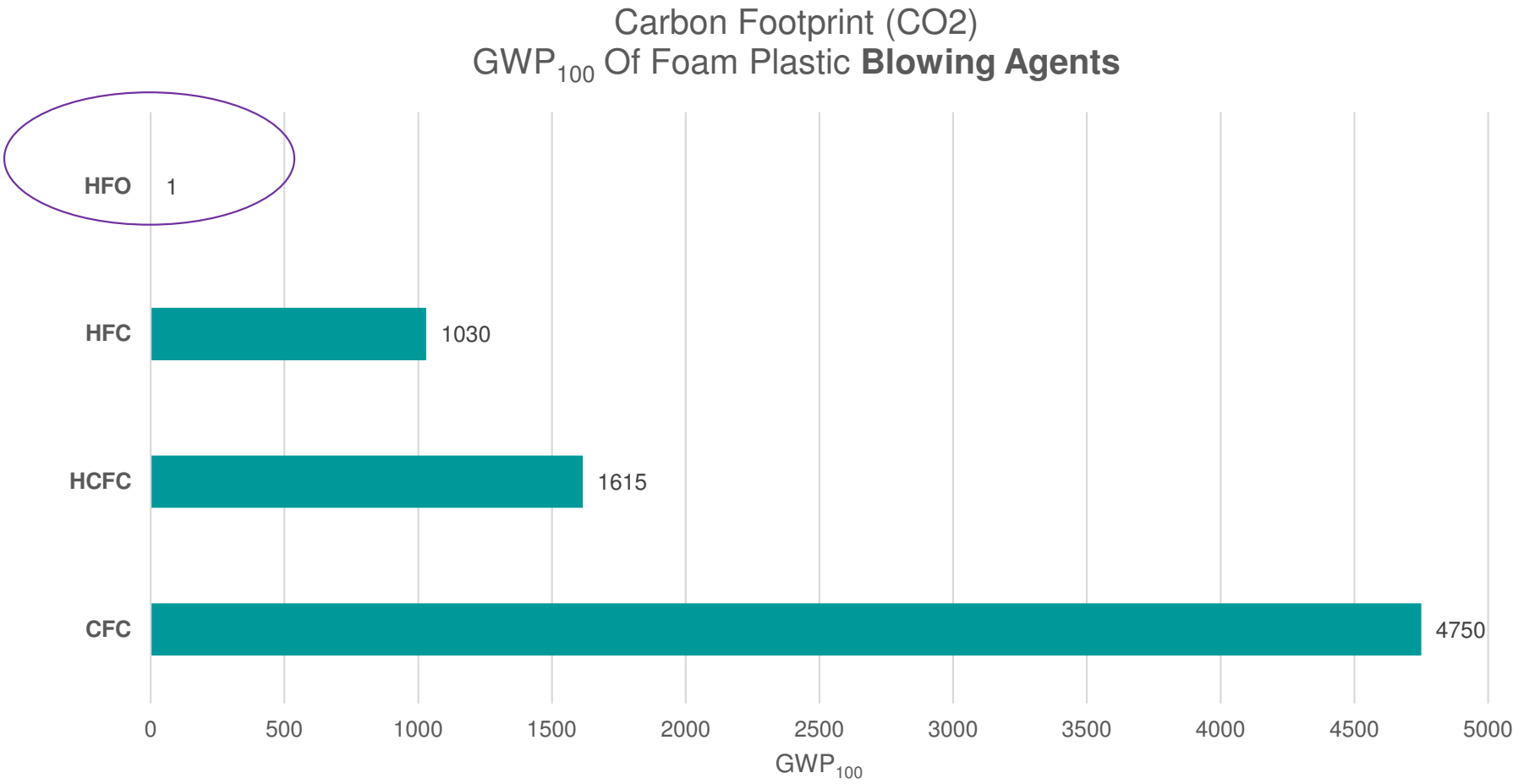
Sustainability

Sustainability



Sustainability

Environmental Product Declaration (EPD)

- Sustainability of the finished product
- Global Warming Potential (GWP)
- Allows for comparisons with other brands and types of insulation

ENVIRONMENTAL PRODUCT DECLARATION

SPRAY POLYURETHANE FOAM INSULATION

CLOSED CELL USING HYDROFLUOROOLEFINS (CCSPF, HFO)

SPF products are commonly used in residential, light commercial, commercial, institutional, and certain industrial applications. Closed cell SPF (ccSPF) is applied to the interior or exterior side of the building envelope.

SPFA
SPRAY POLYURETHANE FOAM ALLIANCE

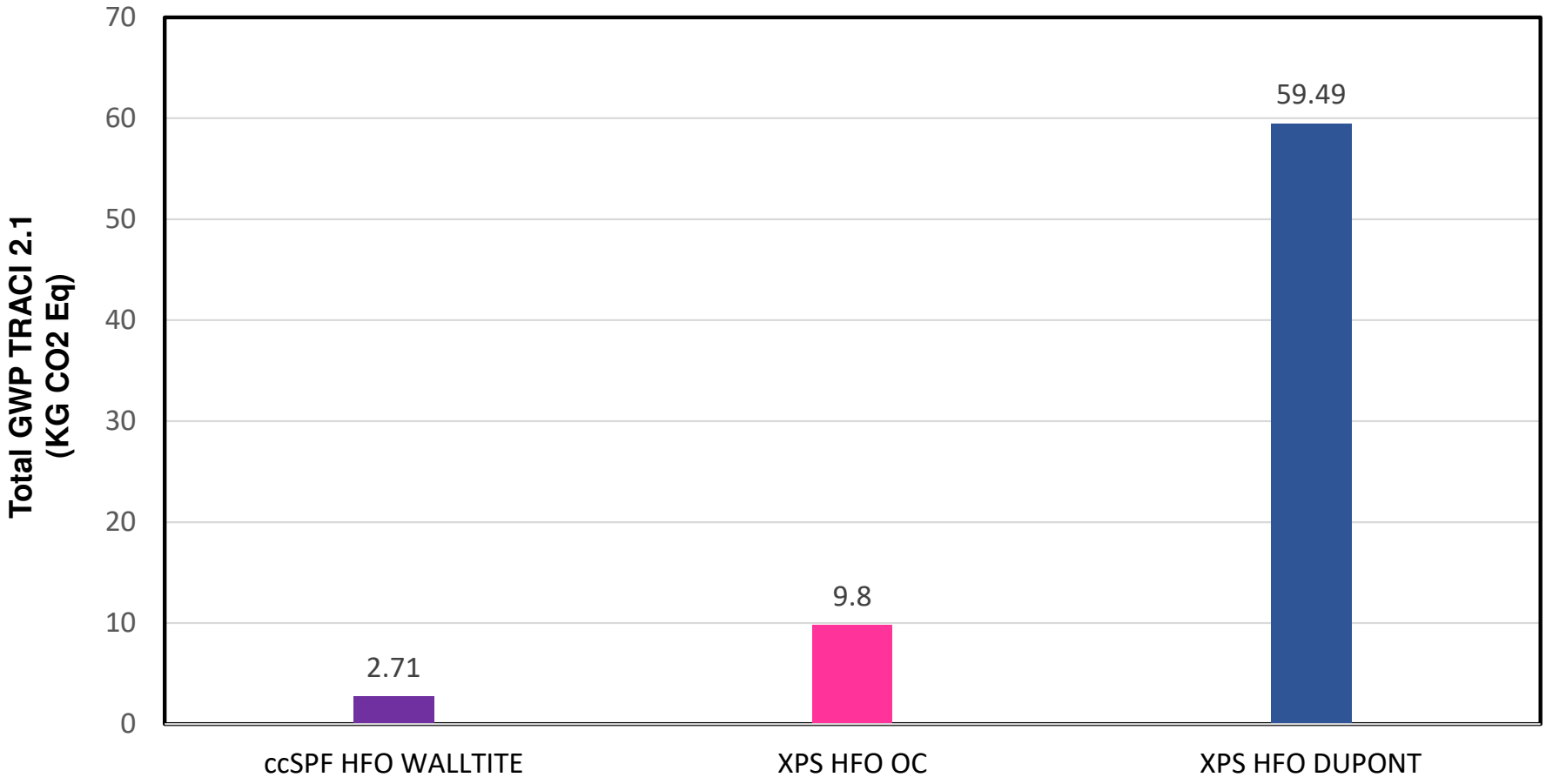
Founded in 1987, originally as the Polyurethane Foam Contractors Division, the Spray Polyurethane Foam Alliance (SPFA) is the collective voice, along with the educational and technical resource, for the spray polyurethane foam industry. Our experienced staff and member-comprised committees provide a wide variety of services to the industry.

SPFA develops tools designed to educate and influence the construction industry with the positive benefits of spray polyurethane foam roofing, insulation, coatings, and specialty installations.

ASTM INTERNATIONAL
Standards Worldwide

GWP - WALLTITE vs XPS

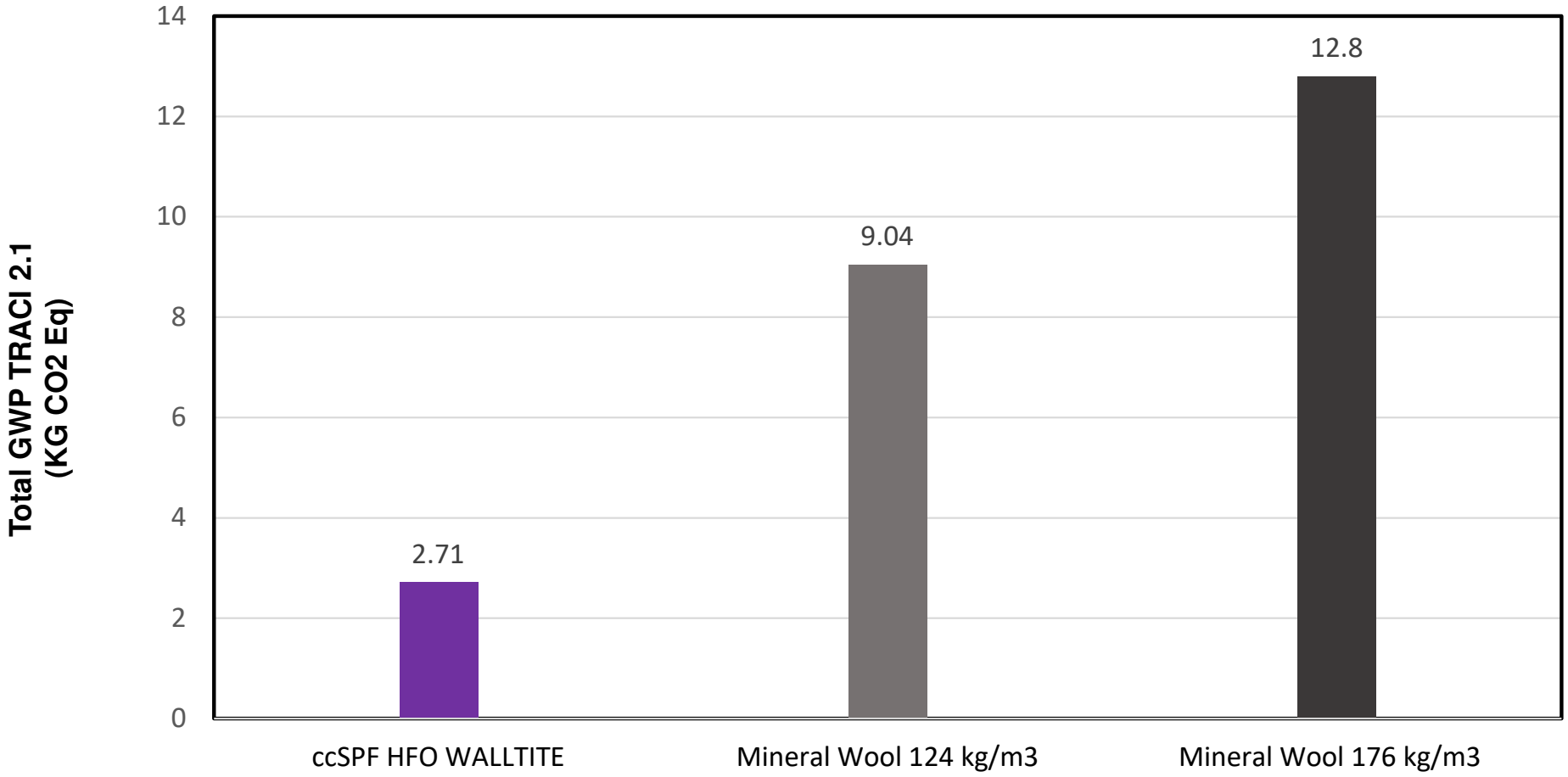
Functional Unit: 1m^2@Rsi 1.0



Source: Values are based on data sourced from publicly available environmental product declarations (EPDs) as of 2021 05 20			
ccSPF:	SPFA	EPD-085	ASTM
XPS HFO	Owens Corning	4789639125.101.1	ULE
XPS HFO	Dupont	4786548101.101.1	ULE
XPS HFO:	Dupont	4789559274.102.1	ULE

GWP – WALLTITE vs Mineral Wool

Functional Unit: 1m^2@Rsi 1.0



Source: Values are based on data sourced from publicly available environmental product declarations (EPDs) as of 2021 05 20

ccSPF:	SPFA	EPD-085	ASTM
Mineral Fibre	NAIMA Assoc.	4788703029.101.1	ULE

NOTE: Published in the Rockwool website.

