

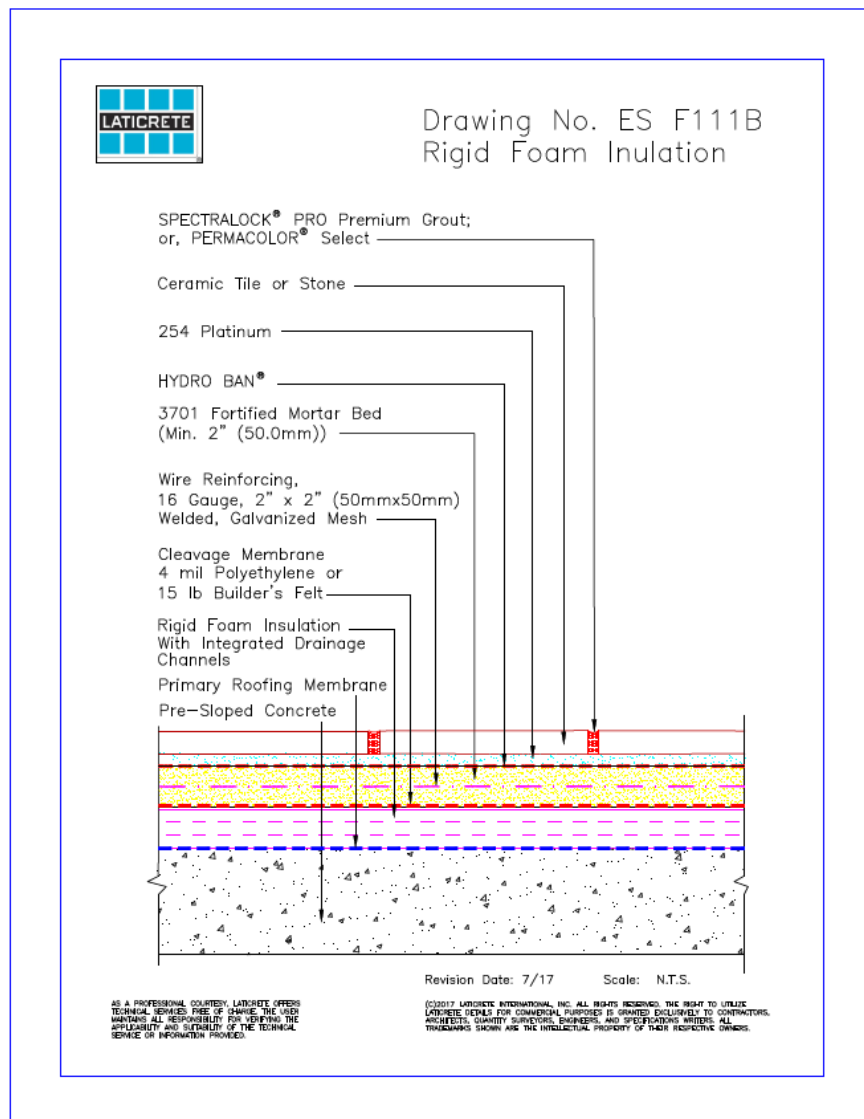
# Rigid Foam Insulation and Insulated Concrete Forms with LATICRETE Products

## TDS 285



Rigid Foam Insulation (RFI) and Insulated Concrete Forms (ICF) in commercial and residential buildings are becoming the norm within the industry. These systems not only provide an improved insulation (R) value to the wall system, it's also a great way to prevent thermal bridging, allowing for a more efficient and healthier building. As these systems evolve within the construction industry, and within Building Code, LATICRETE must evolve alongside. As such, we have designed a few systems working with RFI and ICF, for both vertical and horizontal applications.

**Horizontal Applications:** Most horizontal RFI applications are on roof top decks. The challenge for LATICRETE was to find a system that would work in conjunction with the RFI to offer a successful water proof tile or paver installation. Typically, a primary roofing membrane (by others) is first installed on the substrate, followed by the appropriate thickness RFI as specified. The LATICRETE System would follow as such:



**Vertical Applications:** Adding RFI to a vertical application system can be a challenge. The system design doesn't change too much from a regular veneer. But as easy as it looks on paper, it's much more challenging in the field. RFI is not a suitable substrate for direct adhered applications, so a suitable substrate must be attached to the face of the RFI. Hanging a brown coat, or a cement board, with tile or stone on top of any thickness RFI will add shear stress to the wall system and it will want to sag. As such, proper fastening of the lath or cement board becomes a crucial part of the design. Follow the lath or cement board's manufacturer for a fastening for installation over RFI. Alternatively, The International Building Code publishes a fastening schedule that can be found in the 2015 IBC code in Chapter 26 – Table 2603.12.1:

