

02.02.2022

D-Max Wall

Advantages compared to exterior insulation

- Can be sprayed regardless of temperature or wind (as low as 15°F)
- No scaffolding or vessel necessary. Less machinery therefore less rental cost, logistics and risk of accident.
- Building insulation can be performed as the walls go up.
- Less materials therefore time and cost savings for execution.
- Important heating cost savings in winter.
- Meets fireblocking requirements for concealed wall spaces. IBC Section 718.2.
- NFPA 285 Compliant.
- Sequencing of work simpler and easier to manage for the superintendent since there are less workers to execute each step.
- Avoids overspray.
- Avoids having to install an interior furring in comparison with a fiberglass insulated cavity where the electricity cannot run through the stud cavity.

Typical D-Max Wall Assembly:

- Lightweight or brick siding
- Omega bars or brick ties
- Exterior 5/8" sheathing with taped joints or full surface air barrier membrane (Tyvek or others)
- Heatlok HFO Pro (variable thickness)
- Z girts (variable thickness)
- Steel stud 6" or 3 5/8"
- Interior gyprock

PARTIAL LIST OF D-MAX PROJECTS

Name of Project
Completed
Le Saint-Philippe
Bâtiment K
Le Nicolas
Saphir
Liénard
Le Guillaume
Archipel
Huma 2
To Come
Circa Condo
800 Charest
Lokia
Réseau Sélection Mirabel
Viridi
Novit
Père Le Lièvre
Sir John
Maison de femmes autochtones
Satori
Lab École-Gatineau
Ilot St-Charles
District Concorde (3 tours)
Mgr Plessis
Capella
Newman RPA Ph2
Maestria tour 1 (alcove)
Maestria tour 2 (alcove)
Maison Benoit Labre
Concordia
Symposium
Medway (800 route des rivières)
Place Frontenac
Alternative D-Max Projects
Château Bellevue 2
Les Loges 6
Le Fleurimont
Huma 1

3315 E. Division Street, Arlington, TX 76011 Tel: 817.640.4900 888.224.1533 www.huntsmanbuildingsolutions.com



Nicolas Project



K Building Project

Saint-Philippe Project



















D-MAX WALL

BEFORE THE START OF CONSTRUCTION OF THE WALL ASSEMBLY, A START-UP MEETING IS STRONGLY RECOMMENDED WITH THE DIFFERENT PROFESSIONALS TO COORDINATE CONSTRUCTION STEPS AND DETAILS. WE ARE AVAILABLE FOR THIS MEETING.

- 1) THE ADVANTAGE OF THIS WALL SECTION IS A MAXIMUM EFFECTIVE R VALUE IN A VERY THIN WALL. THIS INCREASES THE INHABITABLE FLOOR SPACE. THE STEEL STUD CAN BE 3-5/8 IN OR 6 IN DEPENDING ON THE DESIGNER'S CHOICE.
- 2) THIS WALL SECTION ALLOWS THE APPLICATION OF THE INSULATION FROM THE INTERIOR, SHELTERED FROM THE WEATHER AND WITHOUT SCAFFOLDING.
- 3) THE OUTER Z GIRT'S THICKNESS IS VARIABLE FROM 1 IN TO 4 IN ACCORDING TO THE DESIRED EFFECTIVE R VALUE AND DESIGN CHOICES.
- 4) A MINIMUM THICKNESS OF 1.5 IN AND A MAXIMUM OF 3 IN IS RECOMMENDED TO COVER THE OUTER Z GIRTH FROM INSIDE TO CUT THE THERMAL BRIDGE.
- 5) HUNTSMAN BUILDING SOLUTIONS IS AVAILABLE FOR REVIEWING PROJECT DETAILS, FOR A COORDINATION MEETING AT THE BEGINNING OF THE PROJECT AND FOR SITE INSPECTIONS DURING THE WORKS.

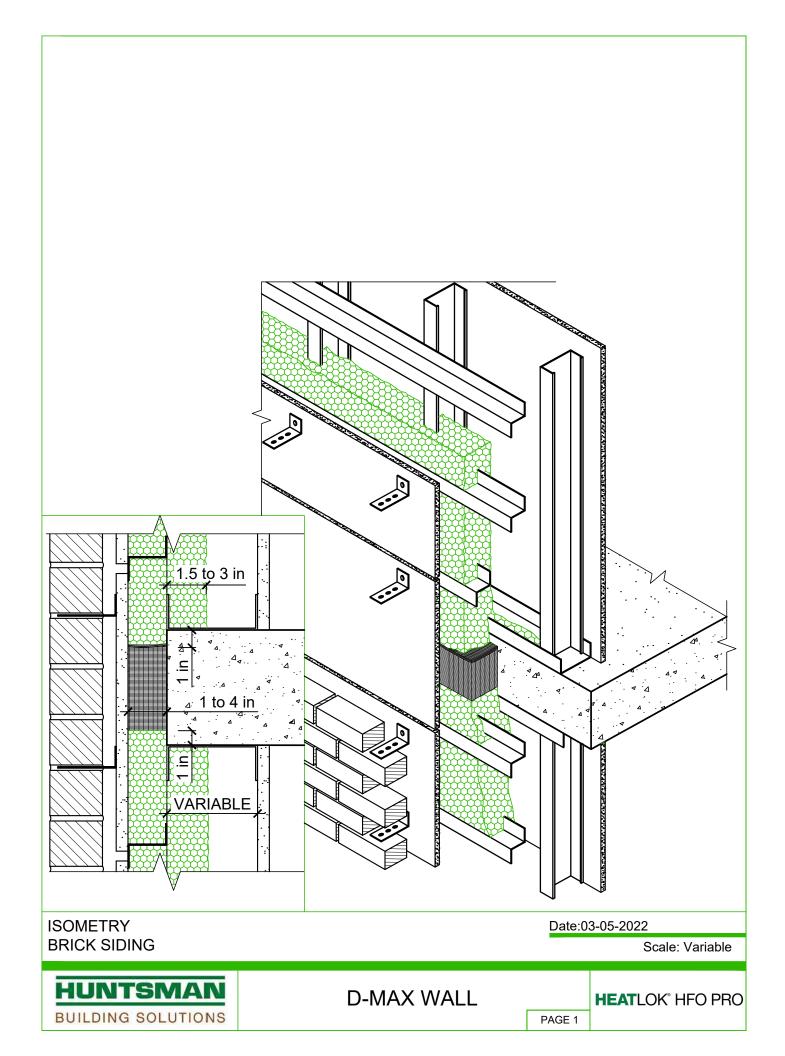
NOTES

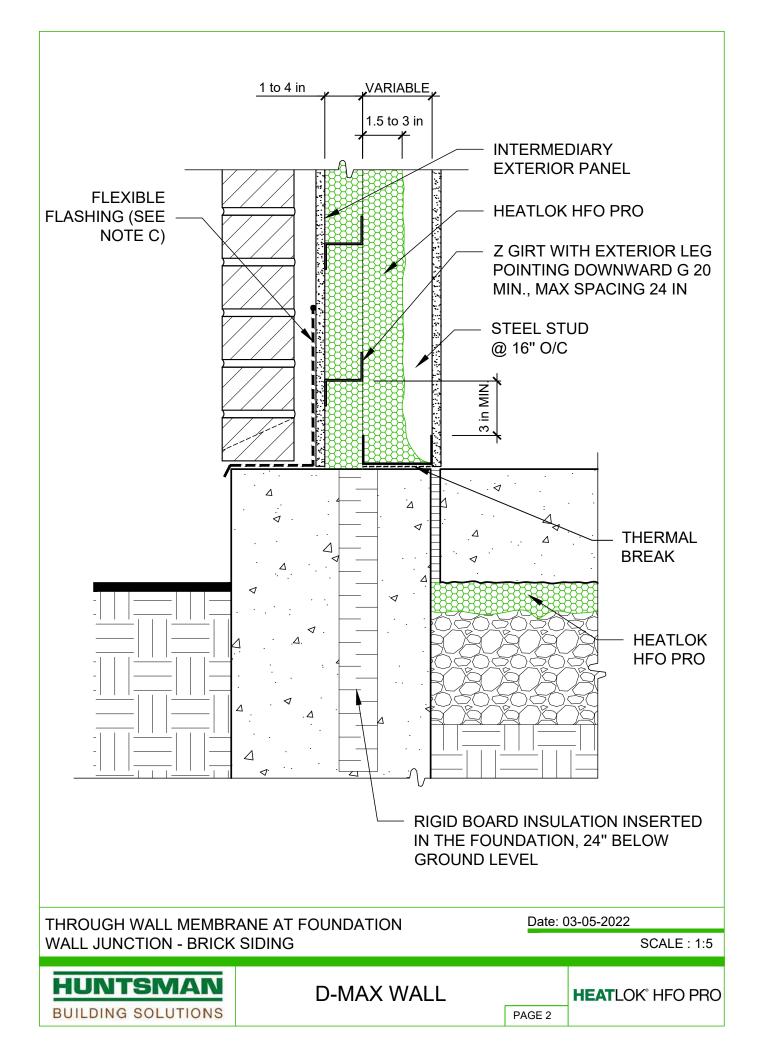
- A THE FLEXIBLE FLASHING ABOVE OPENINGS MUST EXCEED 8" MIN. ON BOTH SIDES OF THE OPENING
- B RAISE THE SELF-ADHESIVE MEMBRANE 3" ON THE JAMB
- MEMBRANES MUST BE INSTALLED ACCORDING TO MANUFACTURERS' REQUIREMENTS

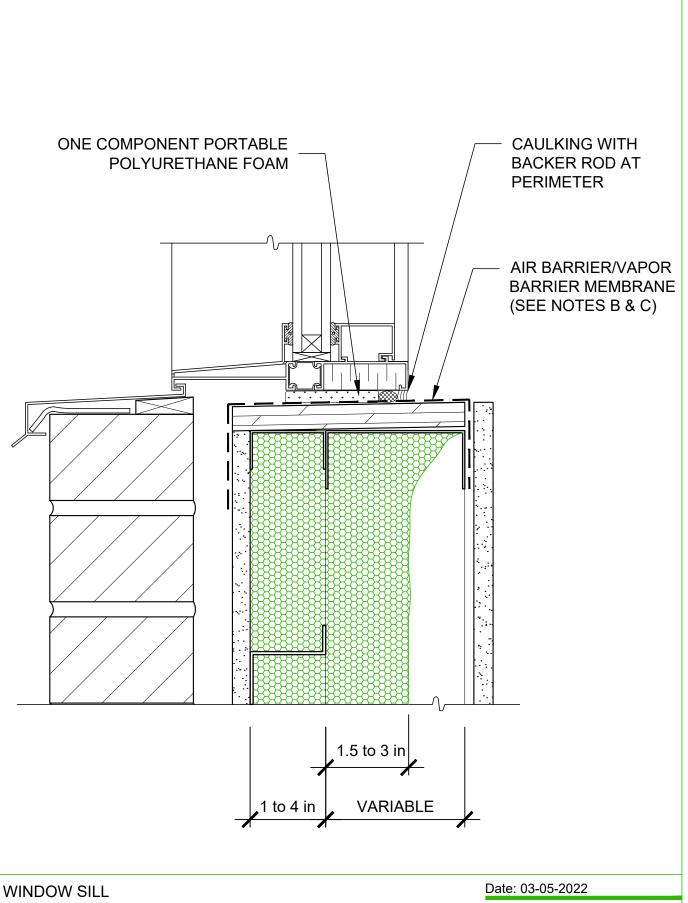
NOTES: A FULL SURFACE MEMBRANE CAN BE USED DEPENDING ON THE DESIGNER'S CHOICE (NON ILLUSTRATED)