Comfort Board 80 has a density of 128 kg/m3 which is comparable to the 124kg/m3 in the EPD

Comfort Board 110 has a density of 176 kg/m3. The GWP value is prorated to account for the increased GWP for this higher density.

QAP

- Third party QAP provider for most Manufacturers
- Certifies installers meet the CAN/ULC S705.2 standard
- Must carry photo ID
- https://qap.caliberqa.com/en/
- Also CUFCA and UFC

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SQAP Cards

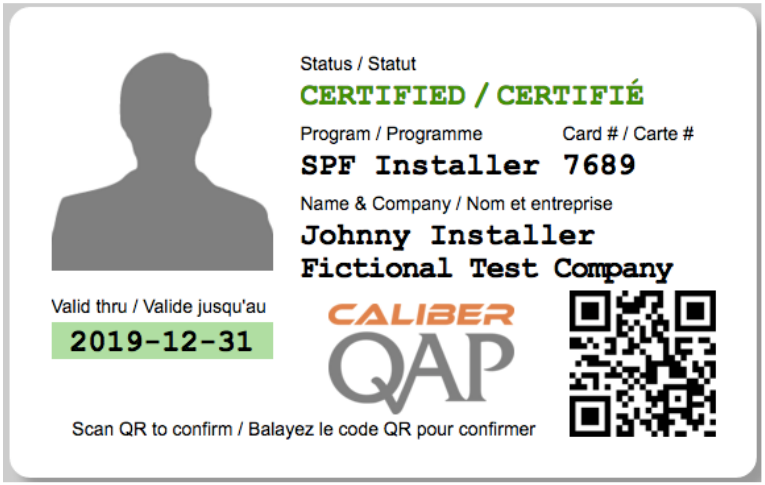
Registered Contractor

Need to be registered and in good standing with Certification Organization to buy product

Certified Installer

Certified by certification organization to spray foam

Trained on spray foam and building science



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QAP

INSULATION SYSTEM DAILY WORK RECORD

EMAIL TO DWR@CALIBERQA.COM WITHIN 1 MONTH

CALIBER
TRUST YOU CAN BUILD ON

Contractor:		Date:	Y Y Y Y M M D D
Installer:		Card #:	
Apprentice:		Appr. Card #	

PROJECT INFORMATION

Customer Name:		Construction:	Unoccupied ☐ Occupied ☐
Project Name:		Ventilation 0.3 ACH:	Yes ☐ No ☐
Project Address:		Spray Area Isolated:	Yes ☐ No ☐
City:		Warning Sign Posted:	Yes ☐ No ☐
Prov.: AB BC MB NB NL NS NU ON PE QC SK OTHER		Type: Residential ☐	Commercial ☐ Other ☐
Project Description:		Building Permit Posted:	Yes ☐ No ☐
Total Project Wall Area: sq. m ☐ sq. ft. ☐		Building Permit #:	
Person/Company responsible for thermal barrier:			

MATERIAL INFORMATION

Soprema☐ BASF☐ Carlisle☐ Huntsman (HBS)☐ JM☐ Shunda SPF☐ SWD☐ Other:☐ Product

	Isocyanate	Resin	
Lot number:			Formulation
Expiry Date:	Y Y Y Y M M D D	Y Y Y Y M M D D	☐ CCMC #, or ☐ ULC #
Manufacturing Date:	Y Y Y Y M M D D	Y Y Y Y M M D D	Density: ☐ Light ☐ Medium ☐ Other
Drum Temperature:		°F ☐ °C ☐	Color:
Quantity of Cycles Used:	Quantity of Foam Used:		Kg ☐ Pounds (lb.) ☐

EQUIPMENT

Manufacturer of Machine:		Model:		
Mixing Chamber Size:		Hose Length:		m ☐ ft ☐
Isocyanate psi:		Resin psi:		
Primary Heater Temperature:		Hose Temperature:		°F ☐ °C ☐

ENVIRONMENTAL CONDITIONS

Time (hhmm) 24h format	Ambient Temperature °F ☐ °C ☐	Relative Humidity (%)	Wind Velocity Mph ☐ Km/h ☐	Substrate Temperature °F ☐ °C ☐

SUBSTRATE CONDITIONS

Type:					Details:
CONDITIONS			SPECIAL CONDITIONS		
Clean:	Yes ☐	No ☐	Primer Required:	Yes ☐ No ☐	
Dry:	Yes ☐	No ☐	Protection Required:	Yes ☐ No ☐	
Properly Fastened:	Yes ☐	No ☐	Exterior Coating:	Yes ☐ No ☐	Moisture Content (MC):
Proper Adhesion:	Yes ☐	No ☐	Interior Thermal Barrier:	Yes ☐ No ☐	

TEST RESULTS

Density Calc: Open cell: g ÷ cm^3 x 1000 = Kg/m3 ÷ 16 = pcf Closed cell: g ÷ mL x 1000 = Kg/m3 ÷ 16 = pcf

Mass		Volume ☐cm^3 (open cell) ☐ml (closed cell)		Calculated Density
Weight of Sample #1(g):	.	Volume of Sample #1:		
Weight of Sample #2 (g):	.	Volume of Sample #2:		
Weight of Sample #3 (g):	.	Volume of Sample #3:		
Thickness Pass #1:	.	mm	- /	inches
Thickness Pass #2:	.	mm	- /	inches
Thickness Pass #3:	.	mm	- /	inches
Number of Passes:	1 ☐ 2 ☐ 3 ☐	Total Thickness	mm - /	inches
Adhesion Test #1:	Pass ☐ Fail ☐	Cohesion Test #1:	Pass ☐ Fail ☐	
Adhesion Test #2:	Pass ☐ Fail ☐	Cohesion Test #2:	Pass ☐ Fail ☐	
Adhesion Test #3:	Pass ☐ Fail ☐	Cohesion Test #3:	Pass ☐ Fail ☐	

CORRECTIVE ACTIONS (List corrective action taken as a result of test failures)	Signature

Updated: 2021-07-12

QAP

INSULATION SYSTEM DAILY WORK RECORD

EMAIL TO DWR@CALIBERQA.COM WITHIN 1 MONTH

CALIBER
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Contractor:																		Date:	Y	Y	Y	Y	M	M	D	D
Installer:																		Card #:								
Apprentice:																		Appr. Card #								

PROJECT INFORMATION

Customer Name:																		Construction:	Unoccupied ☐	Occupied ☐
Project Name:																		Ventilation 0.3 ACH:	Yes ☐	No ☐
Project Address:																		Spray Area Isolated:	Yes ☐	No ☐
City:																		Warning Sign Posted:	Yes ☐	No ☐
Prov.:	AB	BC	MB	NB	NL	NS	NU	ON	PE	QC	SK	OTHER						Type: Residential ☐	Commercial ☐	Other ☐
Project Description:																		Building Permit Posted:	Yes ☐	No ☐
Total Project Wall Area:								sq. m ☐			sq. ft. ☐							Building Permit #:		
Person/Company responsible for thermal barrier:																				

QAP

MATERIAL INFORMATION

Soprema☐ BASF☐ Carlisle☐ Huntsman (HBS)☐ JM☐ Shunda SPF☐ SWD☐ Other☐	Isocyanate	Resin	Product
Lot number:			Formulation
Expiry Date:	Y Y Y Y M M D D	Y Y Y Y M M D D	☐ CCMC #, or ☐ ULC #
Manufacturing Date:	Y Y Y Y M M D D	Y Y Y Y M M D D	Density: ☐ Light ☐ Medium ☐ Other
Drum Temperature:		°F ☐ °C ☐	Color:
Quantity of Cycles Used:		Quantity of Foam Used:	Kg ☐ Pounds (lb.) ☐

EQUIPMENT

Manufacturer of Machine:		Model:		
Mixing Chamber Size:		Hose Length:		m ☐ ft ☐
Isocyanate psi:		Resin psi:		
Primary Heater Temperature:		Hose Temperature:		°F ☐ °C ☐

ENVIRONMENTAL CONDITIONS

Time (hhmm) 24h format	Ambient Temperature °F ☐ °C ☐	Relative Humidity (%)	Wind Velocity Mph ☐ Km/h ☐	Substrate Temperature °F ☐ °C ☐

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Construction Products Representatives

QAP

SUBSTRATE CONDITIONS

Type:						Details:
CONDITIONS			SPECIAL CONDITIONS			
Clean:	Yes ☐	No ☐	Primer Required:	Yes ☐	No ☐	
Dry:	Yes ☐	No ☐	Protection Required:	Yes ☐	No ☐	
Properly Fastened:	Yes ☐	No ☐	Exterior Coating:	Yes ☐	No ☐	Moisture Content (MC):
Proper Adhesion:	Yes ☐	No ☐	Interior Thermal Barrier:	Yes ☐	No ☐	

QAP

TEST RESULTS Density Calc: Open cell: g ÷ cm^3 x 1000 = Kg/m3 ÷ 16 = pcf Closed cell: g ÷ mL x 1000 = Kg/m3 ÷ 16 = pcf

Mass		Volume ☐cm^3 (open cell) ☐ml (closed cell)		Calculated Density	
Weight of Sample #1(g):	.	Volume of Sample #1:			
Weight of Sample #2 (g):	.	Volume of Sample #2:			
Weight of Sample #3 (g):	.	Volume of Sample #3:			
Thickness Pass #1:	.	mm	- . /	inches	
Thickness Pass #2:	.	mm	- /	inches	
Thickness Pass #3:	.	mm	- /	inches	
Number of Passes:	1 ☐ 2 ☐ 3 ☐	Total Thickness	mm - /	inches	
Adhesion Test #1:	Pass ☐ Fail ☐	Cohesion Test #1:	Pass ☐ Fail ☐		
Adhesion Test #2:	Pass ☐ Fail ☐	Cohesion Test #2:	Pass ☐ Fail ☐		
Adhesion Test #3:	Pass ☐ Fail ☐	Cohesion Test #3:	Pass ☐ Fail ☐		

CORRECTIVE ACTIONS (List corrective action taken as a result of test failures)

