VAPROSHIELD®
Breathable Membrane Systems for Roofs & Walls

June 2017

To Whom It May Concern,

Attached is the *Evaluation of Various Water-resistive Barriers for Use in Trespa's NFPA 285 Compliant Wall Assemblies* document.

Refer to this document to find multiple VaproShield WRB/Air Barrier membranes as an acceptable air/water membrane solution in the NFPA 285 assembly tests conducted by Hughes Associates.

For further information about VaproShield and NFPA 285 testing, contact your local representative, visit VaproShield.com, or call Tech Team support: 866-731-7663 opt. 5.

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January 8, 2014

Mr. Kevin D. Nolan
North America Technical Manager
VaproShield, LLC
915 26th Avenue NW, Suite C5
Gig. Harbor, WA 98335

RE: Evaluation of Various Water-resistive Barriers for Use in Trespa's NFPA 285 Compliant Wall Assemblies
HAI Project #1JJB00064.000

Dear Mr. Nolan:

This letter constitutes my final report concerning the use of three water-resistive barriers manufactured by VaproShield, LLC, in NFPA 285 compliant exterior walls that have Meteon panel systems manufactured by Trespa North America. Ltd.

Trespa North America, Ltd (Trespa) manufactures an exterior wall cladding system that uses their Meteon panels. Trespa has conducted several successful NFPA 285 "Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components" fire tests. These tests have generally incorporated VaproShield's WallShield® water-resistive barrier.

VaproShield manufactures the following additional water-resistive barriers:

1. WrapShield®;
2. RevealShield™; and,
3. RevealShield SA™.

VaproShield has requested that these products be evaluated so that they can be used in lieu of the tested WallShield® that was used in Trespa's NFPA 285 compliant systems.

VaproShield has conducted testing to determine the flammability properties of the three aforementioned water-resistive barriers. Each material was applied to 0.625-inch thick, Type X gypsum wallboard. The fire testing was conducted in triplicate and in general accordance with ASTM E1354 "Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products using an Oxygen Consumption Calorimeter." Test samples were approximately 100 mm (4 in.) by 100 mm (4 in.). All tests were conducted in the horizontal configuration with the spark igniter on and were exposed to a heat flux of 50 kW/m$^2$.

A summary of the ASTM E1354 test results is provided in Table 1.

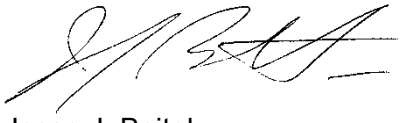
When the flammability properties of the RevealShield and the RevealShield SA water-resistive barriers are compared to the Trespa baseline data, it appears that these two water-resistive barriers exhibit the same or better performance than the baseline. When the flammability properties of the WallShield® are compared to WrapShield®, it appears that the two materials are similar. While some parameters of the WrapShield® are greater compared to the parameters for WallShield®, they are within the tolerances

for this test and the application. Based on this data and my experience with the NFPA 285 test, either the WrapShield®, or the RevealShield™ or the RevealShield SA™ water-resistive barriers can be substituted for the water-resistive barrier used in Trespa's NFPA 285 compliant wall systems.

If you have any questions, please feel free to contact me.

Sincerely,

***Hughes Associates***



Jesse J. Beitel
Senior Scientist/Principal

**Table 1. Summary of ASTM E1354 Test Results**

| Parameter/Material | WrapShield (Baseline) | WallShield | RevealShield | RevealShield SA |
|---|---|---|---|---|
| Time to Ignition (sec) | 20 | 16 | 5 | 6 |
| Flame Duration (sec) | 62 | 44 | 6 | 64 |
| Avg. Effective Heat of Combustion (MJ/kg) | 11.0 | 12.0 | 5.1 | 5.1 |
| Avg. HRR at 60 sec (kW/m2) | 74 | 84 | 40 | 62 |
| Avg. HRR at 180 sec (kW/m2) | 0 | 0 | 0 | 0 |
| Peak HRR (kW/m2) | 125 | 150 | 50 | 98 |
| Time of Peak HRR (sec) | 26 | 29 | 2 | 36 |
| Total HRR/A (MJ/m2) | 4.6 | 3.7 | 0.4 | 4.0 |

Note: Values are an average of three tests.