Date: 03-05-2022









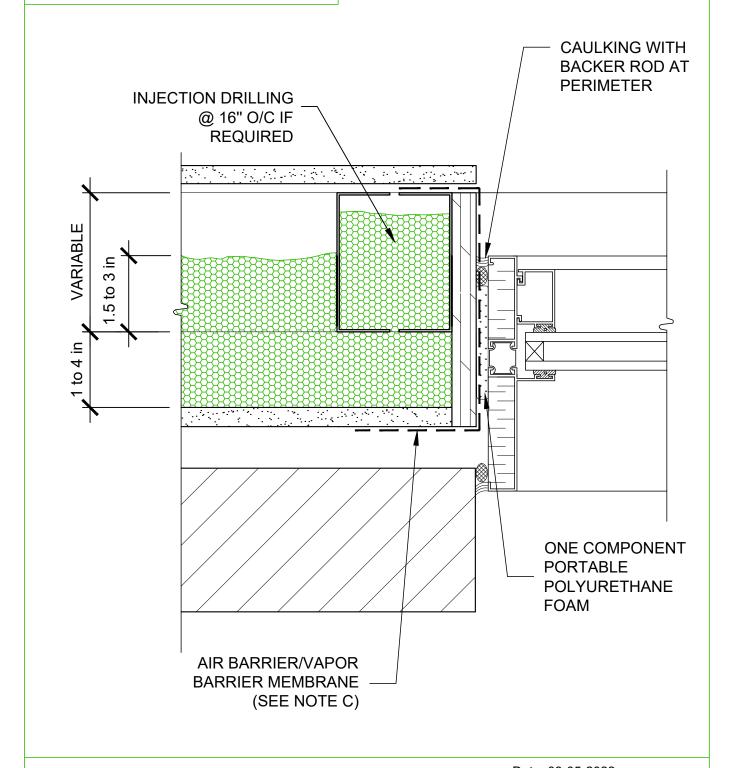
BRICK SIDING

SCALE: 1:2.5



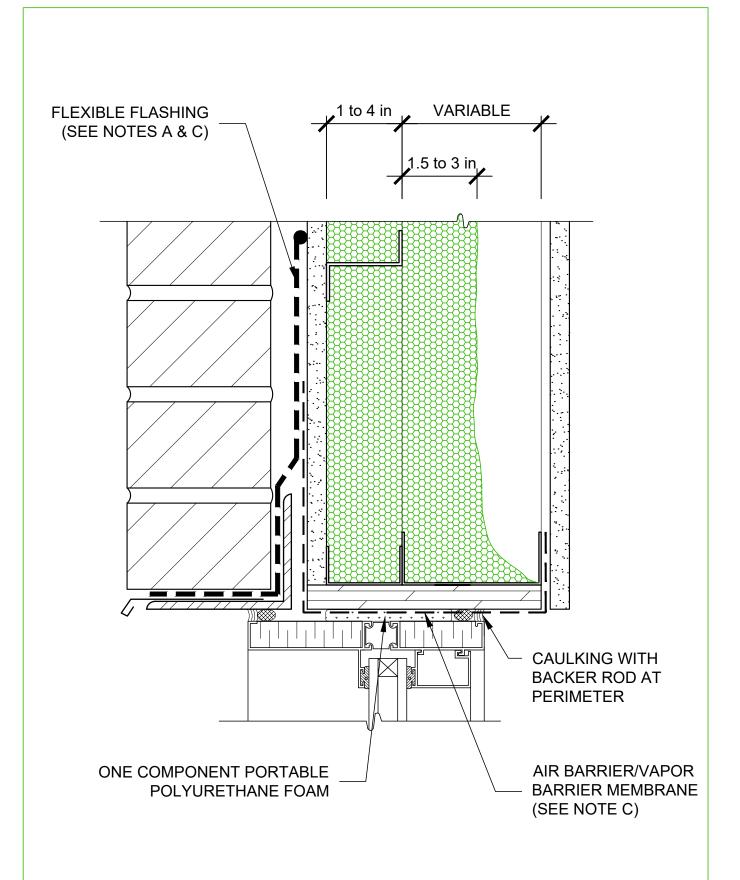
D-MAX WALL

NOTE: FOR SUPPORT PURPOSES AT OPENINGS, THE WINDOW SUPPORT POSTS MAY BE DOUBLED AND INJECTED WITH HEATLOK HFO PRO.