Signature

Updated: 2021-07-12

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Limitations

Installation

- Apply in lifts of 50mm max and allow cooling
  - Low Exotherm products allow 125mm per lift
- Apply at -10 C to +40 C
- Max RH is 85%
- Substrate; Compatible, DRY, clean, free from oils
- Do not apply over batt or other soft substrates
- Keep 75mm from heat sources

WALLTITE®

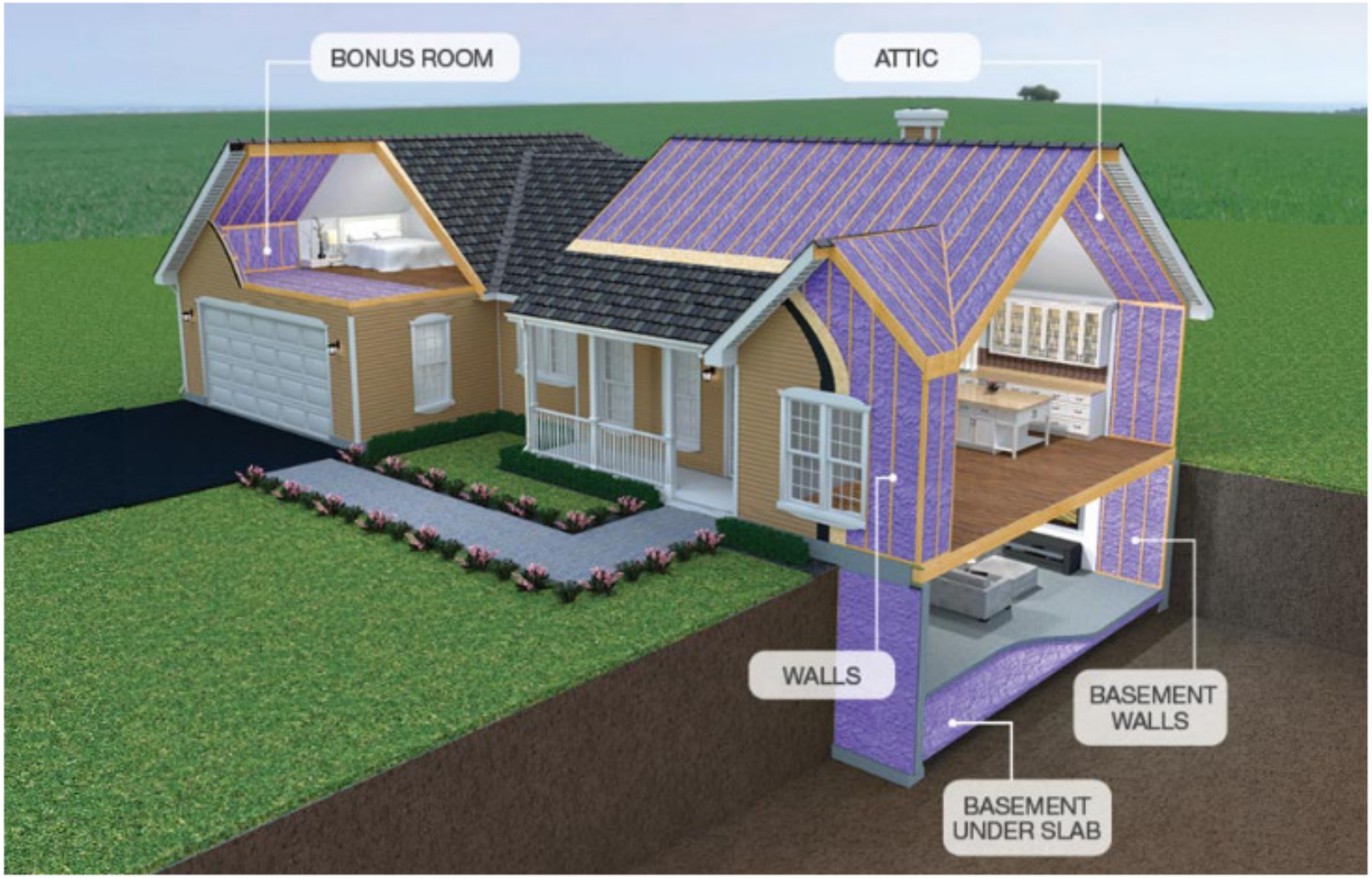
Products

WALLTITE Launched in the late 1990's

- **WALLTITE XL01 - 2020**
  - HFO BA
  - **LOW Exotherm 5.25"/lift**

- **NEW WALLTITE v.5 - 2023**
  - Better installation, supply chain…
  - 5-8% Higher R value

Applications- Residential



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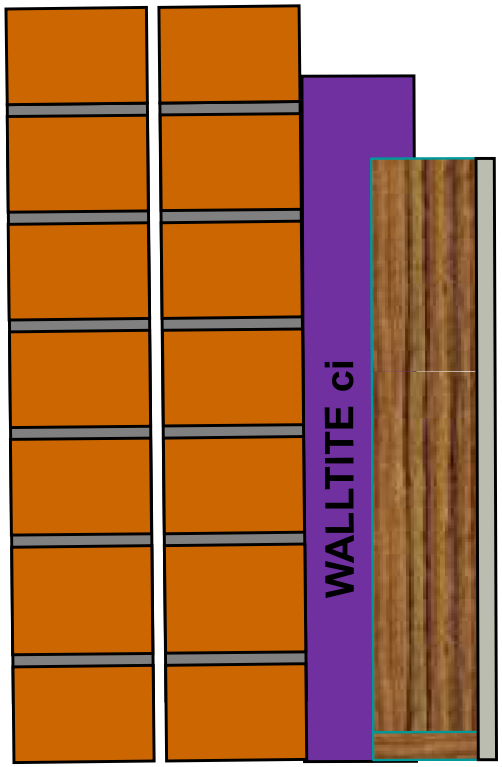
Construction Products Representatives

Applications- Residential

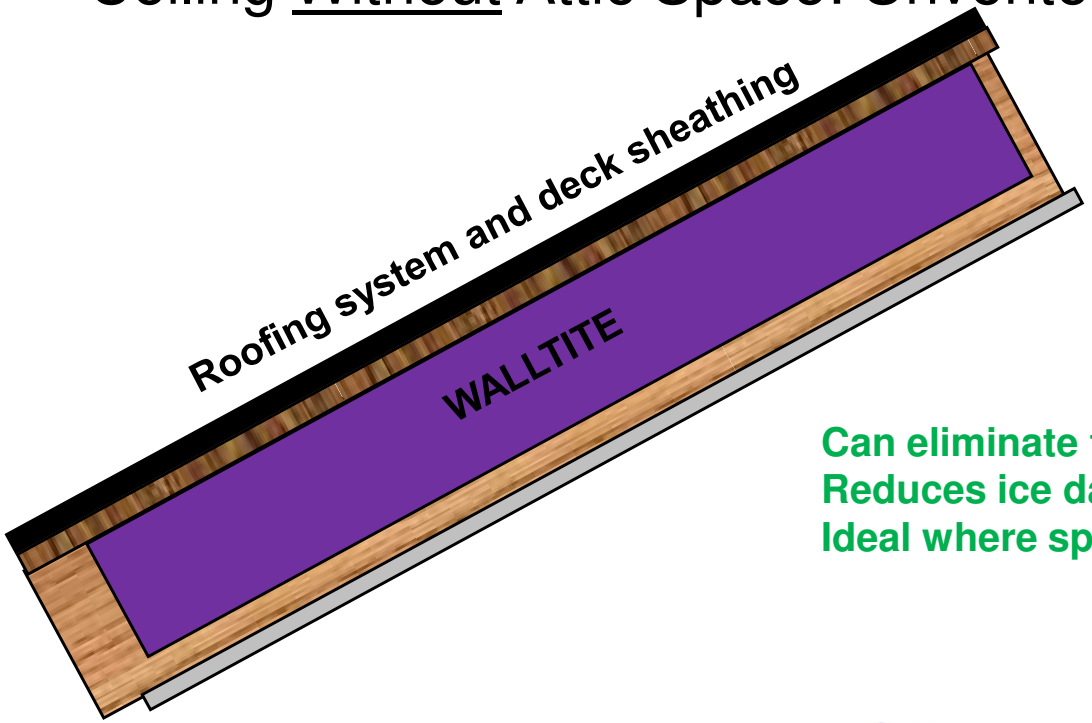


Exterior Solid Masonry
High EFFECTIVE R Value
Functions as
- Air Barrier
- Vapour Barrier
- Compact
- All ccSPF applied from interior

WALLTITE®

Applications- Residential

Ceiling Without Attic Space: Unvented



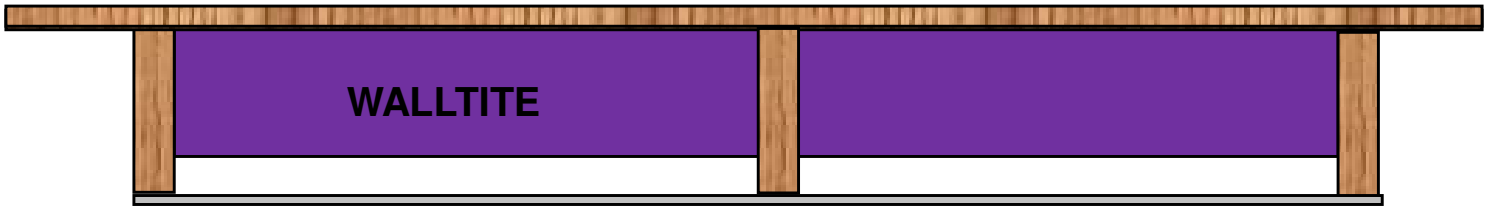
Can eliminate the need for venting
Reduces ice damming
Ideal where space is limited

WALLTITE®

Applications- Residential

Exposed Floor

INTERIOR conditioned space



EXTERIOR unconditioned space
Garage, Cantilever…

Ideal for Garage ceiling, overhangs

WALLTITE®

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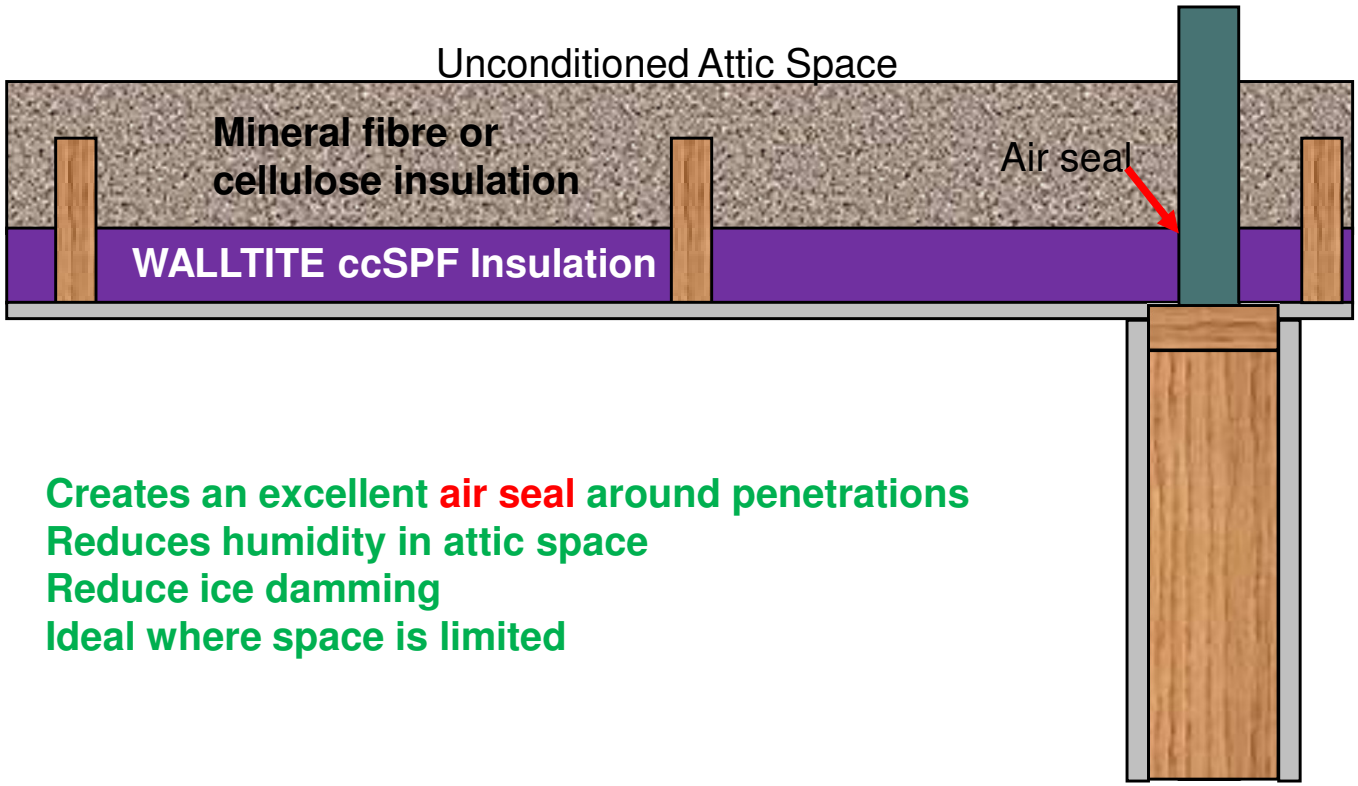
Applications- Residential

