

WHAT HAPPENED TO MOISTURE MANAGEMENT?

June 2018

“Now we are in a new era of ultra-efficient buildings involving LEED, net-zero energy, and passive house – all noble in intent but rife with designs that often ignore the basic and enduring principles of moisture management.”

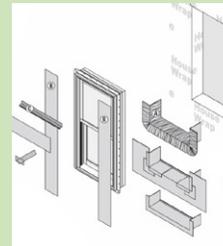
M. Steven Doggett Ph.D, LEED AP

Skimping on Window Details Leads to Mayhem

The most vulnerable place for bulk water infiltration is around windows and other penetrations, yet this area typically receives the least amount of attention.



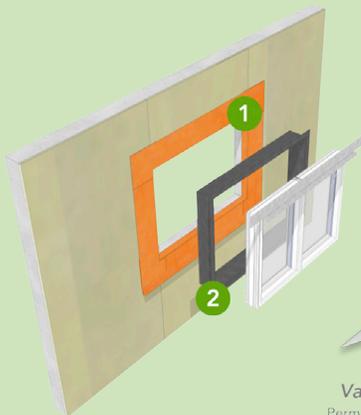
Rough Opening Leaks



Complicated Installation



Reverse Laps



1 Flash with pre-cut VaproFlashing SA Self-Adhered

2 Choose Rough Opening Material

VaproLiquiFlash™
Permeable and Waterproof

Vapro-SS Flashing™
Flexible stainless steel,
Air tight

VaproBond™
Permeable, Waterproof,
Low temperature
Application

Solution: Two-Component Window Flashing

Two Components:

- 1) Flash with pre-cut flashing material
- 2) Choose RO materials = minimal inventory and field training

Nearly 99% of installers reuse our products because managing only two SKUs in the field improves labor estimates and drastically reduces installation time.

Field Tested to Work Together

VaproShield's airtight field membranes and rough opening flashing materials are tested to work together - reducing your liability for potential moisture-related repairs.



Two components minimize inventory



Window flashing in progress



Rough opening ready for window installation, no reverse laps

VAPROSHIELD ON THE MOVE



Northwest Wood Design Symposium

July 19th, 2018
NWWD Symposium, Seattle, WA

Visit VaproShield and earn CEUs at the NWWD Symposium on July 19th in Seattle, WA. Learn about the use of wood in commercial and multi-family buildings and why VaproShield is at the forefront of the movement.



BISNOW Atlanta

July 24th, 2018
Atlanta, GA

Come visit us at BISNOW Atlanta on July 24th. View mock ups of our simplified air-barrier system and learn why it's a top choice for large hospitality projects.

The Building Enclosure

strategies for resilient, high-performing buildings

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Frankensteinian Design: Energy Efficiency At The Expense Of Durability

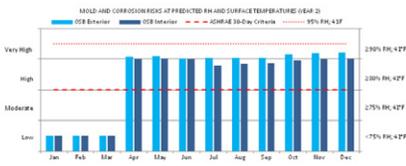
M. Steven Doggett, Ph.D. LEED AP / November 18, 2013

Energy efficient initiatives, coupled with the IECC's requirements for continuous insulation over exterior surfaces, have prompted a vast array of "Frankensteinian" energy assemblies. From three-coat stucco over outboard EPS to EIFS on structural insulated panels (SIPs), the combinations of such hybrid approaches appear endless. While the professed energy efficiencies can be impressive, moisture management may suffer drastically. We previously expressed these concerns in a blog posting in February 2012: ([Doctrines for Moisture Control](#)) – our closing remarks are worth repeating here:

"Now we are in a new era of ultra-efficient buildings involving LEED, net-zero energy, and passive house – all noble in intent but rife with designs that often ignore the basic and enduring principles of moisture management."

We are renewing our call for designers and contractors to re-examine current practices, which, at present, show no signs of slowing in their breakneck pace for greater energy efficiency. In this article, we show the implications of overemphasizing energy ratings at the expense of moisture performance and building durability.

The graph below illustrates predicted moisture performance based on one-dimensional hygrothermal modeling using climate data for Toronto, Canada. The modeled R-5.4 energy wall consists of adhered 3" EPS over OSB sheathing and 7" foil-faced SIPs containing a closed cell polyurethane core. We have included a liquid-applied weather-resistive barrier that is frequently employed with adhered EPS in conventional EIFS applications. The exterior finish is a typical EIFS base and finish coat applied to 1/8" thickness. Per ASHRAE 160, we have applied a 1% rain penetration load against the exterior face of the WRB. The model assumed no appreciable contribution from moisture exfiltration. Details of this assembly and its modeled outcomes are further outlined in our recently-published [Hygrothermal Snapshot No. 5](#) (Nov. 2013).



Without a ventilated rainscreen, the sheathing's exterior face is exposed to high humidity for most of the year. Likewise, the impermeable SIP panels impede inward diffusion from the sheathing's interior face. The results are highly unfavorable. No single component fails here. It is the assembly's overall configuration coupled with its lack of drainage and ventilation that undermines performance.

It is not the intent of this article to question the efficacy of EIFS or SIPs. These systems, when designed with adequate moisture management, perform very favorably in almost any climate. The above scenario simply reemphasizes the need for whole building design with sound, or even redundant, safeguards for moisture measurement. Tools for quality hygrothermal design have existed for more than a decade, and still we see these highly promoted designs fall prey to conditional performance or outright critical failures. With the advent of integrated tools such as WUFI Passive, analysis is made even more accessible – but are these tools being used? More importantly, are they used correctly?

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Ribbit Resource - Re-examining Current Practices

M. Steven Doggett, Ph.D. LEED AP summarized in his blog "[Frankensteinian Design: Energy Efficiency At The Expense Of Durability](#)," that energy efficiencies can be impressive, moisture management may suffer drastically. He notes, a call for designers and contractors to re-examine current practices in the area of over-emphasizing energy efficient at the expense of moisture performance and building durability.

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