WINDOW JAMB BRICK SIDING Date: 03-05-2022





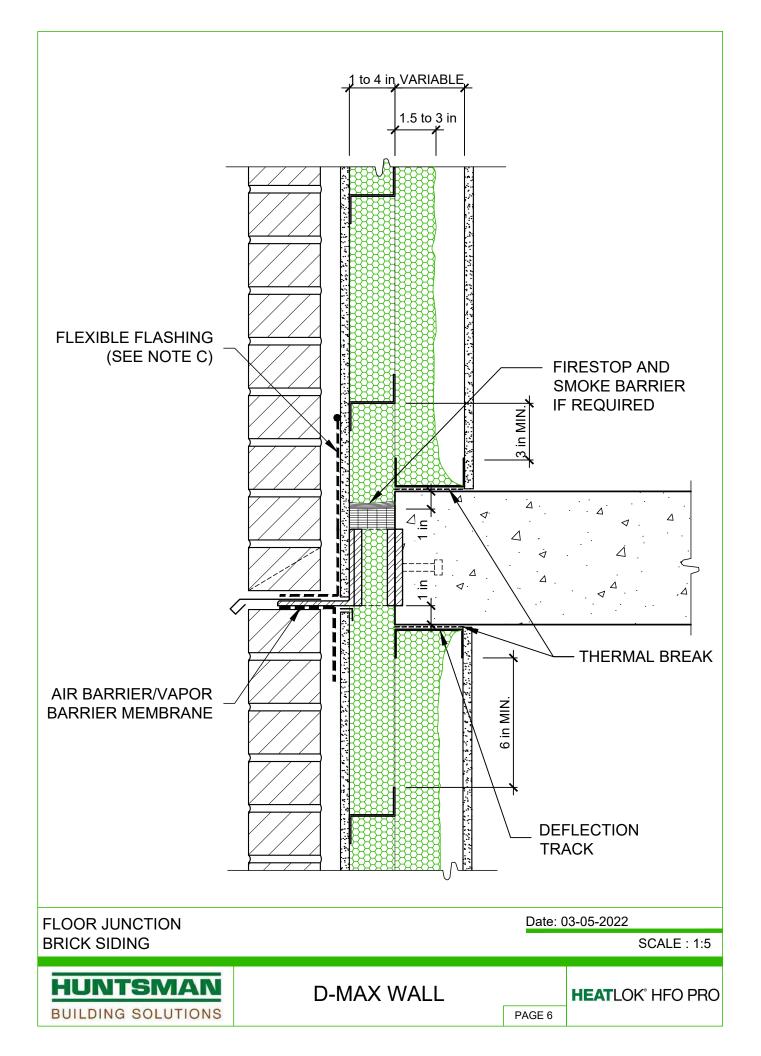
TOP OF WINDOW BRICK SIDING

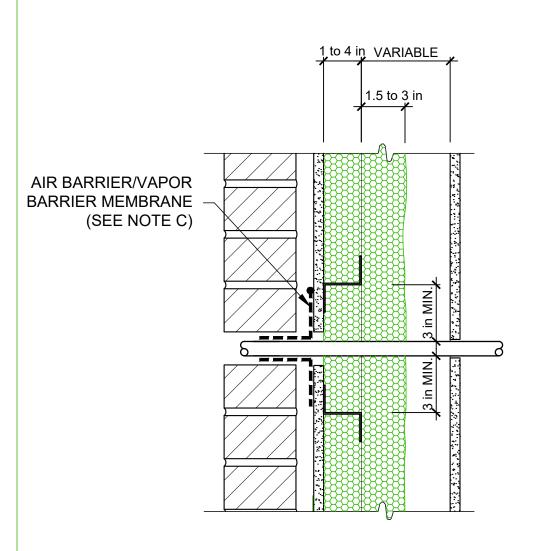
Date: 03-05-2022

SCALE: 1:2.5



D-MAX WALL



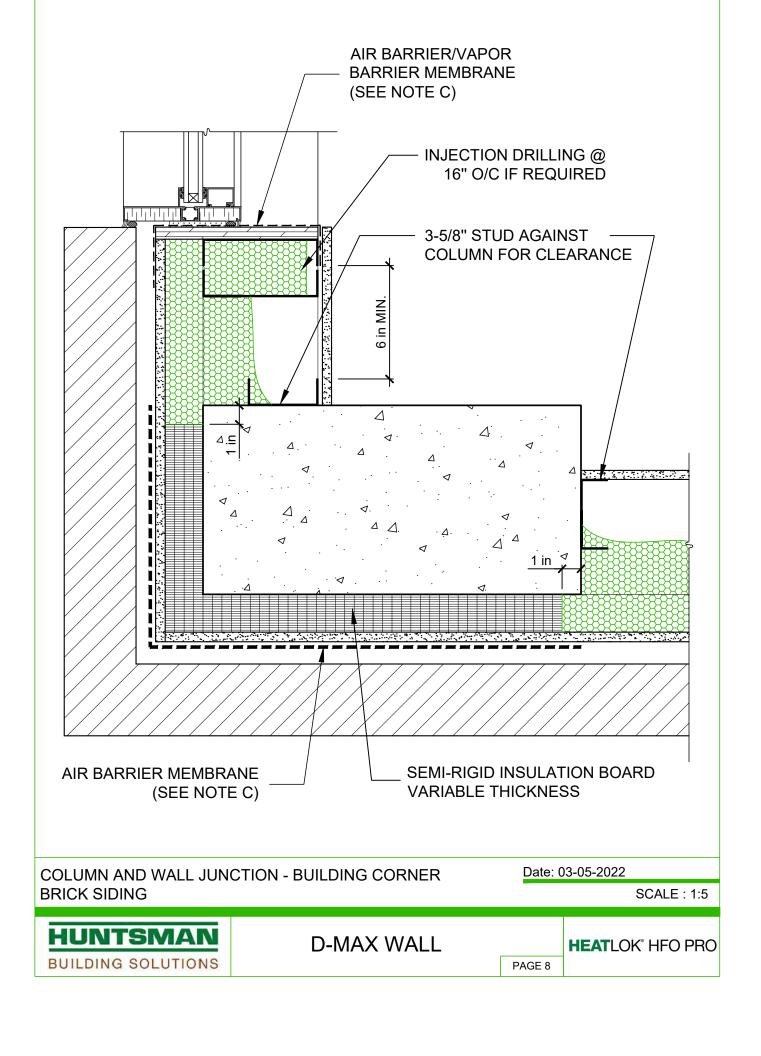


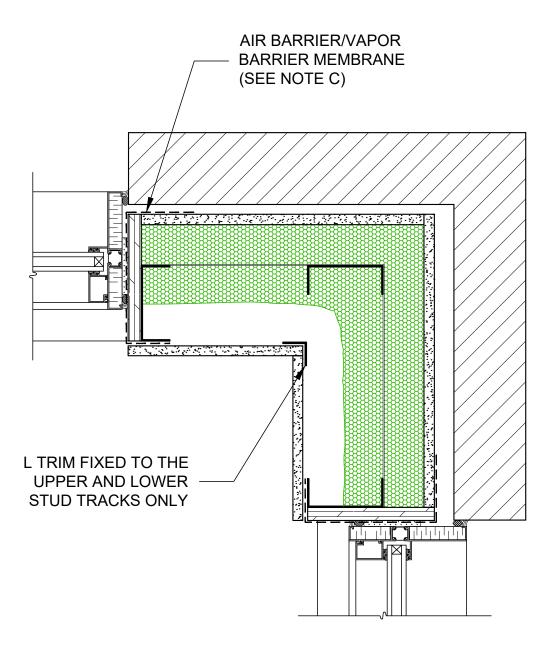
DETAIL AT WALL PENETRATION BRICK SIDING

Date: 03-05-2022

SCALE: 1:5







BUILDING CORNER STUD PLACEMENT BRICK SIDING

Date: 03-05-2022

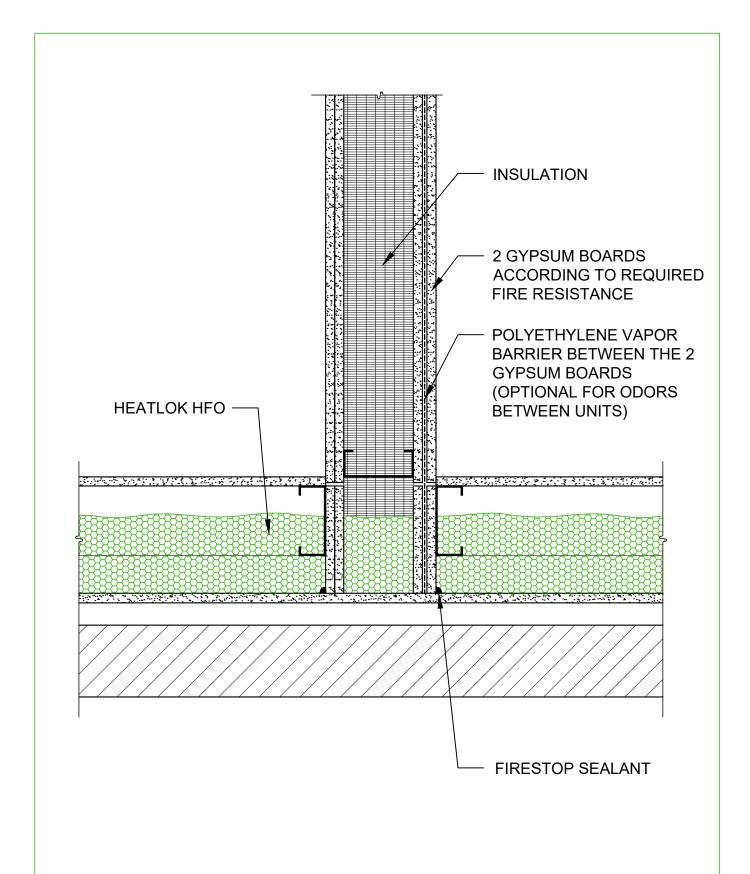
SCALE: 1:5



D-MAX WALL

HEATLOK® HFO PRO

PAGE 9



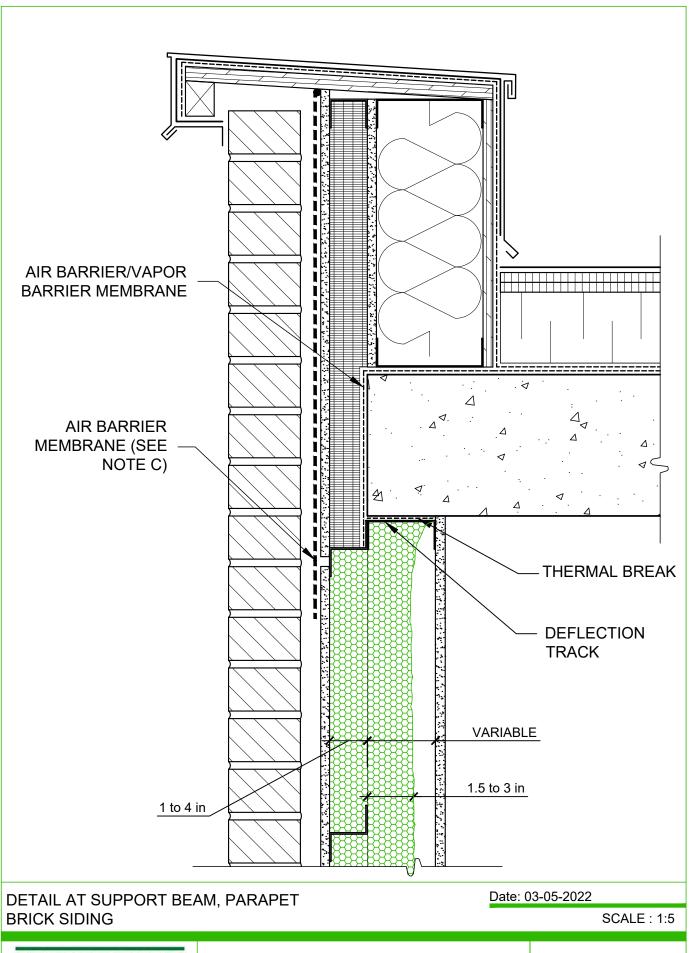
FIRE SEPARATION BRICK SIDING

Date: 03-05-2022

SCALE: 1:5

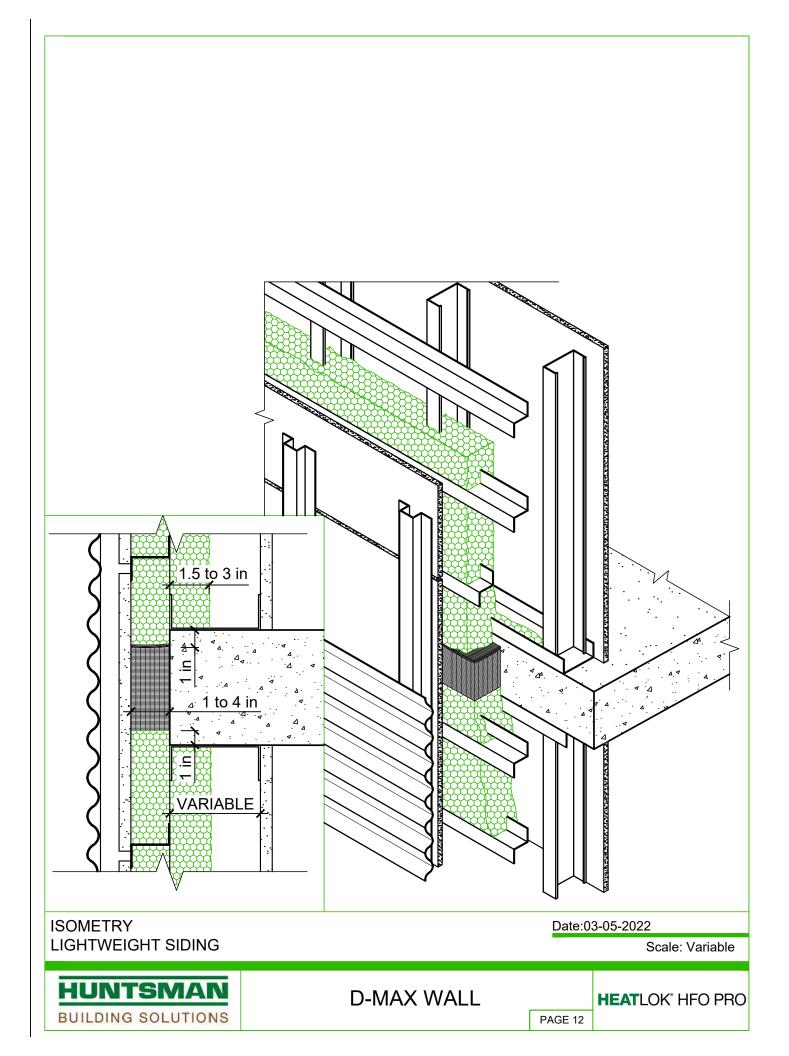


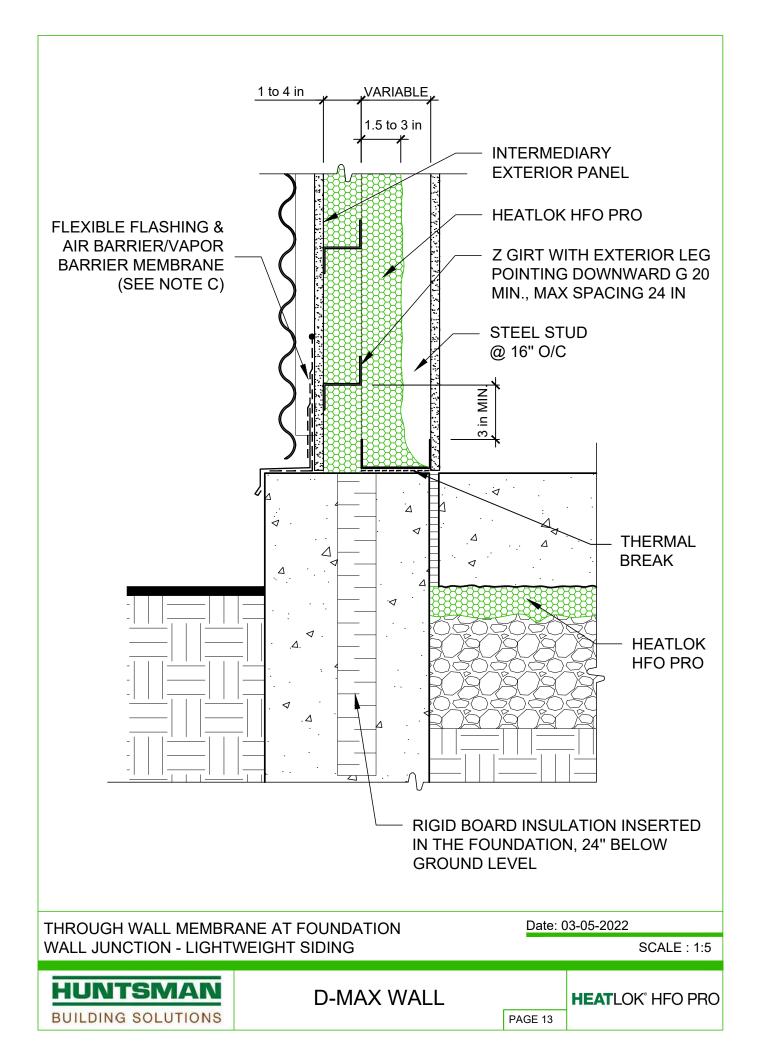