Ceiling With Attic Space

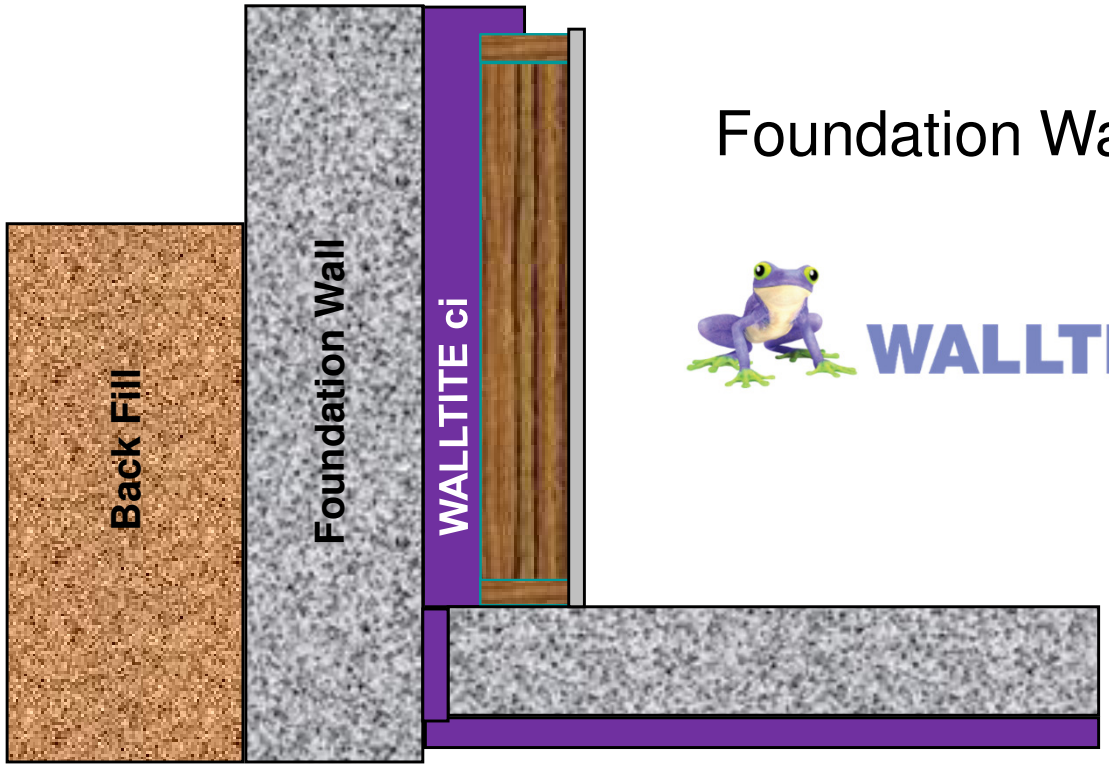


WALLTITE®

Creates an excellent air seal around penetrations
Reduces humidity in attic space
Reduce ice damming
Ideal where space is limited

BUILDING RESOURCE
Construction Products Representatives

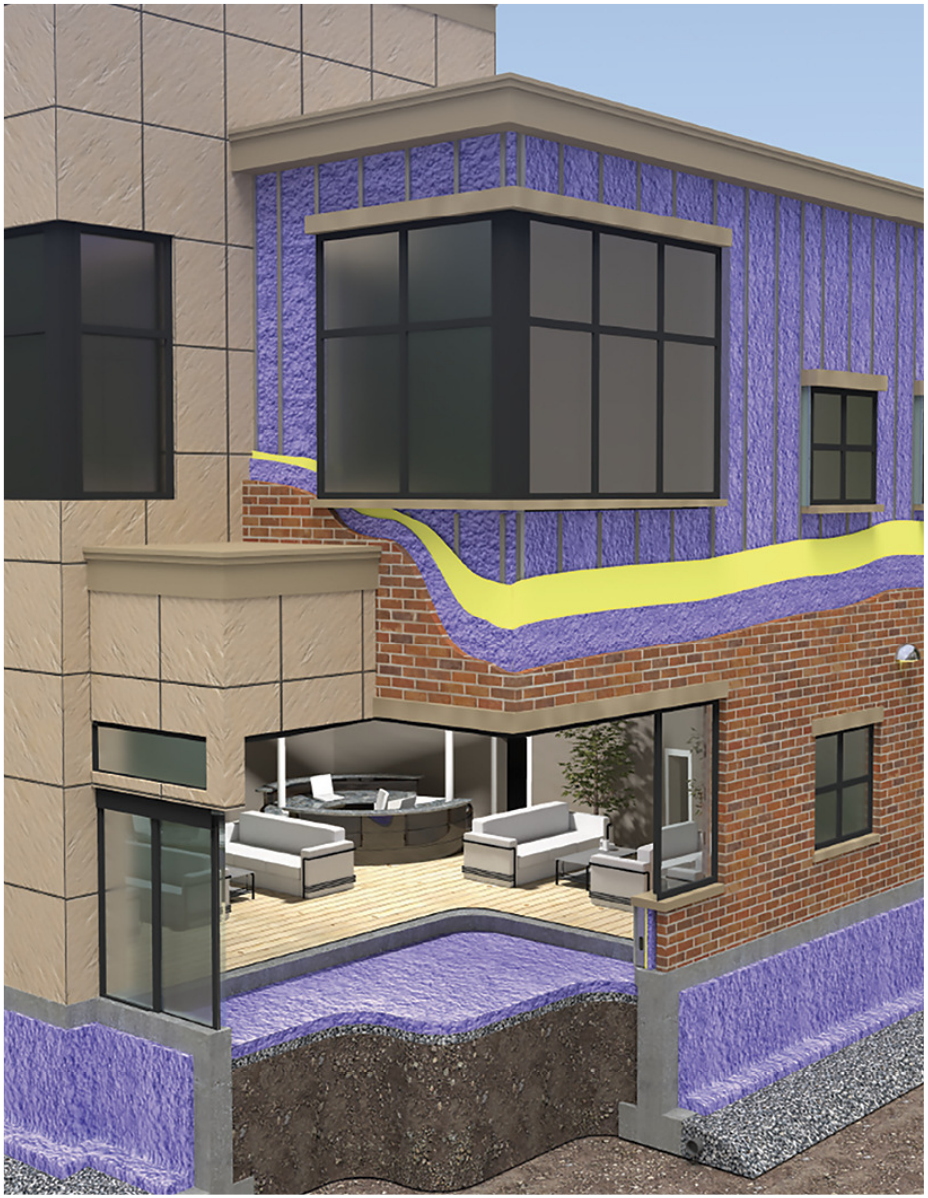
Applications- Residential



Foundation Walls: Interior

WALLTITE®

Applications- ICI



BUILDING RESOURCE
Construction Products Representatives

Insulation and ReClad

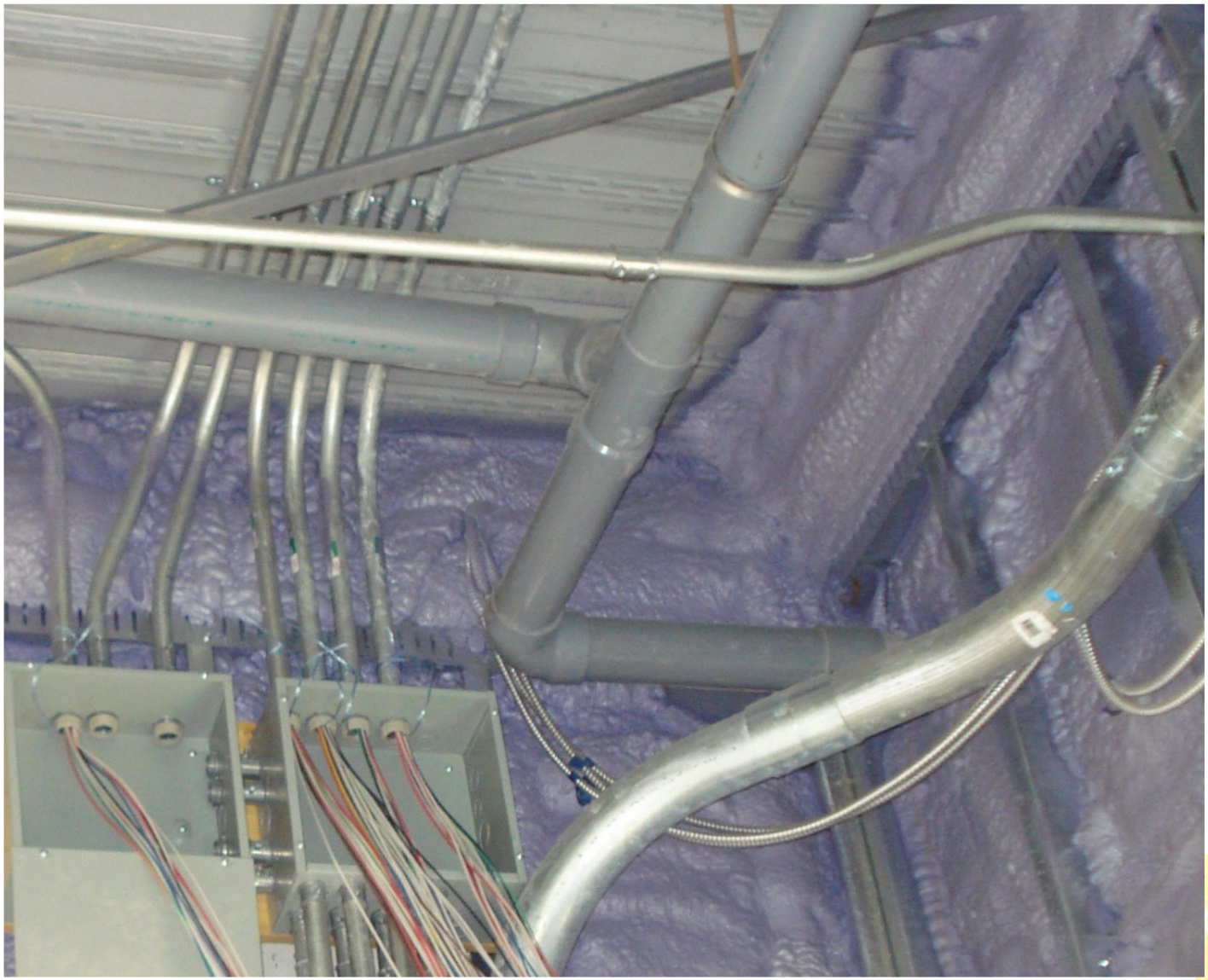
University of Toronto Thomas Fisher Rare Book Library
WALLTITE applied from the exterior, precast cladding panels installed 2017

BUILDING RESOURCE
Construction Products Representatives

Roof Re Clad

WALLTITE installed at 100mm thick followed by metal roof installation.