**CLADDING MINIMUM FASTENING REQUIREMENTS FOR DIRECT ATTACHMENT OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT<sup>a</sup>**

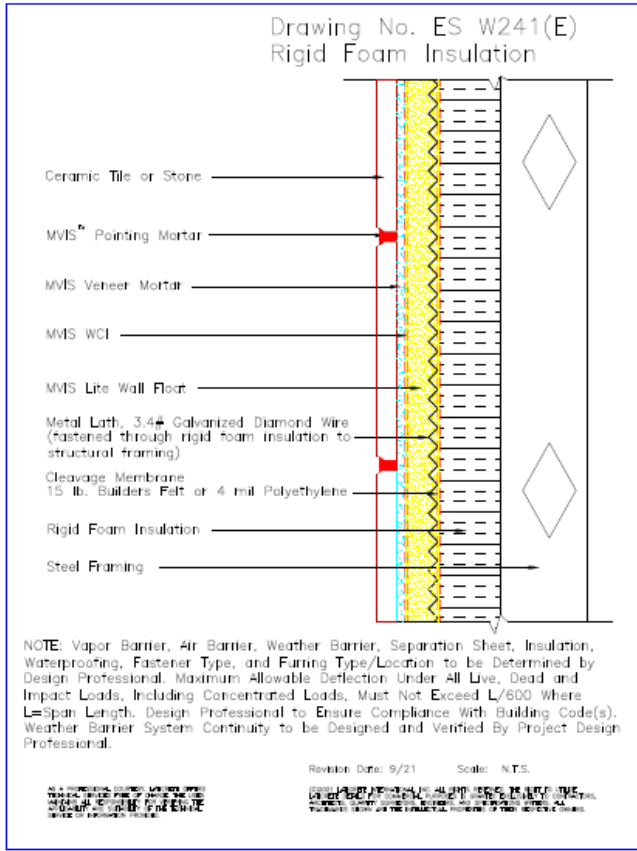
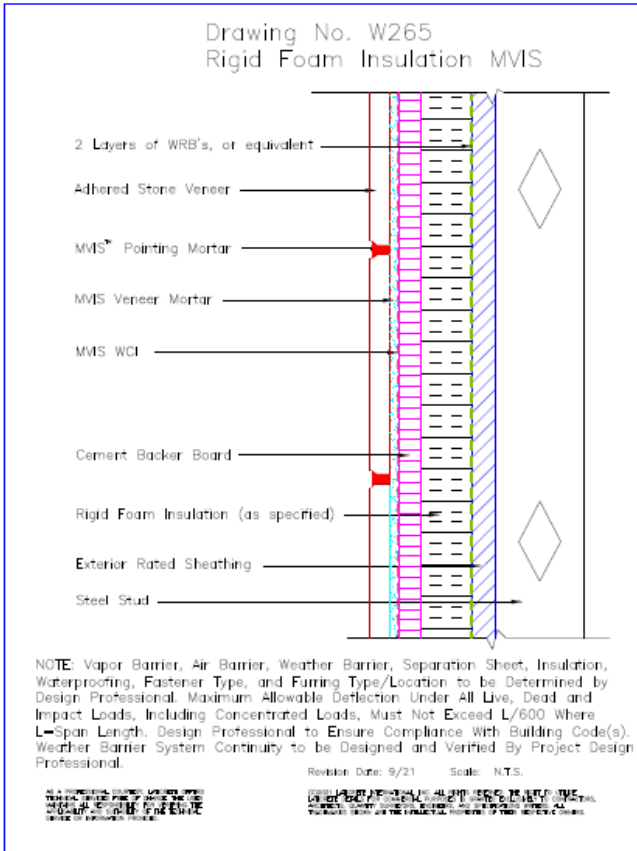
Cladding Fasteners Through Foam Sheathing Into:	Cladding Fastener Type and Minimum Size <sup>b</sup> :	Cladding Fastener Vertical Spacing (inches)	Maximum Thickness of Foam Sheathing <sup>c</sup> (inches)							
			16" o.c. fastener horizontal spacing				24" o.c. fastener horizontal spacing			
			Cladding Weight				Cladding Weight			
			3 psf	11 psf	18 psf	25 psf	3 psf	11 psf	18 psf	25 psf
Cold-formed steel framing (minimum penetration of steel thickness plus 3 threads)	#8 screw into 33 mil steel or thicker	6	3.00	2.95	2.20	1.45	3.00	2.35	1.25	DR
		8	3.00	2.55	1.60	0.60	3.00	1.80	DR	DR
		12	3.00	1.80	DR	DR	3.00	0.65	DR	DR
	#10 screw into 33 mil steel	6	4.00	3.50	2.70	1.95	4.00	2.90	1.70	0.55
		8	4.00	3.10	2.05	1.00	4.00	2.25	0.70	DR
		12	4.00	2.25	0.70	DR	3.70	1.05	DR	DR
	#10 screw into 43 mil steel or thicker	6	4.00	4.00	4.00	3.60	4.00	4.00	3.45	2.70
		8	4.00	4.00	3.70	3.00	4.00	3.85	2.80	1.80
		12	4.00	3.85	2.80	1.80	4.00	3.05	1.50	DR