D-MAX WALL

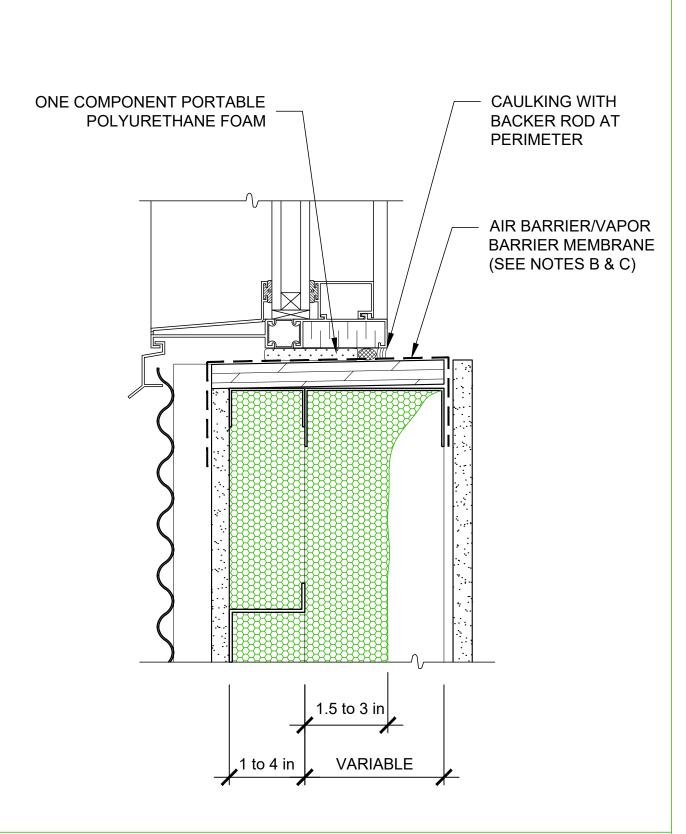


HUNTSMAN
BUILDING SOLUTIONS

D-MAX WALL



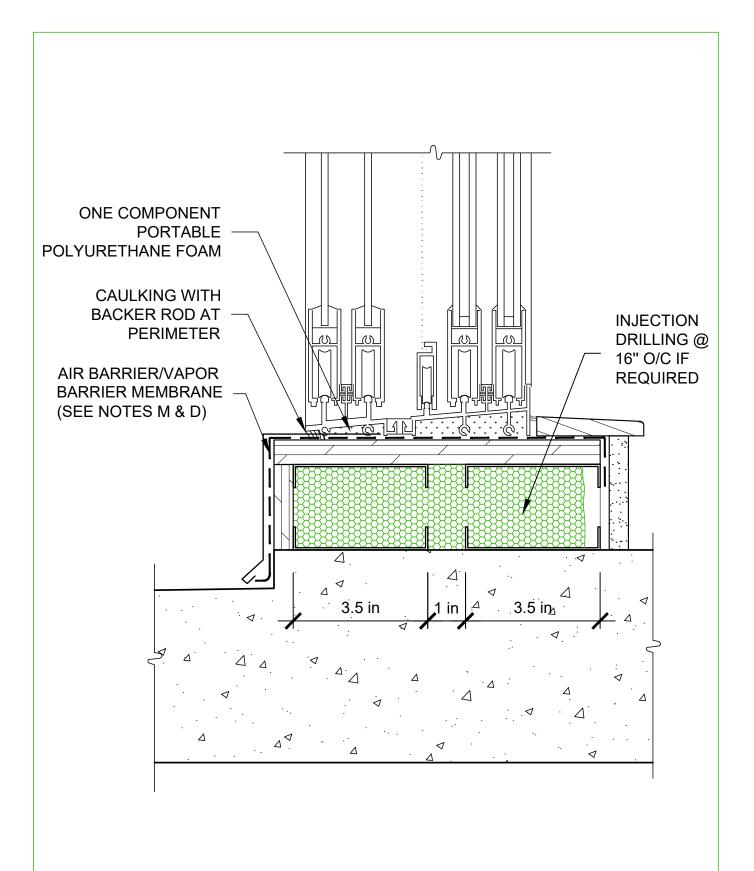




WINDOW SILL LIGHTWEIGHT SIDING

Date: 03-05-2022



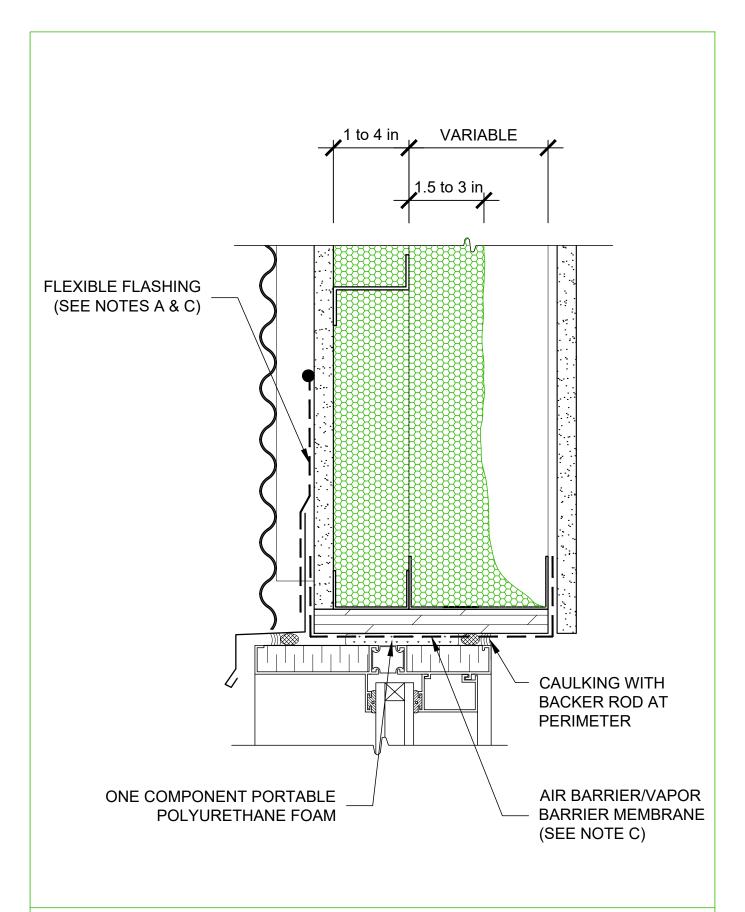


PATIO DOOR SILL LIGHTWEIGHT SIDING Date: 03-05-2022



NOTE: FOR SUPPORT PURPOSES AT OPENINGS, THE WINDOW SUPPORT POSTS MAY BE DOUBLED AND INJECTED WITH HEATLOK HFO PRO. **CAULKING WITH BACKER ROD AT PERIMETER** INJECTION DRILLING @ 16" O/C IF REQUIRED VARIABLE .5 to 3 in .⊑ to 4 ONE COMPONENT **PORTABLE POLYURETHANE FOAM** AIR BARRIER/VAPOR BARRIER MEMBRANE (SEE NOTE C) Date: 03-05-2022 **WINDOW JAMB** LIGHTWEIGHT SIDING SCALE: 1:2.5 HUNTSMAN **D-MAX WALL HEATLOK® HFO PRO**