Air Sealing



Interior of Precast

Existing solid masonry or precast
Steel studs- set back
WALLTITE ccSPF Insulation
Interior Gypsum Board

ci improves performance
Minimal condensation potential
Minimal thermal bridging

WALLTITE®

Macdonald Block Reconstruction Project, Toronto

Owner: Infrastructure Ontario

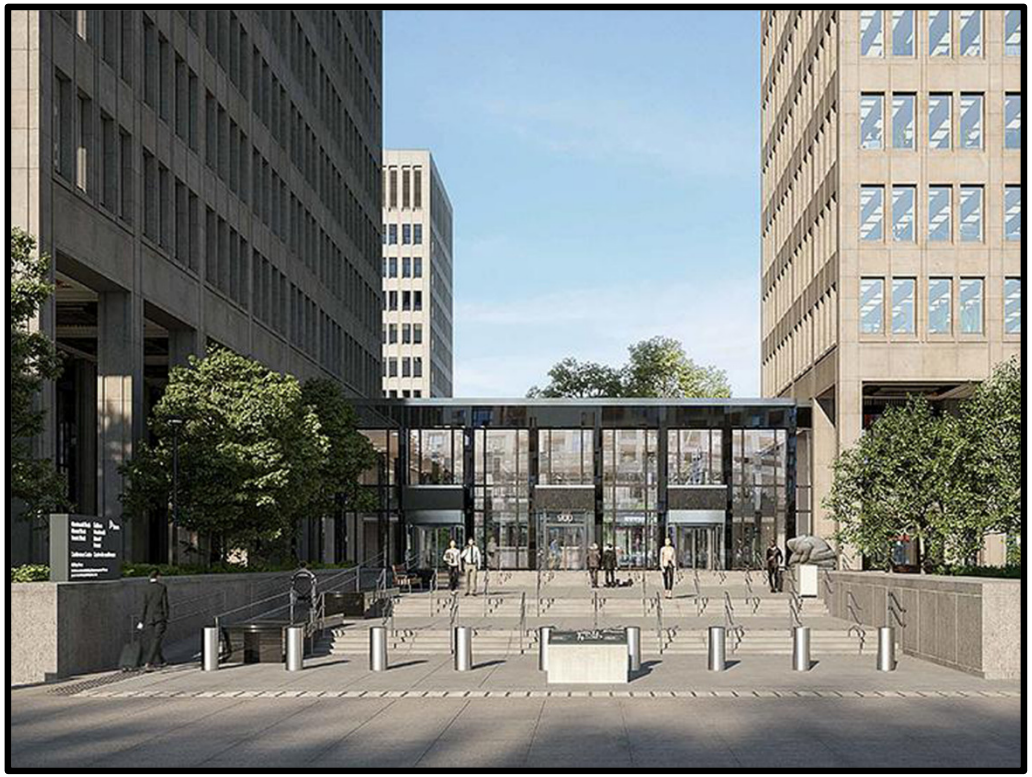
Contract Value: $1.536 billion

1Million ft^2 WALLTITE installed on the interior of exterior precast and stone

Architect: WZMH

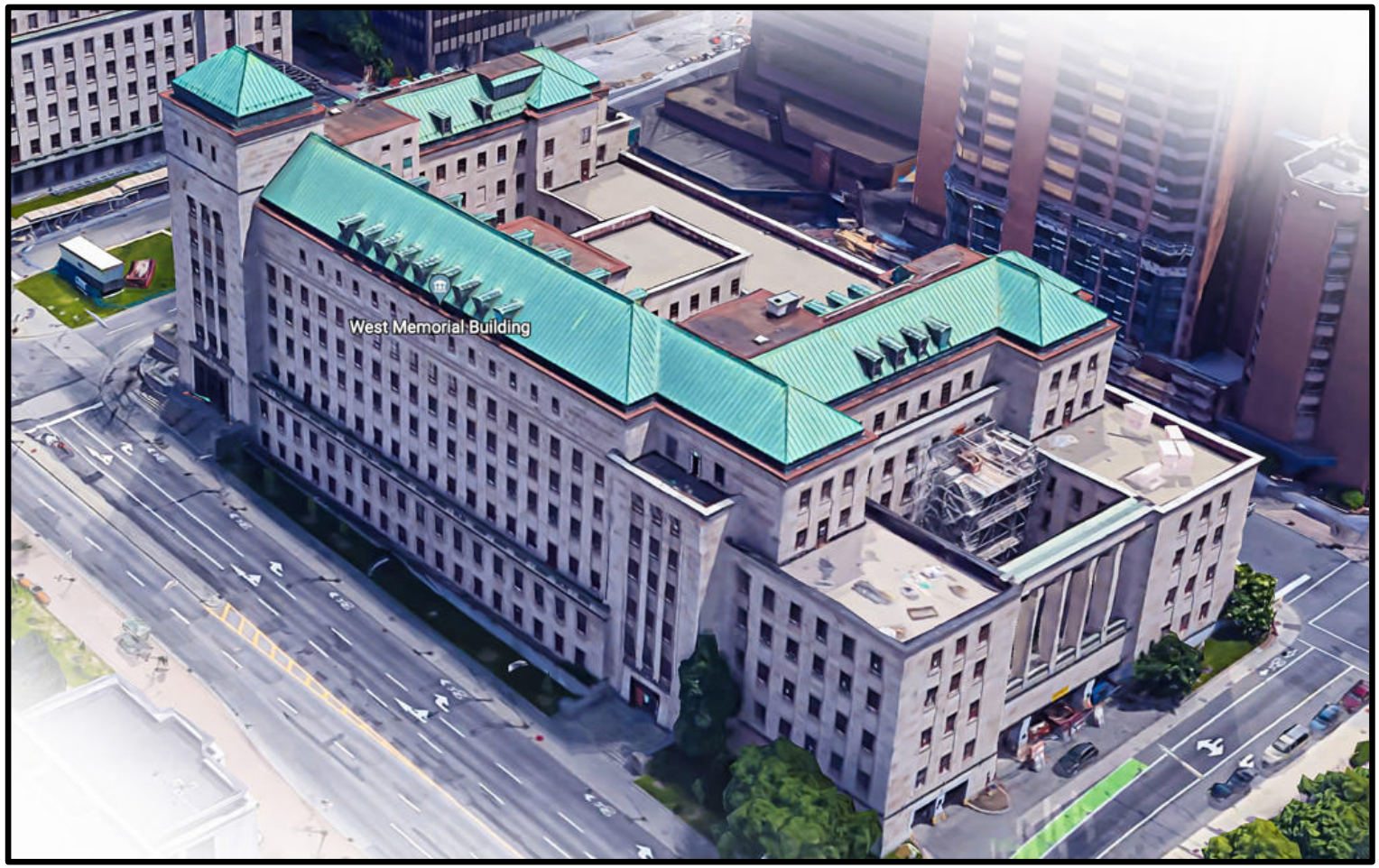
Building Envelope Consultant: Engineering Link and Synergy Consultants

GC: Fengate PCL Progress Partners (FP3)



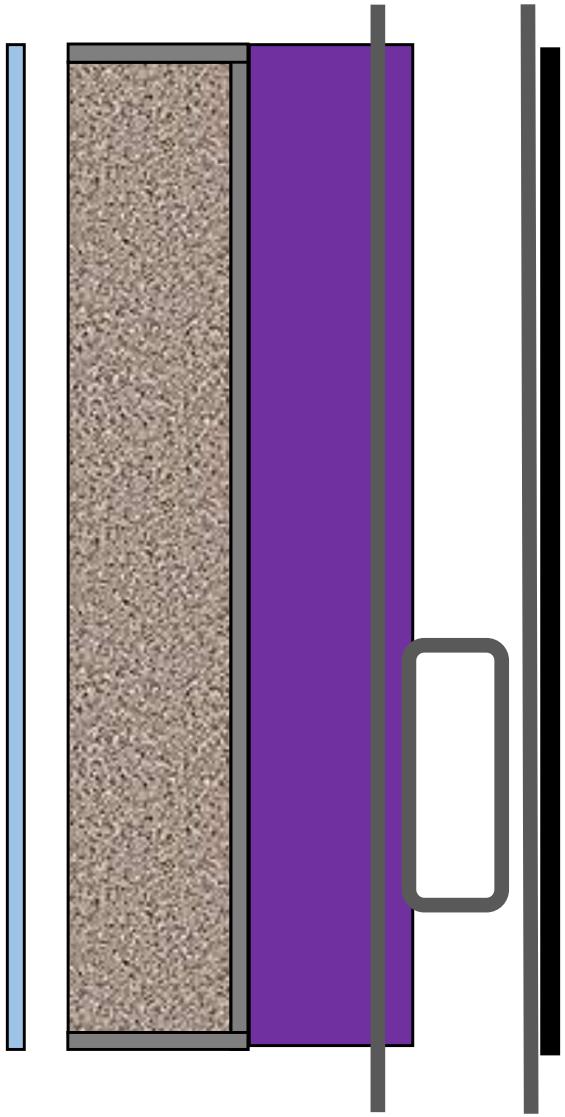
WALLTITE®

West Memorial Building Reconstruction Project, Ottawa
WALLTITE installed on the interior of exterior precast and stone
Architect: Moriyama & Teshima Architects and Kasian Architecture
Building Envelope Consultant: Morrison Hershfield, David Kayll
Owner: PSPC
GC: Ellis Don



WALLTITE®

Interior of Spandrel Panels

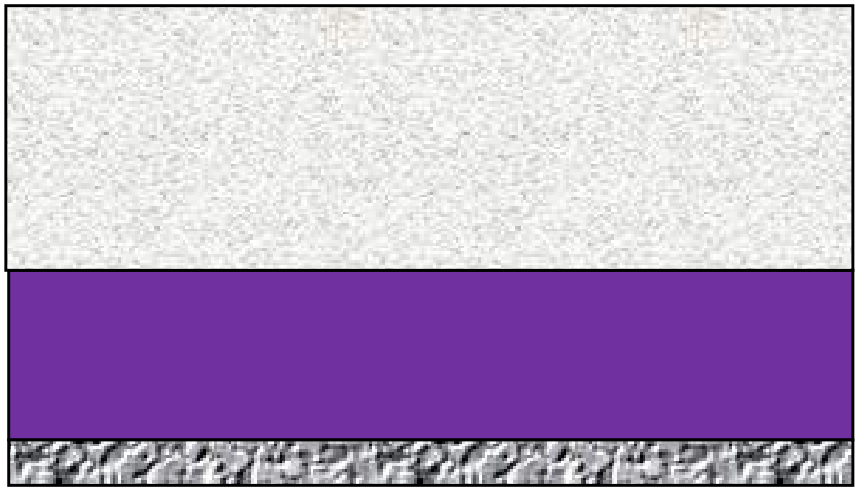


Curtain Wall Spandrel Panel w/ Metal Backpan + Rockwool
Steel studs- set back 25mm min.
WALLTITE ccSPF Insulation
Interior Gypsum Board

ci improves performance
Minimal condensation potential
Minimal thermal bridging
Passed CAN/ULC S101 (State)