For SI: 1 inch = 25.4mm. 1 pound per square foot (psf) = 0.0479 kPa. 1 pound per square inch (psi) = 0.00689

DR = design required. o.c. = on center

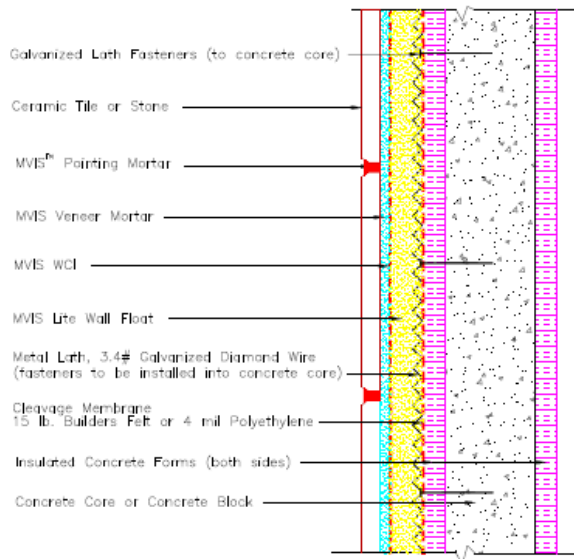
- a. Cold-framed steel framing shall be minimum 33 ksi steel for 33 mil and 43 mil steel and 50 ksi steel for 54 mil steel or thicker.
- b. Screws shall comply with the requirements of AISI S240.
- c. Foam sheathing shall have a minimum compressive strength of 15 pounds per square inch in accordance with ASTM C578 or ASTM C1289.

LATICRETE<sup>®</sup> MVIS<sup>™</sup> systems can be installed over a wire lath and scratch substrate, or over an appropriate exterior rated cementitious back board:



**Vertical Applications with ICF:** ICF does again represent a challenge when it comes to direct adhered veneers. The fasteners must reach the hard concrete core of the ICF, or penetrate the fastener bands at the proper intervals located on the ICF. Again, following the lath or cement board manufacturer's fastening schedule is primordial for a successful and long lasting installation. The LATICRE<sup>®</sup> MVIS<sup>™</sup> system would be installed as follows:

Drawing No. ES W201(E) –  
ICF – MVIS

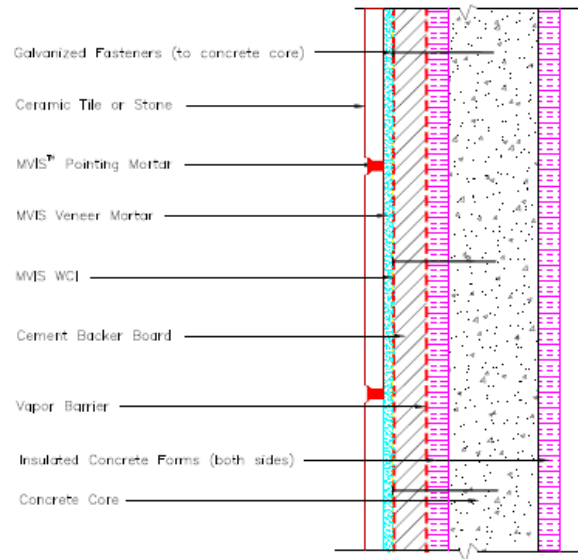


Note:  
Vapor Barrier and Insulation –  
Type/Location to be Determined by Design Professional

Revision Date: 9/21 Scale: N.T.S.

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Drawing No. ES W201(E) –  
ICF – MVIS (CBB)



Note:  
Vapor Barrier and Insulation –  
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**Note:** vapor barrier, air barrier, weather barrier, separation sheet, insulation, waterproofing, fastener type, and furring type/location to be determined by design professional. Maximum allowable deflection under all live, dead and impact loads, including concentrated loads, must not exceed  $L/600$  where  $L$ =span length. Design professional to ensure compliance with building code(s). Weather barrier system continuity to be designed and verified by project design professional.

Should you have any further questions regarding these applications, please call LATICRETE Technical Services at: 1-800-243-4788 Ext: 1235, or on our website via our chat feature at: <https://laticrete.com>.

Technical Data Sheets are subject to change without notice. For latest revision, check our website at <https://laticrete.com>  
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