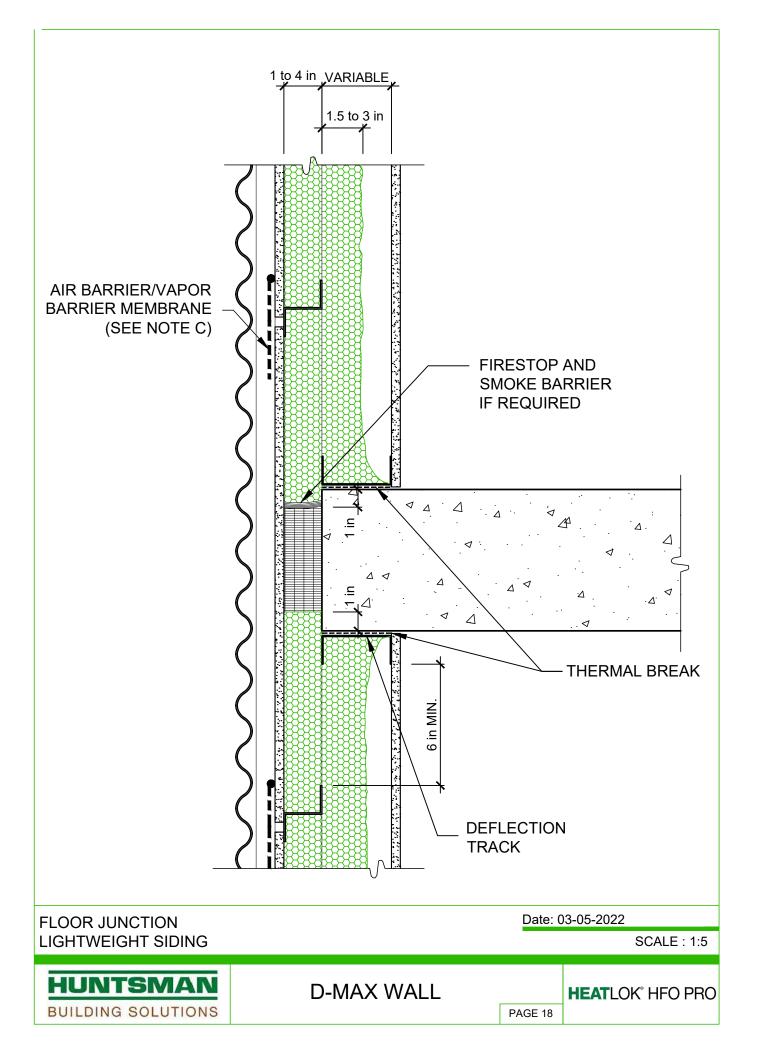
BUILDING SOLUTIONS PAGE 16

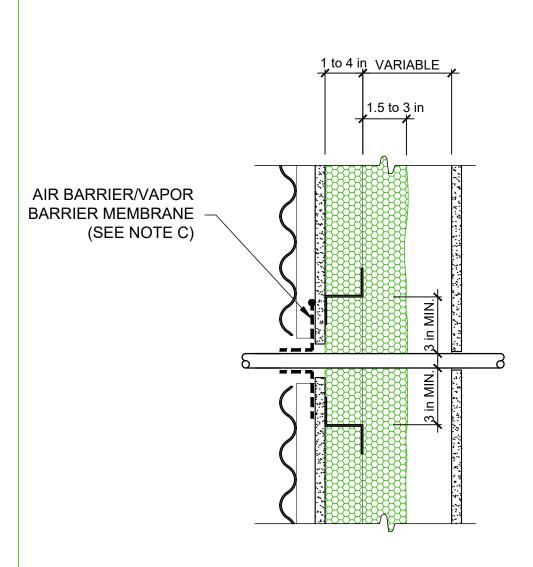


TOP OF WINDOW LIGHTWEIGHT SIDING

Date: 03-05-2022





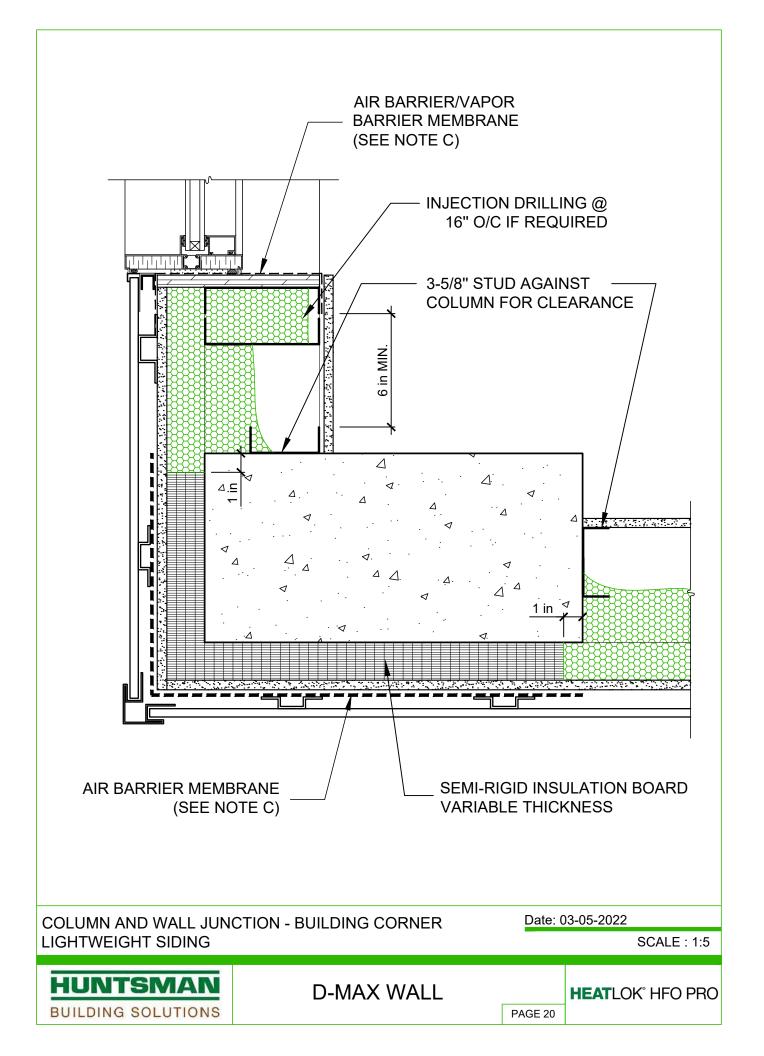


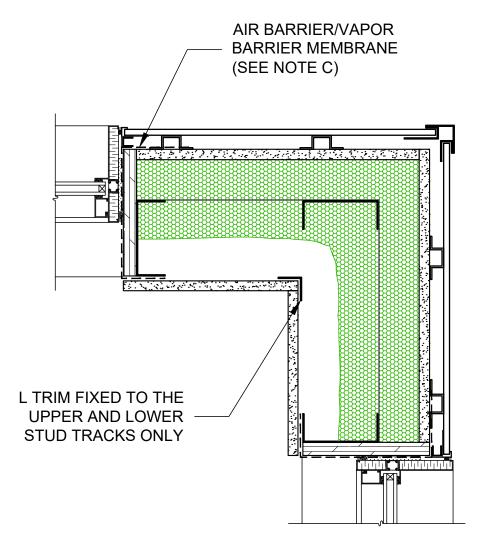
DETAIL AT WALL PENETRATION LIGHTWEIGHT SIDING

Date: 03-05-2022

SCALE: 1:5







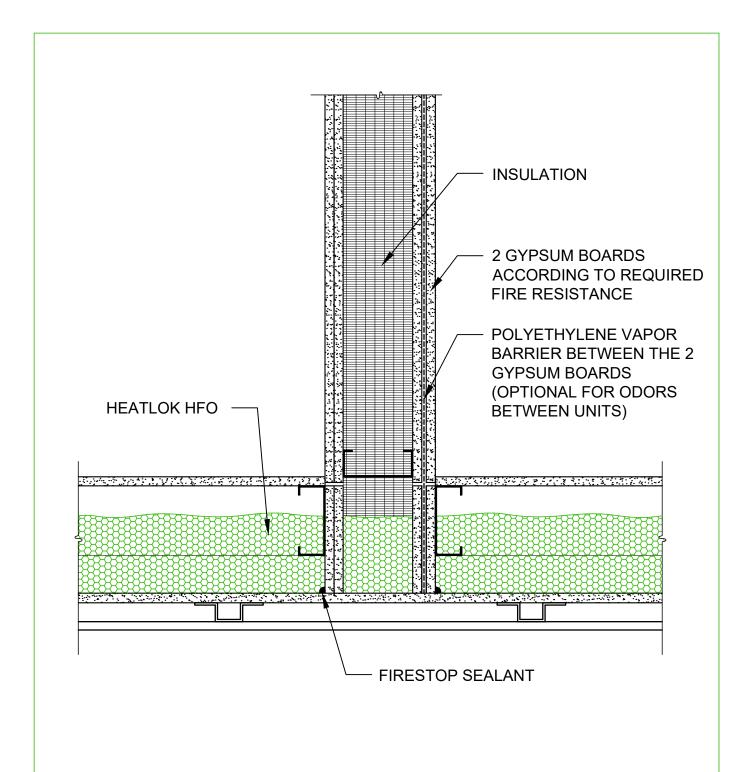
BUILDING CORNER STUD PLACEMENT LIGHTWEIGHT SIDING