WALLTITE®

Overhead Cantilevered or Soffits

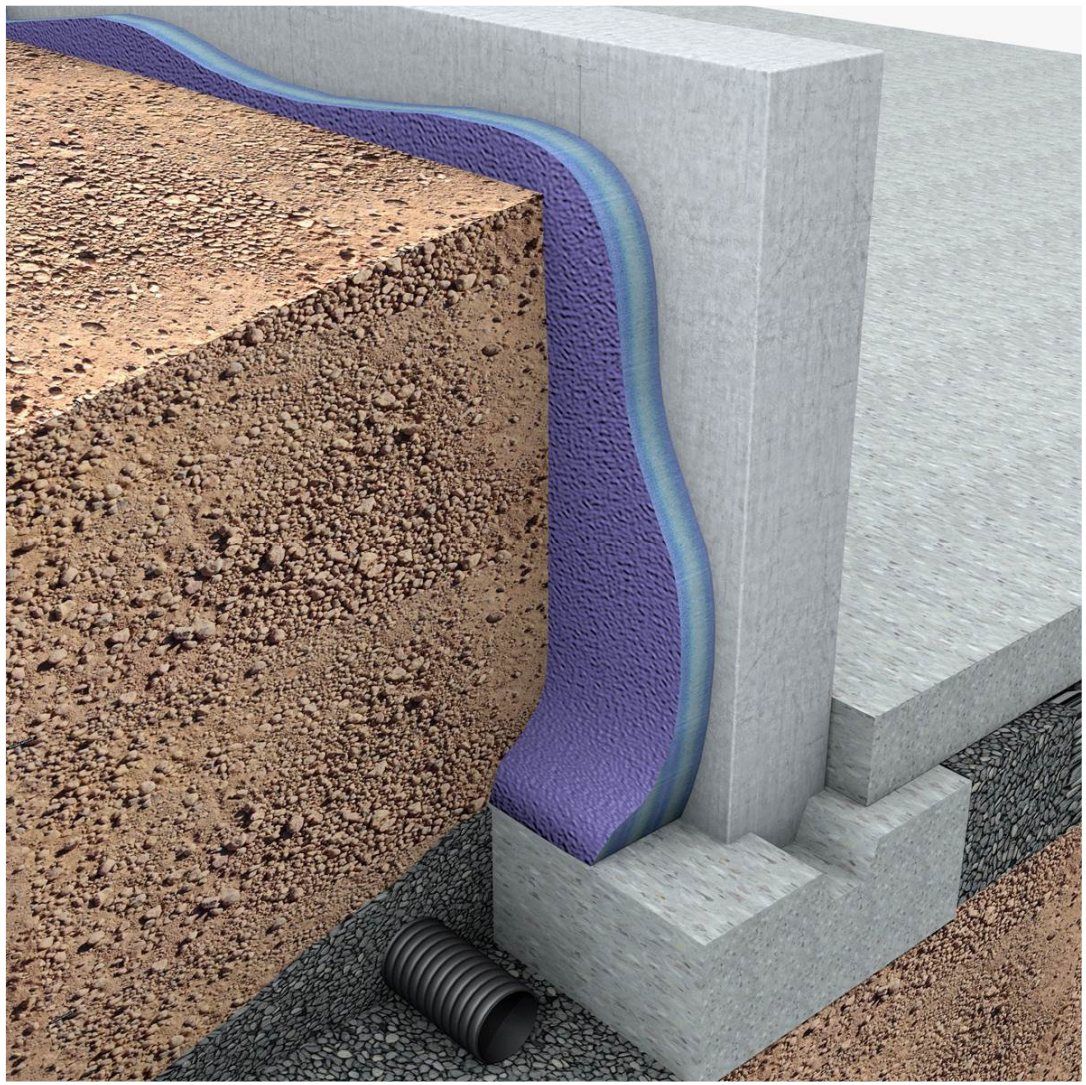


Suspended, reinforced slab
WALLTITE ccSPF Insulation
Protection- Gypsum Board or a Thermal Barrier meeting CAN/ULC S124 (Flameseal TBC)

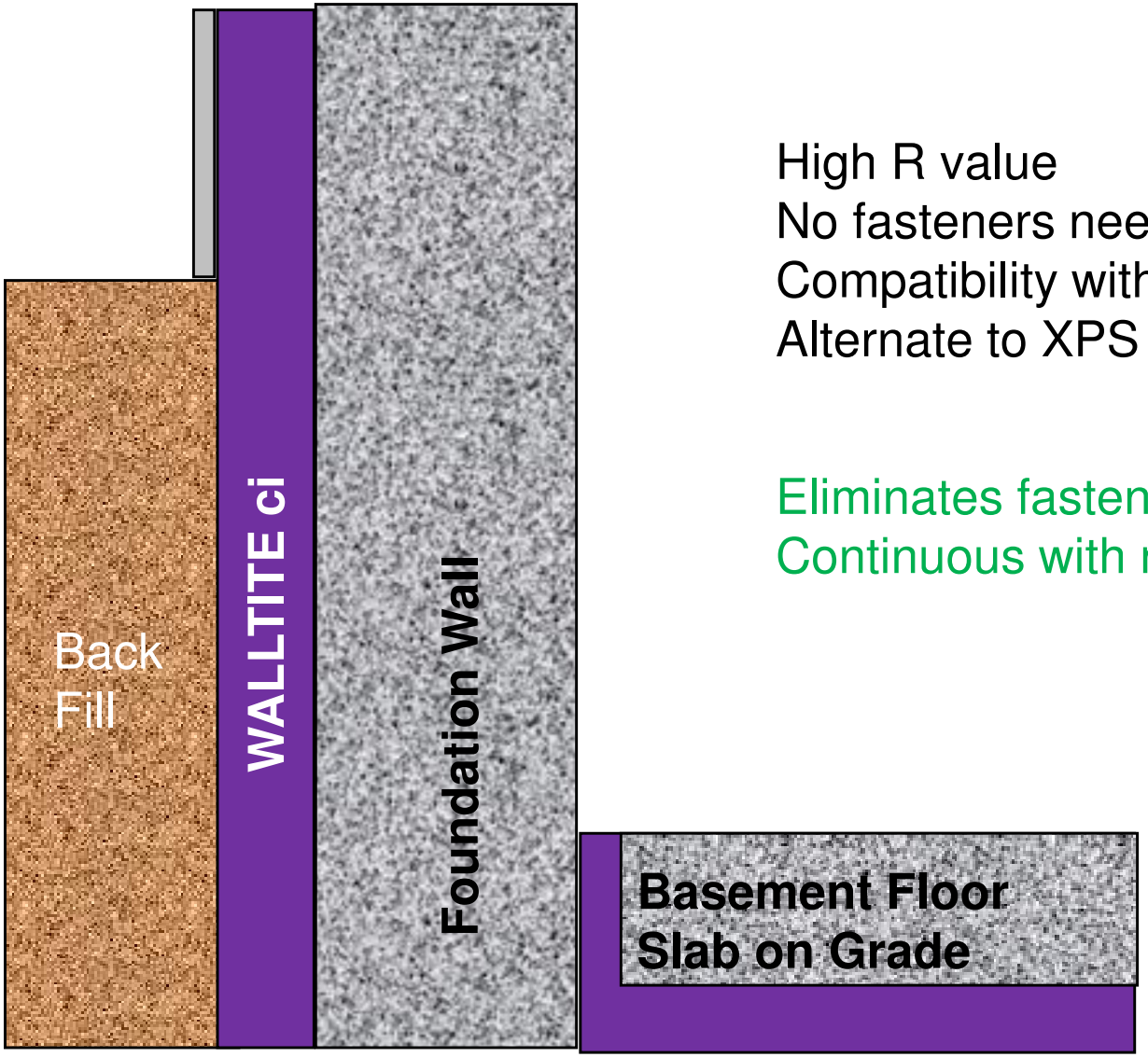
Thinner than other systems, preserving headroom

WALLTITE®

Foundation Walls: Interior/Exterior



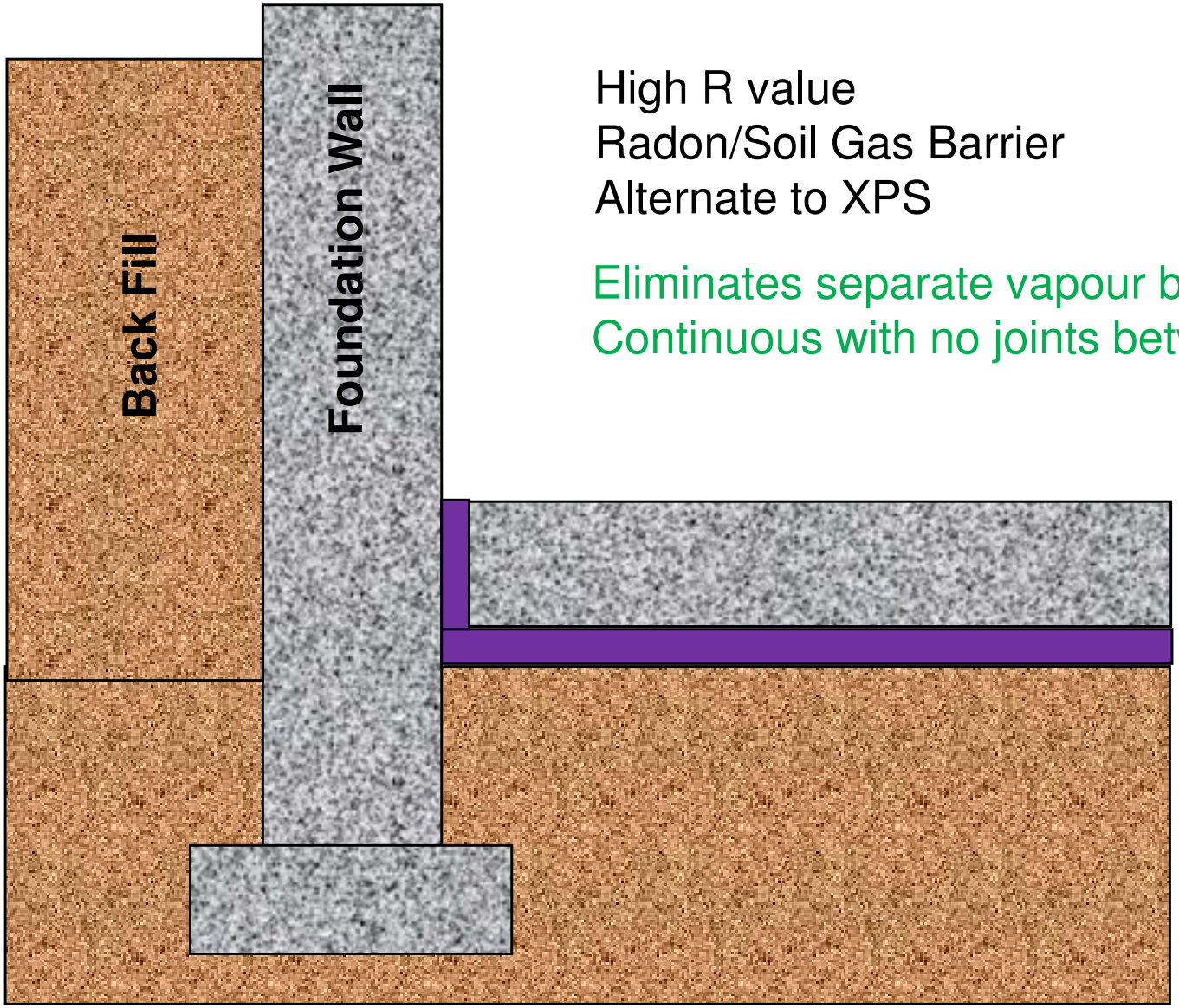
Foundation Walls: Interior/Exterior



High R value
No fasteners needed
Compatibility with waterproofing membranes
Alternate to XPS

Eliminates fasteners needed with XPS
Continuous with no joints between panels

Under Slab On Ground



High R value
Radon/Soil Gas Barrier
Alternate to XPS

Eliminates separate vapour barrier needed with XPS
Continuous with no joints between panels