Date: 03-05-2022

SCALE: 1:5



D-MAX WALL

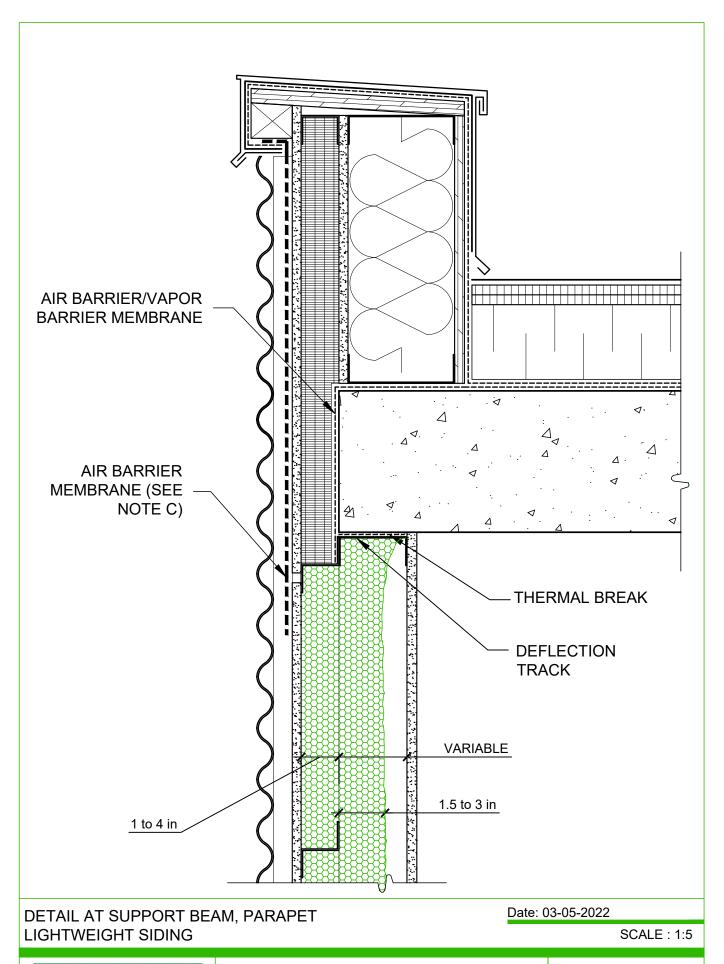


FIRE SEPARATION LIGHTWEIGHT SIDING

Date: 03-05-2022

SCALE : 1:5







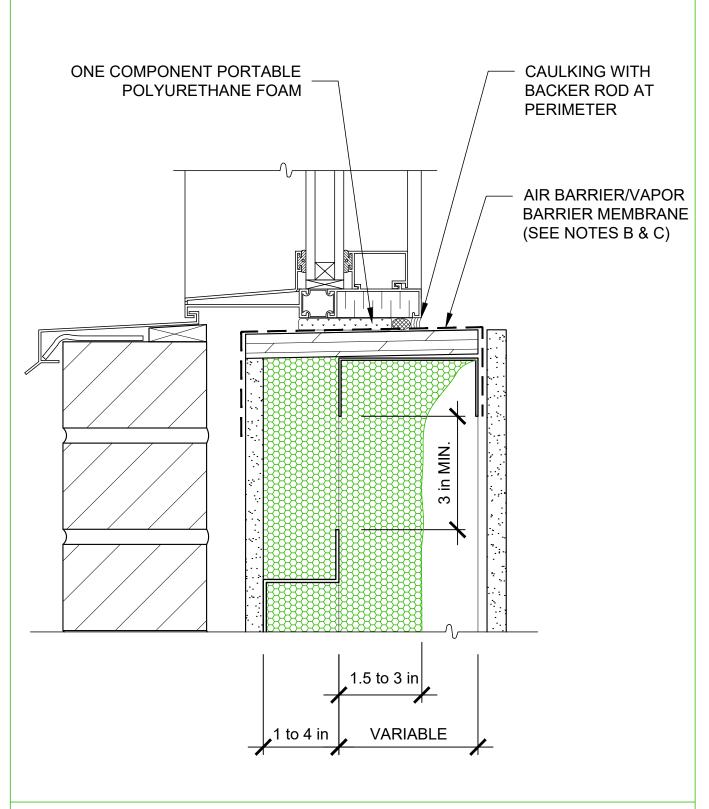
D-MAX WALL

OPTIONS

Date: 03-05-2022



OPTION



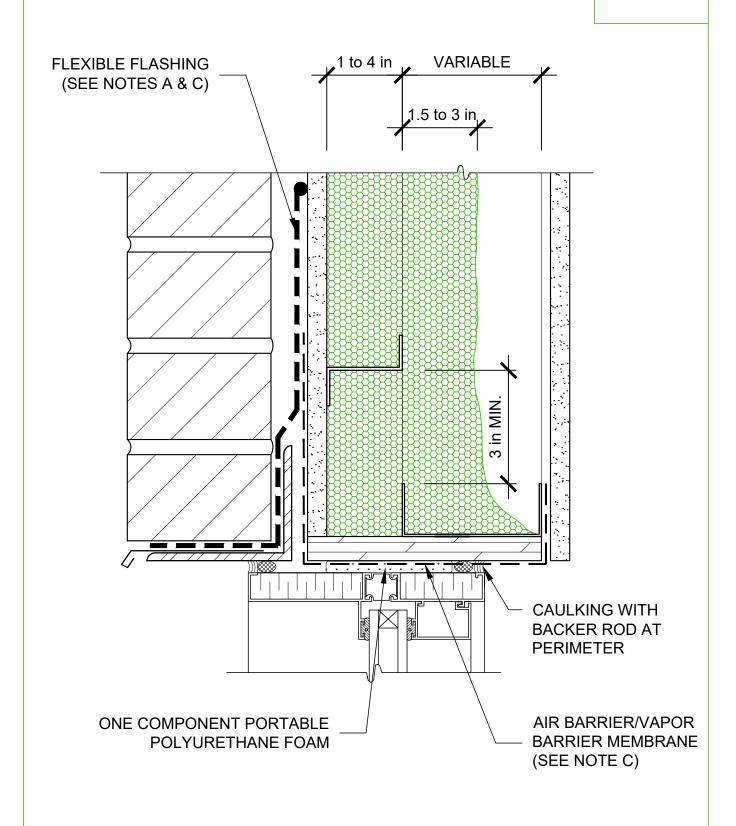
WINDOW SILL BRICK SIDING

Date: 03-05-2022



NOTE: FOR SUPPORT PURPOSES AT **OPTION** OPENINGS, THE WINDOW SUPPORT POSTS MAY BE DOUBLED AND INJECTED WITH HEATLOK HFO PRO. **CAULKING WITH BACKER ROD AT PERIMETER** INJECTION DRILLING @ 16" O/C IF REQUIRED VARIABLE .5 to 3 in to 4 in ONE COMPONENT **PORTABLE POLYURETHANE FOAM** AIR BARRIER/VAPOR BARRIER MEMBRANE (SEE NOTE C) Date: 03-05-2022 **WINDOW JAMB BRICK SIDING** SCALE: 1:2.5 HUNTSMAN **D-MAX WALL HEATLOK® HFO PRO BUILDING SOLUTIONS** PAGE 26