WALLTITE®

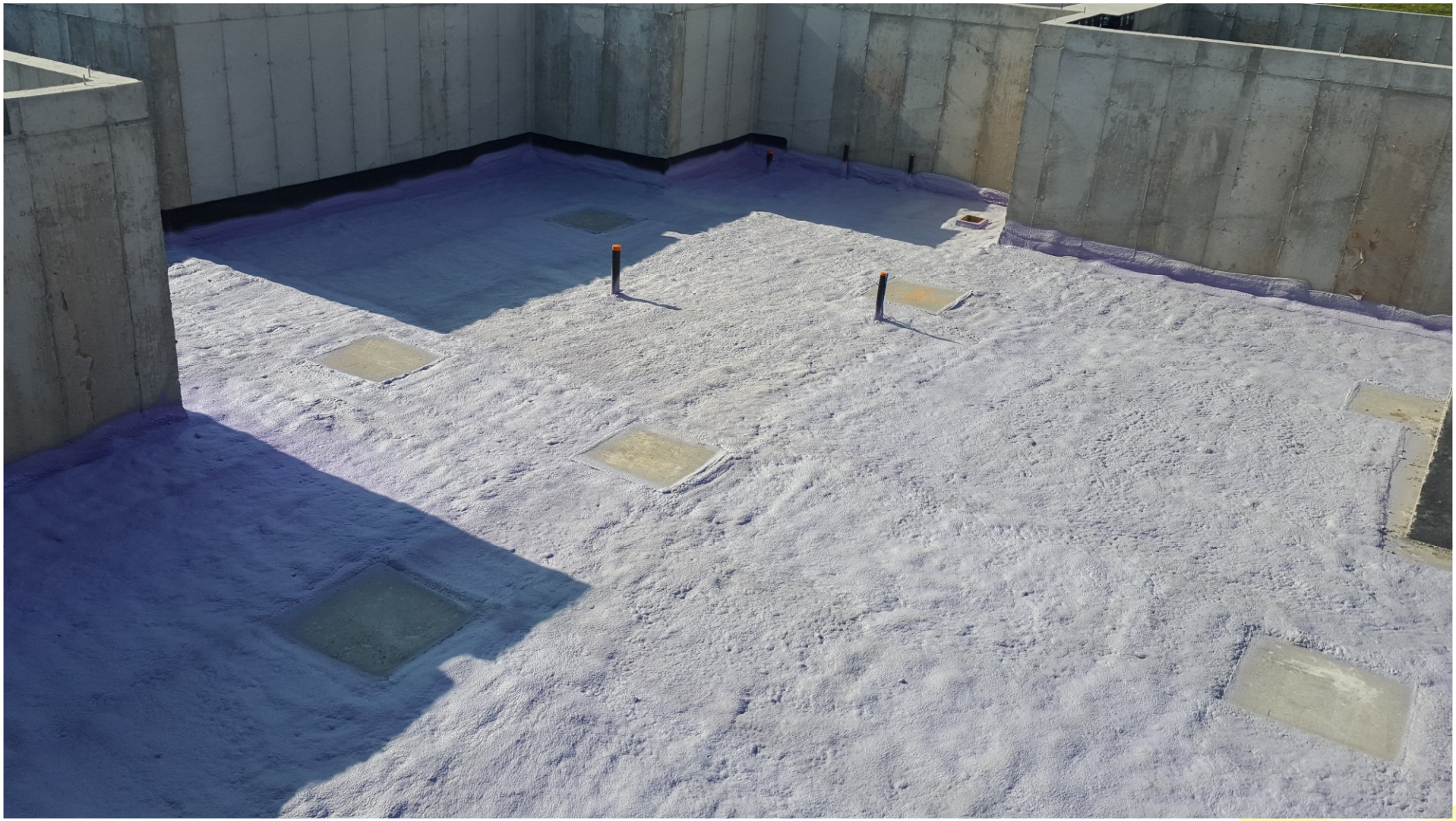
Under Slab On Ground

BUILDING RESOURCE
Construction Products Representatives

Under Slab On Ground

BUILDING RESOURCE
Construction Products Representatives

Under Slab On Ground



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Construction Products Representatives

Under Slab On Ground

WALLTITE

Compressive Strength D1621

WALLTITE v.5	XPS (type 4)
29 psi	30 psi
205 kPa	210 kPa

BUILDING RESOURCE
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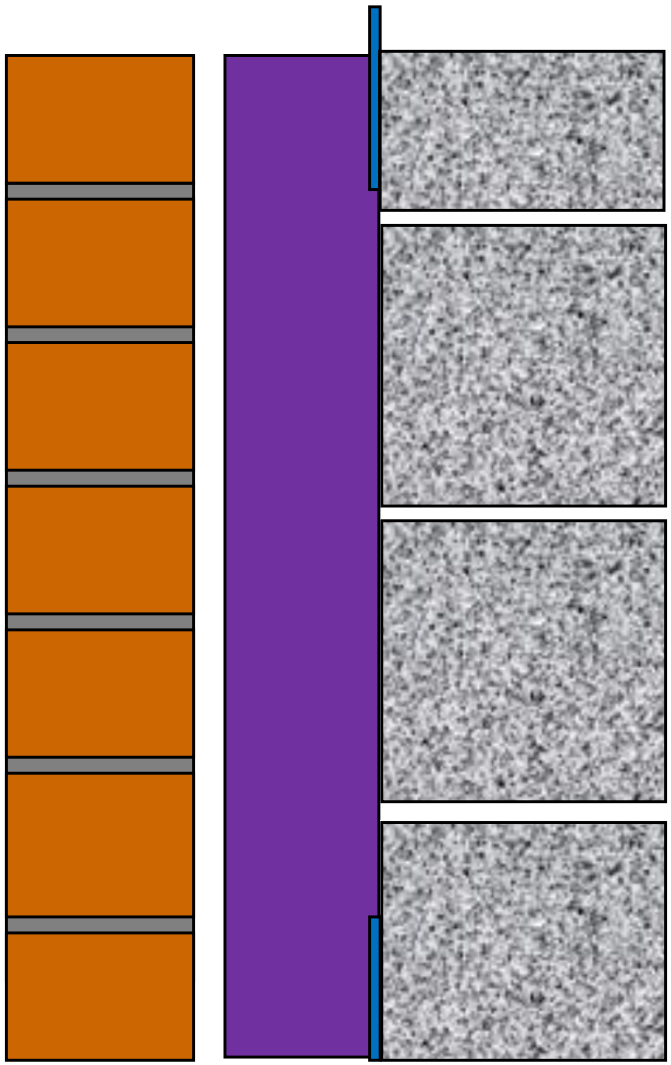
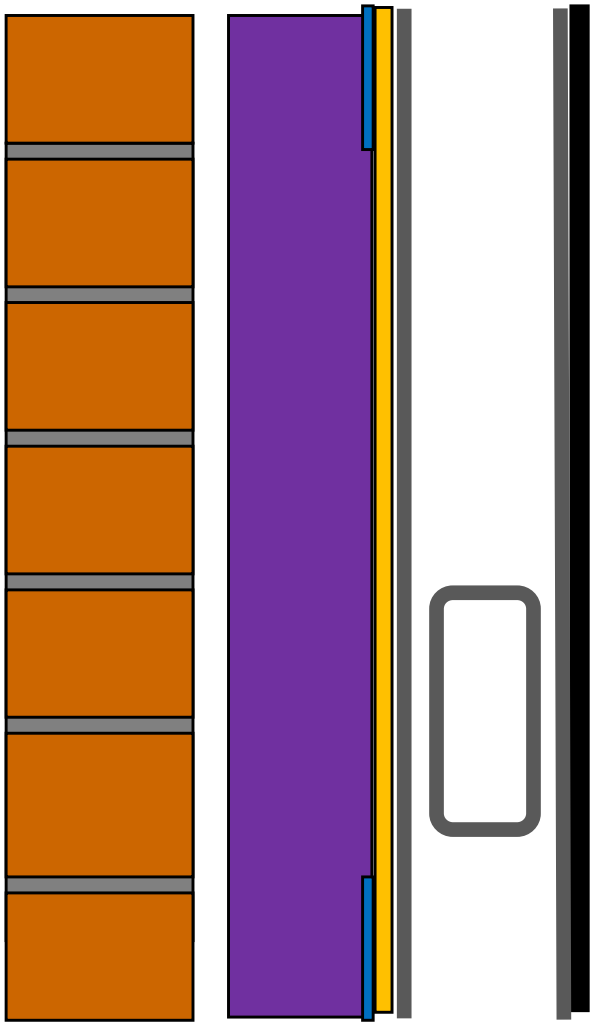
Cavity Wall: CMU Backup



CMU Block Backup
Transition membranes
WALLTITE ccSPF ci
MASONRY Cladding

WALLTITE®

Cavity Wall: Stud/Sheathing



Steel Stud and Gypsum Sheathing
Transition membranes

WALLTITE ccSPF ci

MASONRY Cladding

WALLTITE®

Project- Woodstock Hospital

Limitations

Project- Woodstock Hospital

Limitations

- ALL plastic foams are combustible
- Allowed in Combustible and Non-Combustible Construction

PAST Limitations

- **Hourly Rated Walls**
  - CAN/ULC S101 Assembly testing required
- **Installed with cladding other than Masonry (NC)**
  - **CAN/ULC S134 Testing Required**

Fire Rated Applications

- CAN/ULC S101 Assembly Hourly Rated Walls
- CAN/ULC S134 Compliant Systems

Fire Rated Applications

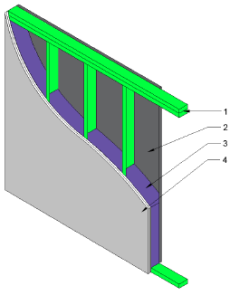
- Where is an Hourly Rated wall needed?
  - Walls near property lines
  - Walls bearing the load of a fire rated floor
  - Fire Rated Floors

Fire Rated Applications
Sources

intertek
Total Quality. Assured.

Division 07 – Thermal and Moisture Protection
07 21 00 Thermal Insulation
07 21 29 Spray Insulation

BASF Canada Inc.
Design No. BASF/SI 60-01
Spray Foam Insulation
BASF WALLTITE® V3, XL, and CM01 Spray Foam Insulation, HP+ E Series
Non-symmetrical, Load-bearing Wall Assembly
CAN/ULC-S101
Rating: 1 Hour; Rated from Gypsum Board Side



1. **WALL FRAMING:** Min. 38 x 89 mm wood studs spaced at 406 mm on center (oc) fastened to two units of min. 38 x 89 mm top plates and to one unit of min. 38 x 89 mm bottom plate. Apply a 10 mm bead of BASF MasterSeal® NP1™ sealant along the joints between the studs to top and bottom plates and joint between the two top plates, on the exterior side.

2. **EXTERIOR INSULATION:** Listed EPS insulation board molded using BASF Neopor EPS resin, in compliance to Type 2 requirement of CAN/ULC-S701.1, by approved EPS molders, at the min. density of 22 kg/m³ and thickness of 25.4 mm, attached to wall frame using min. 63.5 mm long × 3.3 mm spiral nails at 152 mm oc along perimeter and 203 mm oc in the field.

3. **CERTIFIED MANUFACTURER:** BASF Canada Inc.

   CERTIFIED PRODUCT: WALLTITE® Spray Foam V3, XL, and CM01 Insulation

   BASF WALLTITE® V3, XL, or CM01, two-part polyurethane foam spray-applied to stud cavities for up to a max. thickness of 76.2 mm as per manufacturer's specifications.