OPTION



TOP OF WINDOW BRICK SIDING

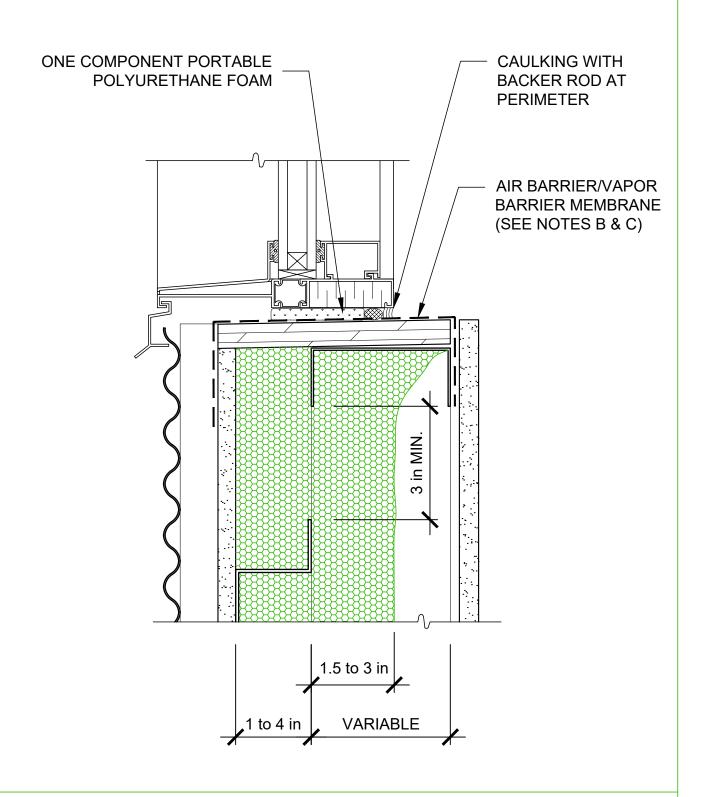
Date: 03-05-2022

SCALE: 1:2.5



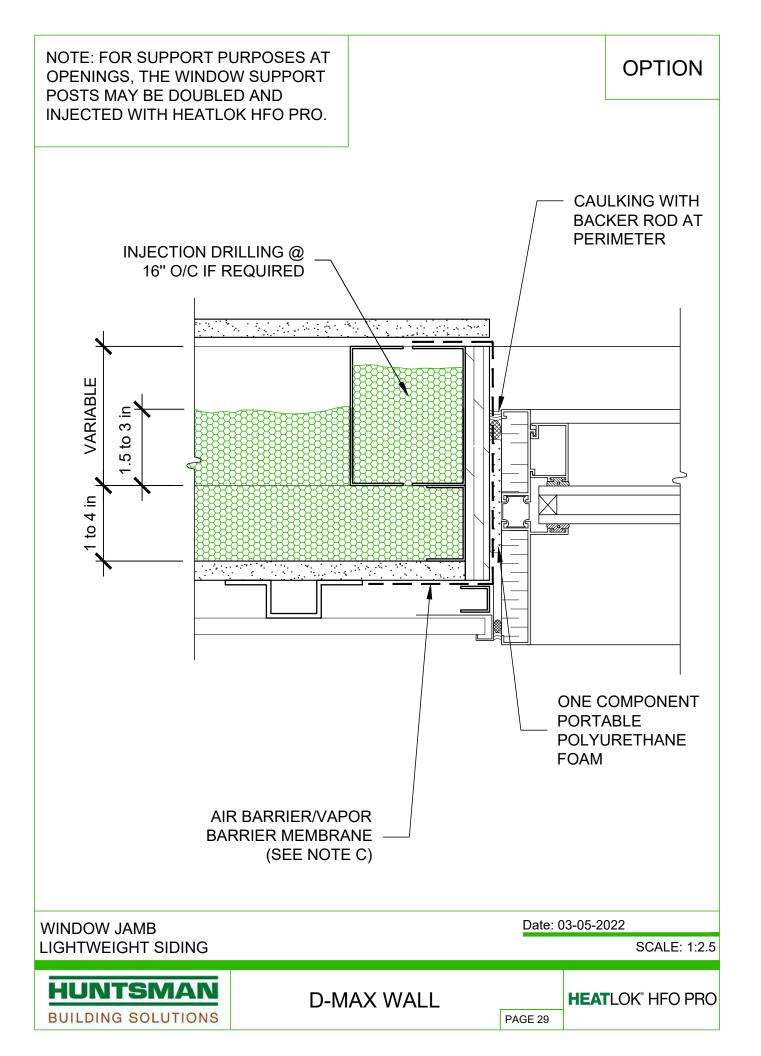
D-MAX WALL

OPTION

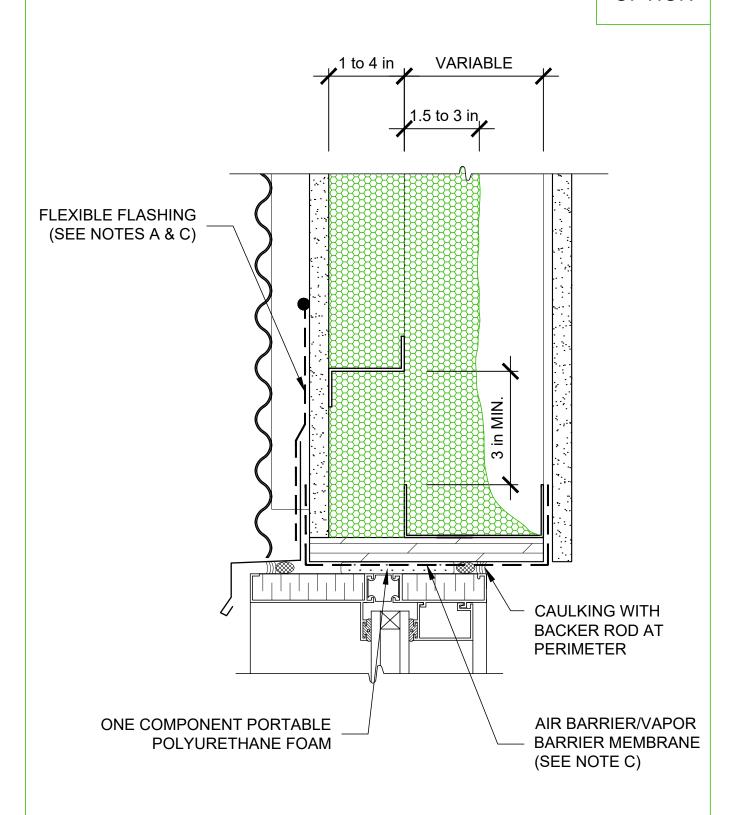


WINDOW SILL LIGHTWEIGHT SIDING Date: 03-05-2022





OPTION

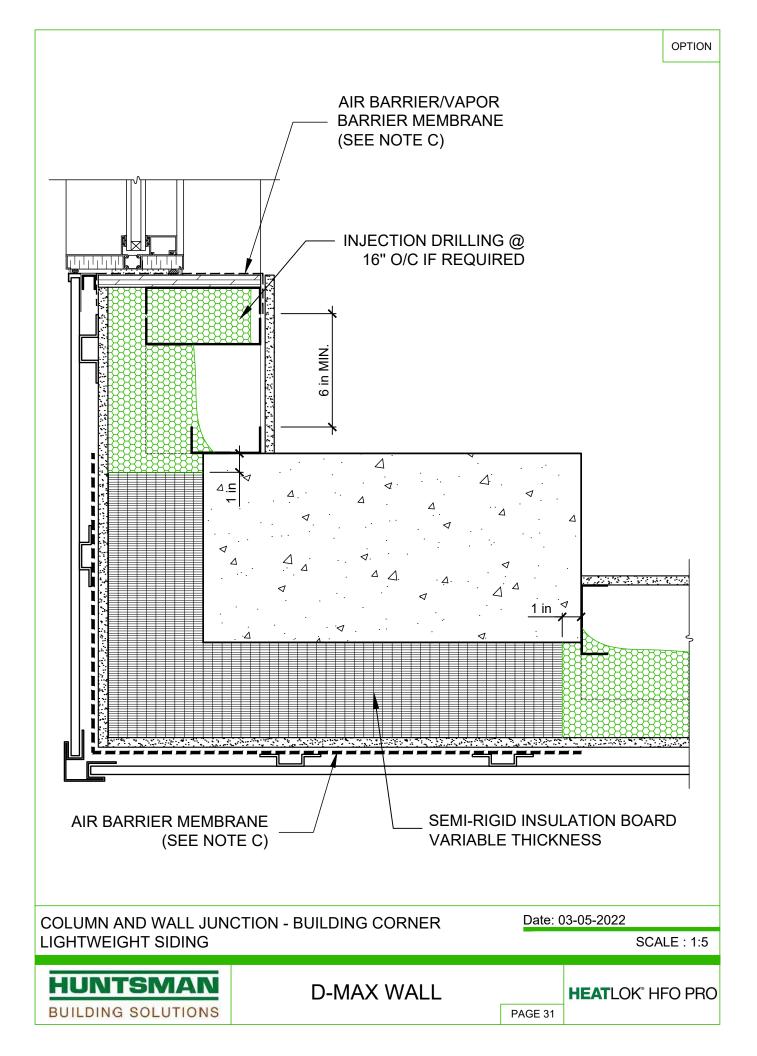


TOP OF WINDOW LIGHTWEIGHT SIDING

Date: 03-05-2022

SCALE: 1:2.5









A/S Maxime Duzyk Demilec 870, Curé Boivin Boisbriand, Québec J7G 2A7

Project: Z Bar wall section -- Demilec

As per your request and our discussions, you will find below our preliminary recommendation concerning the required Z bar thickness spaced at 24" c/c for different depth that varies from 1" to 5".

Design dead load: 6 lb/ft²

Steel cladding: 1.5 lb/ft²
5/8"Glasroc pannel: 2.5 lb/ft²
Omega bar: 0.5 lb/ft²
Z bar: 0.5 lb/ft²
Insulation: 1.0 lb/ft²

Z bar thickness required according to depth

Depth from 1" to 2": 20 gage required (0.0359")
Depth from 2" to 3 1/2": 18 gage required (0.0478")
Depth from 3 1/2" to 5": 16 gage required (0.0598")

These recommendations must be confirmed by the project stud wall structural engineer. He has to consider the project wind load acting on walls and dead load. The calculation of Z bar connexion to stud wall is the responsibility of the project stud wall structural engineer.

If you have any question, do not hesitate to contact the undersigned.



Ronald Beaucage eng.
Beaucage Experts-Conseils



D-Max Wall Assembly - Thermal Resistance in accordance with ASTM C1363 and ASHRAE 1365-RP

Climate Zones	US U-Value Requirements		
	All other	Groupe R	
0 and 1	0.077	0.077	
2	0.077	0.064	
3	0.064	0.064	
4 Except Marine	0.064	0.064	
5 and Marine 4	0.055	0.055	
6	0.049	0.049	
7	0.049	0.042	
8	0.037	0.037	

	D-Max Wall Assembly - Thermal Resistance - Heatlok HFO						
Z-Bar Thickness Z-Bar Spacing		Total Thickness of Heatlok HFO Effective Thermal Resistance		U-Value			
		4.09"	19.7	0.051			
		4.55"	20.7	0.048			
	24'' c/c	5.45"	22.4	0.045			
		5.91"	23.2	0.043			
3"		6.82"	25	0.040			
		4.49"	17.8	0.056			
	16'' c/c	5.37"	19.2	0.052			
	16 C/C	6.13"	20.4	0.049			
		6.36"	20.9	0.048			
		3.41"	17.8	0.056			
		4.99"	20.7	0.048			
	24'' c/c	5.45"	21.5	0.047			
2.25"		6.36"	23	0.043			
2.25		6.82"	23.8	0.042			
		3.41"	15.6	0.064			
	16'' c/c	5.45"	18.9	0.053			
		6.59"	20.7	0.048			

^{*} With generic exterior finish (exterior finish has negligible impact on the results)

^{*} Steel studs @ 16" c/c (the thickness of the framing has negligible impact on the results)

^{*} Values for opaque wall only

D-Max Wall Assembly – Acoustical Testing



AOITC (Apparent Outside Inside Transmission Class): represents sound loss expressed in decibels (dB) depending on a source with a precise reference spectrum. This value corresponds to the difference between the sound pressure level emitted by a sound source on a facade of a building and a room inside it. Since no sound source is the same, the calculation is based on a source with virtual frequency behavior established in the E1332 standard and is done in accordance with ASTME 966.

Test	Units	Cut	Assemblies	AOITC
#1 <u>Marc-Aurèle</u> (Mineral wool)	721	M-1		42
#2 <u>Saphir</u> (D-Max Wall)	GF Bathroom	M-2	321 + 321 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 +	45

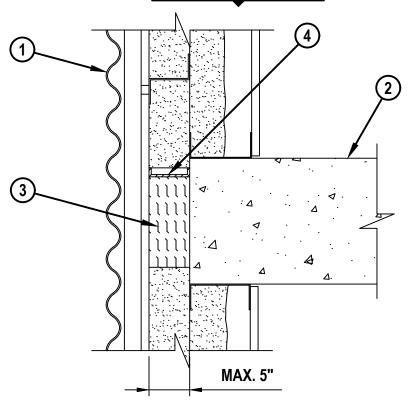
With an average difference of 3 dB, the M-2 composition can attenuate twice as much sound energy as the M-1 composition.

ENGINEERING JUDGMENT FIRESTOP DETAIL

PROJECT: D-MAX WALL

CONTRACTOR: HUNTSMAN BUILDING SOLUTIONS F-RATING = 1-HR. OR 2-HR. (SEE NOTE NO. 2 BELOW)

CROSS-SECTIONAL VIEW



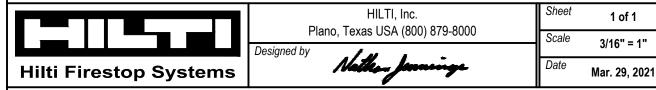
- 1. EXTERIOR DENSGLASS CURTAIN WALL ASSEMBLY WITH MAXIMUM 8" STEEL STUD FRAMING AND [OPTIONAL, NOT SHOWN] EIFS (NON FIRE-RATED).
- 2. CONCRETE FLOOR ASSEMBLY (MINIMUM 5" THICK) (1-HR. OR 2-HR. FIRE-RATING).
- 3. MINIMUM 4" THICKNESS MINERAL WOOL SAFING (MIN. 4 PCF DENSITY) COMPRESSED 33%. MINERAL WOOL MAY BE RECEESED BELOW TOP SURFACE OF FLOOR ASSEMBLY MAXIMUM 1".
- 4. MINIMUM 1/8" (WET) THICKNESS HILTI CFS-SP WB FIRESTOP JOINT SPRAY OR MINIMUM 2mm (WET) THICKNESS HILTI CFS-SP SIL FIRESTOP SILICONE JOINT SPRAY TO COMPLETELY COVER MINERAL WOOL, OVERLAPPING MINIMUM 1/2" ONTO ADJACENT ASSEMBLIES.

NOTES: 1. MAXIMUM WIDTH OF JOINT = 4".

- 2. FIRE-RATING OF ASSEMBLY IS DEPENDENT UPON THE PERFORMANCE OF CURTAIN WALL ASSEMBLY UNDER FIRE CONDITIONS.
- 3. THIS SYSTEM IS DESIGNED BASED UPON CANADIAN TEST STANDARD CAN/ULC-S115-2018 AND IN ACCORDANCE WITH ASTM E2307.

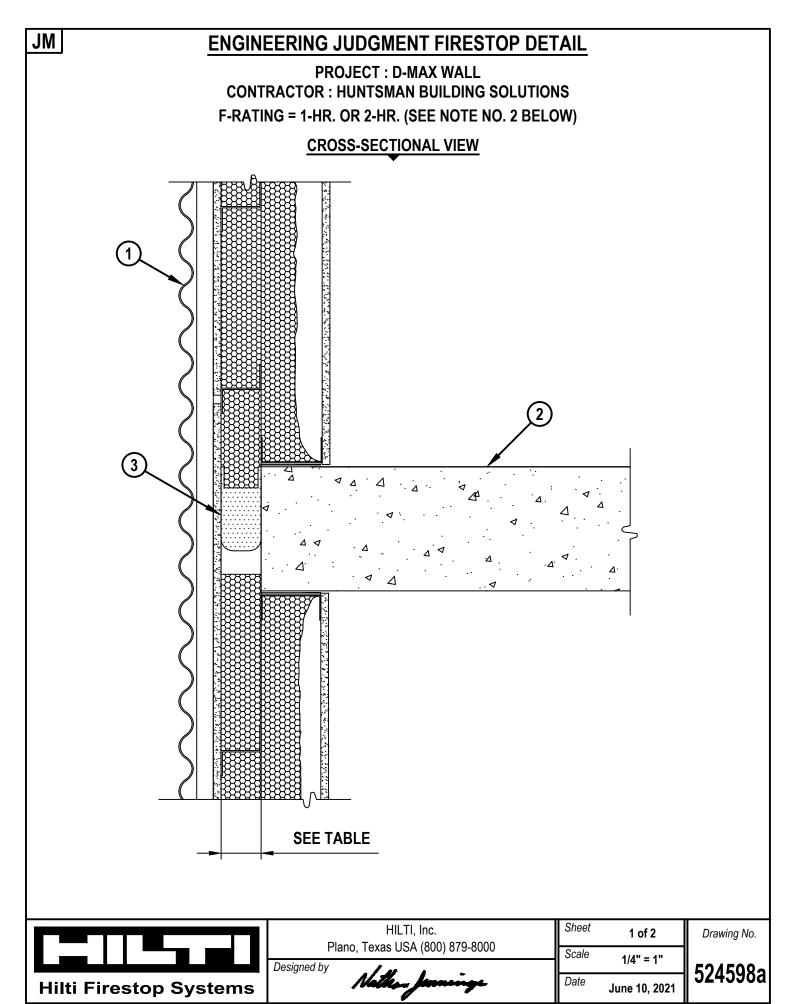
THIS ENGINEERING JUDGMENT REPRESENTS A FIRESTOP SYSTEM THAT WOULD BE EXPECTED TO PASS THE STATED RATINGS IF TESTED.