4. **GYPSUM WALLBOARD:** Two layers of 15.9 mm thick Type X gypsum wallboard fastened to wall framing using min. 41 mm long self-tapping

Date Revised: September 29, 2020 Page 1 of 2 Project No.: G103319675

Version: 02 August 2017 SFT-BC-OP-19i

UL Product iQ® SEARCH MY SEARCHES MY TAGS MICHAEL UL Solutions

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **W307**

June 14, 2024

Bearing Wall Rating — 1 or 2 Hr (see Item 3).
Finish Rating — See Items 3, 3A, and 3B
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Feedback

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Fire Rated Applications

CAN/ULC-S101 Assembly

BASF HP+ CFR Systems that Comply- Wood frame

Test Standard	Fire Resistance Rating	Design Number	BASF System Designation	Framing
CAN/ULC-S101	1 h	BASF/SI 60-01	HP+ E	Wood
CAN/ULC-S101	1 h	BASF/SI 60-02	HP+ X	Wood
CAN/ULC-S101	1 h	BASF/SI 60-03	HP+ Modified X	Wood
CAN/ULC-S101	1 h	BASF/SI 60-04	HP+ XR, HP+ XR-S	Wood
CAN/ULC-S101	1 h	BASF/SI 60-06	-	Wood

Note [1]: CAN/ULC-S101 design listing BASF/SI 90-01 requires two gypsum boards on the interior side of the assembly for the HP+ CFR system; refer to individual design listings for differences.

Fire Rated Applications

CAN/ULC-S101 Assembly

BASF HP+ CFR Systems that Comply- Steel frame

Test Standard	Fire Resistance Rating	Design Number	BASF System Designation	Framing
CAN/ULC-S101	1 h	BASF/SI 60-05	-	Steel
CAN/ULC-S101	90	BASF/SI 90-01	HP+ CFR[1]	Steel

Note [1]: CAN/ULC-S101 design listing BASF/SI 90-01 requires two gypsum boards on the interior side of the assembly for the HP+ CFR system; refer to individual design listings for differences.

Fire Rated Applications

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TECH TIP # 22
Fire-Resistant Rated Construction Assemblies

Fire-resistance rated construction designs are required in some residential single-family home, multi-family structures (aka MDU or Multi-dwelling units), and most commercial building applications to separate adjacent spaces, safeguarding against the spread of fire to, within, or from other buildings. The use of foam plastics including spray polyurethane foam (SPF) in these designs requires specific testing and compliance to be utilized in a code-compliant manner. This is specifically called out in Chapter 26 of the International Building Code (IBC), and Section R316 of the International Residential Code (IRC)

The fire resistance rating is the amount of time an assembly or component maintains the ability to withstand fire exposure. BASF holds a variety of fire-resistance rated assemblies with times ranging from 45-min to 4-hours in the Underwriters Laboratories (UL) Directory – **there are a total of 25 UL-rated wall assemblies and 16 floor-ceiling assemblies listed for BASF, as outlined on the following tables.**

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Fire Rated Applications

Updated: 22/04/2025

UL Directory - ANSI / UL263 / CAN/ULC-101 (ASTM E119)

Steel Studs with Brick Veneer Assembly #	Currently Available BASF Systems Approved	Load Bearing or Non-Load Bearing	Fire Rating	Fire Exposure	SPF Location
U425	Enertite® G, Enertite® Max Walltite® Max, Walltite® LWP, Walltite® V.5	Bearing	3/4 hr to 2 hr	Both Options	Exterior
V454	Enertite® G, Enertite® Max Walltite® Max, Walltite® LWP, Walltite® V.5	Bearing or Non-Bearing	1 hr	Asymmetrical	Stud Cavity
V495	Enertite® G, Enertite® Max Walltite® Max, Walltite® LWP, Walltite® V.5	Non-Bearing	3 hr	Asymmetrical	Stud Cavity or Masonry Cavity
W417	Enertite® G, Enertite® Max Walltite® Max, Walltite® LWP, Walltite® V.5	Non-Bearing	1 hr	Asymmetrical	Stud Cavity
W421	Enertite® G, Enertite® Max Walltite® Max, Walltite® LWP, Walltite® V.5	Non-Bearing	1 hr	Asymmetrical	Stud Cavity
W444	Enertite® G, Enertite® Max Walltite® Max, Walltite® LWP, Walltite® V.5	Non-Bearing	1 hr	Asymmetrical	Stud Cavity

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Fire Rated Applications

CAN/ULC S134 Compliant Systems

3.2.3.8. – Protection of Exterior Building Face

3.1.5.5. – Combustible Components in Exterior Walls

GOAL: To reduce the risks of a vertical fire spreading on the facade of a building (fire originating from outside or from inside spreading through an opening)

- OBC Allows the use of ccSPF with Concrete or Masonry (min 25mm) Cladding
  Or
- ***Assembly*** passing CAN/ULC-S134

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Fire Requirements Overview
CAN/ULC S134

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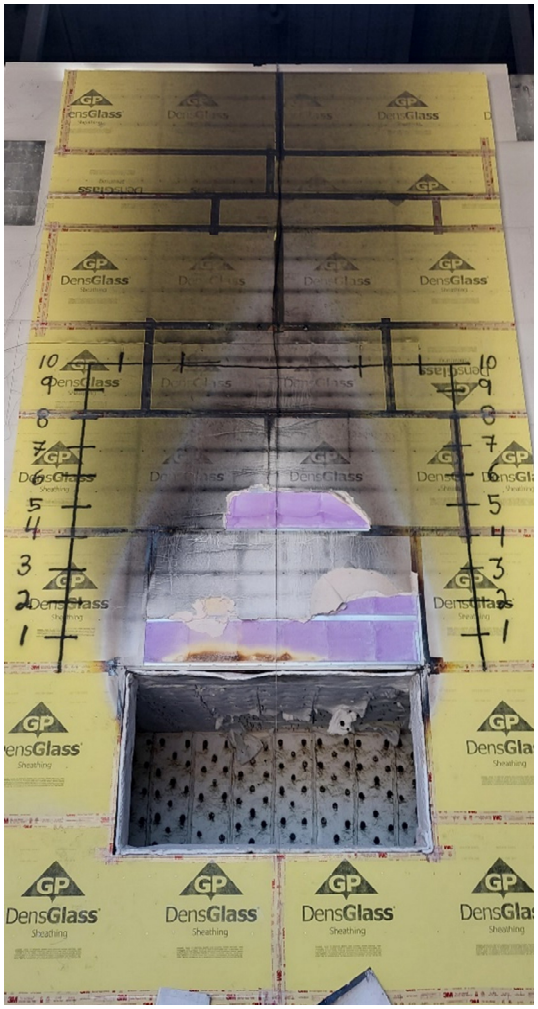
Fire Requirements Overview
CAN/ULC S134

HP+ CFR PASSES!

CAN/ULC-S134	
Acceptance Criteria	**Results**
Flame Spread Above Opening (metres max)	
5	**2**
Maximum Average Heat Flux kW/m2	
35.00	**16.43**



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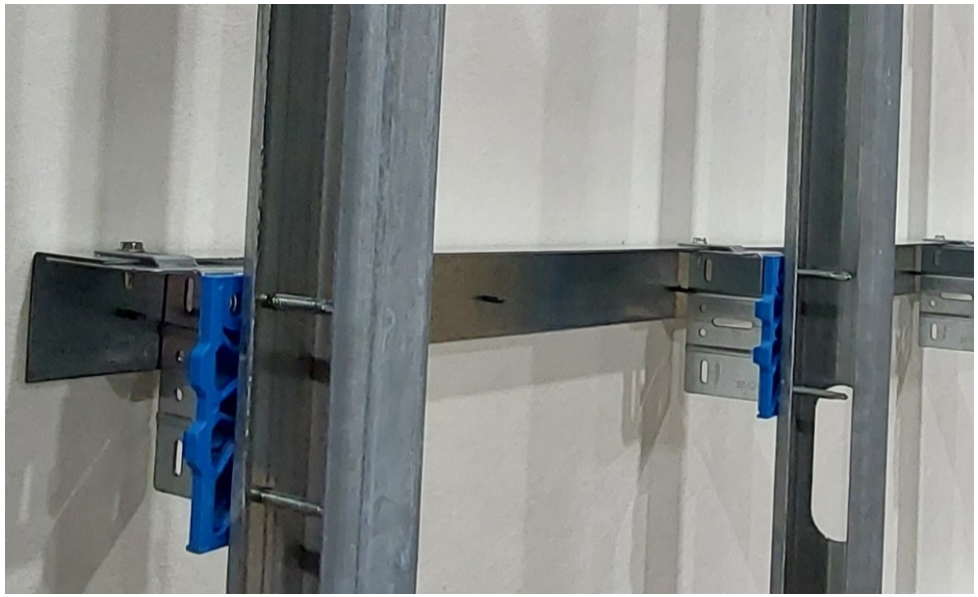
HP+ CFR Wall Assembly



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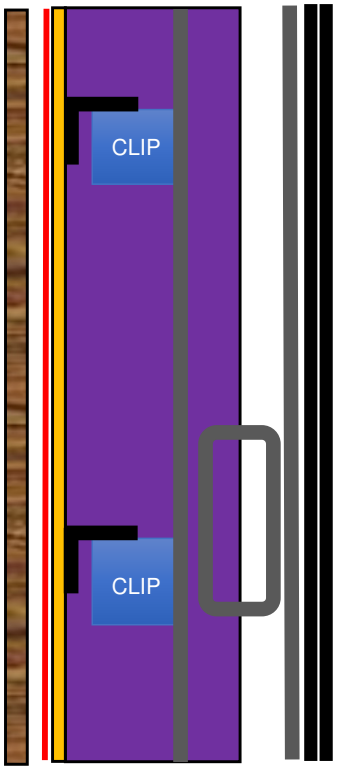
BASF HP+ CFR Systems



Compliant with CAN/ULC S134

Listing: Design No. BASF/SI 25-01

and

S101 Fire Rated for 90 Minutes

Listing: Design No. BASF/SI 90-01

Components

Interior Gypsum Wallboard: 2 layers, 15mm type X

Wall Framing: Min. 63mm, 16 GA steel studs and tracks @ 406mm

Thermal Clips: 82mm ISO Clips fastened using (2) 50mm screws. Space @406mm oc vertically and horizontally

Metal Angle: 50mm X 50mm, 16 GA steel angle

Exterior Sheathing: 15mm GMGB (Densglass)

Sheathing Seam Tape (3M Fire and Water tape)

Membrane- Vapour Permeable

Insulation: WALLTITE CM01 or XL01,

Total Thickness: 152mm max.

In Stud Cavity: 63mm

In the plane of the Thermal Clips: 89mm

Air Space

Cladding: Non-combustible as per CAN/ULC S114

BASF HP+ CFR Systems

Effective R Value

WALLTITE v.5 (mm)	Effective (R)
127	21
140	21.9
152	23.1

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BASF HP+ CFR Systems

Benefits vs Non Combustible Insulation (Mineral Fibre)

PERFORMANCE

- ✓ High effective R value
- ✓ Low Embodied Energy; GWP/Carbon Footprint
- ✓ Reduced thickness of wall; greater usable floor space
- ✓ Light Weight
- ✓ Code Compliant; Fire Rated and S134 Compliant
- ✓ Cost Competitive

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Take Aways

- ccSPF provides high R value insulation and is supported by third party QAP Provider.
- Versatile; Above grade, below grade, overhead, buried
- Sustainable; Low GWP vs XPS and Mineral Fibre
- **Some** ccSPF provide Air Barrier system, Radon Barrier, Fire Rated Systems
- Write clear concise specs and confirm products that are included have the needed credentials (UL Reports..) and do not state “or equal”.
- Prequalify ccSPF Installers and hold a prebid meeting to communicate expectations (DWR..).

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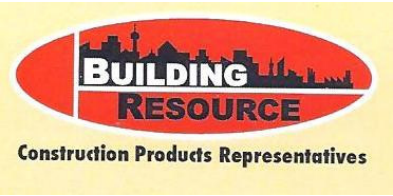
walltite.com

buildingresource.ca

michael@buildingresource.ca



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