(REFERENCE: INTERTEK SYSTEM NO. HI/BP 120-04 & HI/BP 120-03)



Drawing No.

378451b



Saving Lives through Innovation and Education

JM

ENGINEERING JUDGMENT FIRESTOP DETAIL

PROJECT: D-MAX WALL

CONTRACTOR: HUNTSMAN BUILDING SOLUTIONS F-RATING = 1-HR. OR 2-HR. (SEE NOTE NO. 2 BELOW)

- 1. EXTERIOR DENSGLASS CURTAIN WALL ASSEMBLY WITH MAXIMUM 8" STEEL STUD FRAMING AND [OPTIONAL] EIFS (NON FIRE-RATED).
- 2. CONCRETE FLOOR ASSEMBLY (MINIMUM 5" THICK) (1-HR. OR 2-HR. FIRE-RATING).
- 3. COMPRESS THE APPROPRIATELY SIZED EDGE OF SLAB QUICKSEAL (CFS-EOS QS) PRODUCT (PER TABLE BELOW) INTO PERIMETER JOINT. REMOVE PAPER FROM ADHESIVE AND ADHERE FLAPS FIRMLY TO ADJACENT SUBSTRATES. SPLICES (BUTT JOINTS) IN THE LENGTH OF EDGE OF SLAB QUICKSEAL (CFS-EOS QS) ARE TO BE TIGHTLY COMPRESSED TOGETHER (MINIMUM 1/4" COMPRESSION).

PRODUCT	ALLOWABLE JOINT WIDTH		
PRODUCT	MINIMUM	MAXIMUM	
CFS-EOS QS SMALL	1-1/2"	3"	
CFS-EOS QS MEDIUM	2"	4"	
CFS-EOS QS LARGE	3"	5"	

NOTES: 1. MAXIMUM WIDTH OF JOINT = 4".

- 2. FIRE-RATING OF ASSEMBLY IS DEPENDENT UPON THE PERFORMANCE OF CURTAIN WALL ASSEMBLY UNDER FIRE CONDITIONS.
- 3. THIS SYSTEM IS DESIGNED BASED UPON CANADIAN TEST STANDARD CAN/ULC-S115-2018 AND IN ACCORDANCE WITH ASTM E2307.

THIS ENGINEERING JUDGMENT REPRESENTS A FIRESTOP SYSTEM THAT WOULD BE EXPECTED TO PASS THE STATED RATINGS IF TESTED. (REFERENCE: INTERTEK SYSTEM NO. HI/BP 120-04, HI/BP 120-03, HI/BPF 120-25 & HI/BPF 120-18)





ENGINEERING JUDGMENT FOR:
9/3/2020
Marc Simard
3M Canada Company

Project: Mur D-Max	Contractor: TBD		
Firestopping Category: Joints / Perimeter	Hourly Rating Requested / Type: 1 and 2 Hour / F		
	Obtainable Rating: *see below		
Joint Type: Perimeter	Maximum Joint Width: 4 Inch		
Curtain Wall: Exterior Grade Fiberglass Sheathed	Slab Assembly: Concrete Floor		
Gypsum Board			
Type of Movement: Dynamic			

Special Conditions: Field conditions like Intertek Design 3MU/JS 120-22 with deviation of spray foam in lieu of the optional mineral wool batt curtain wall insulation. Steel studs terminate at top and bottom of concrete floor instead of passing through joint, and are tied to exterior wall with horizontal Z-shaped framing. Firestop may be recessed up 1 in. below top surface of concrete floor.

Application Details: To firestop this application, install in accordance with Intertek Design 3MU/JS 120-22 with the following modifications/clarifications:

- 1. Install min 4 in. depth of min 4 pcf mineral wool compressed min 33% within the joint. Mineral wool may be recessed below top surface of floor assembly maximum 1 in.
- 2. Install one of the following over the mineral wool:
 - Install a 1/10 in. wet thickness of Watertight Spray or 1/8 in. wet thickness of FireDam Spray 200 over the mineral wool.
 - o Watertight Spray or FireDam Spray 200 to overlap minimum ½ in. onto all surrounding substrates.
 - Install a minimum ½ in. depth of sealant to completely cover the mineral wool. Sealant to be level with the top surface of the floor.
 - Install Fire and Water Barrier Tape to completely cover the mineral wool.
 - o Tape to overlap minimum 1 in. onto all surrounding substrates.
 - o Splices in the tape system to overlap minimum ½ in.
- 3. *The obtainable rating in this scenario is reduced to "Up to 1- or 2-hour F only or as long as the entire assembly remains fully intact in a fire scenario".

3M Fire Barrier Material: FireDam Spray 200, FB 1003SL Silicone Sealant, Fire and Water Barrier Tape, 3M Fire Barrier Watertight Spray

Based On: 3MU/JS 120-22

Additional Referenced System(s): (See Attached Drawing)

This Engineering Judgment (EJ) is based upon the sole and exclusive use of 3M brand Fire Protection Products as described within. Modification of any of the parameters of this EJ, including, without limitation, the use of non-3M brand Fire Protection Products, shall render this EJ null and void. This perimeter fire barrier design is expected to achieve the hourly rating indicated above. This engineering judgment is based on performance results obtained in testing with independent laboratories which have been tested in accordance to ASTM E 2307 and / or internal 3M fire tests, and CAN/ULC-S115.

3M Industrial Adhesive and Tapes Fire Protection Products 3M Center, Building 230-B-S-37-03

3M Center, Building 230-B-S-37-03 St. Paul, MN 55144-1000 Phone: 800-328-1687 Engineering Judgment Prepared By:

Pulfain

Paul Fannin Senior Application Engineer Reviewed By:

CAM

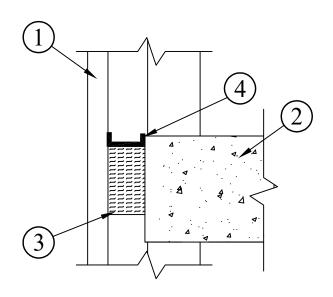
610333 cc: Bethany Turowec Email: bturowec@mmm.com

Technical Information, Product Selection and Use

The technical information, guidance and other statements contained in this document are based upon records, tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed and may not be indicative of field conditions. Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the 3M product and determining whether it is appropriate and suitable for customer's application. 3M product purchases are subject to the terms, conditions and limitations set forth in the applicable Technical Data Sheet

St. Paul, MN 55144-100 Phone: 800-328-1687

3M ENGINEERING JUDGEMENT NO. 610333 MODIFIED SYSTEM NO. 3MU/JS 120-22 REQUESTED F RATING - 1 & 2 HR OBTAINABLE RATING: *SEE BELOW



- 1. EXTERIOR GRADE FIBERGLASS SHEATHED GYPSUM BOARD..
- 2. CONCRETE FLOOR.
- 3. 4 PCF MINERAL WOOL.
- 4. FIRESTOP SEALANT/SPRAY AS OUTLINED IN APPROPRIATE VERSION OF CORRESPONDING EJ. (SPRAY DEPICTED)

*THE OBTAINABLE RATING IN THIS SCENARIO IS REDUCED TO "UP TO 1- OR 2-HOUR F ONLY OR AS LONG AS THE ENTIRE ASSEMBLY REMAINS FULLY INTACT IN A FIRE SCENARIO".

SEE APPLICATION DETAIL NOTES ON APPROPRIATE VERSION OF CORRESPONDING EJ.

CONFIGURATION OR ORIENTATION OF PENETRANT(S)/OPENING(S) MAY NOT MATCH SITE CONDITION(S).

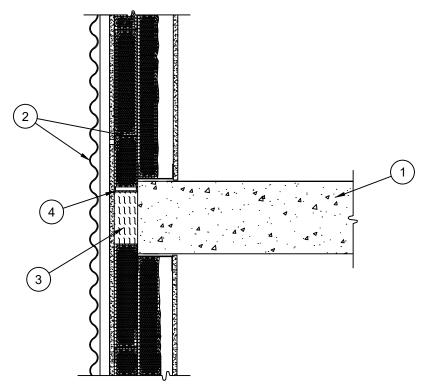
CONSULT CURRENT INDEPENDENT TESTING LABORATORIES (UL/INTERTEK) FOR SYSTEMS OR DESIGN DETAILS

				,		
PROJECT: MUR D-MAX				signature: Bruce Fitzwater		
REV:	DATE:	DESCRIPTION	DRWN BY:	THIS ELEMENTARY FIRESTOP DRAWING IS TO BE USED	DWG. LOCATION:	DATE:
0	09-03-20	ORIGINAL ISSUE	BLF	ALONG WITH THE CORRESPONDING	610333.DWG	09-03-20
				ENGINEERING JUDGMENT AND REFERENCED LISTED/TESTED SYSTEMS FROM INDEPENDENT TESTING LABORATORIES	ALL STATEMENTS, TECHNICAL INFORMATION AND	
3M Fire Protection Products			(UL/INTERTEK). DRAWING NOT TO SCALE.	SHALL NOT BE LIABLE FOR ANY DAMA CONSEQUENTIAL, RESULTING FROM OR DESIGN. 3M'S ONLY WARRANTY SOF OUR PRODUCTS PROVED TO BE D	AGE, DIRECT OR THE USE OF THIS MATERIA SHALL BE TO REPLACE AN	

Drawing No. NS08821020

Rev.





- 1. Floor Assembly (2 Hr) Min 5" thick concrete floor assembly.
- 2. Curtain Wall Assembly (Non Fire Rated) Exterior densglass curtain wall assembly with max 8" steel stud framing and (optional, not shown) EIFS. Max width of joint is 4".
- 3. Packing Material Min 4 pcf density mineral wool batt insulation compressed a min 33% and installed within joint to a min 4" depth, flush with top surface of floor. When sealant is used, recess to accommodate for the required depth of sealant.
- **4. Spray -** SpecSeal® AS200, Fast Tack, or SFS Safing Spray applied to completely cover mineral wool to a min 1/8" wet thickness, overlapping onto surrounding substrates a min 1/2".
- **5. Sealant (Optional) -** In lieu of spray, SpecSeal® SIL300SL Sealant applied within joint to a min 1/2" depth. Sealant to be flush with top surface of floor.

*Notes: 1 - Rating of the firestop system is dependent on the performance of the surrounding construction under fire exposure with a max possible F rating of 2 Hr.

THIS DESIGN REPRESENTS A FIRESTOP SYSTEM EXPECTED TO PASS THE STATED RATINGS IF TESTED Project: Huntsman Building Solutions Project Address: Designed by: Joe Potts Contractor/ Architect: Hunstman Building Services Signature: CW-D-1011 Based on testing to ASTME2307 and CAN/ULC-S115 Standard Test Method of Fire Tests of Through-Penetration and Joint Firestops



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