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**HYDROGAP® DRAINABLE HOUSEWRAP:
TESTING SUPPORT FOR COMPRESSION & DRAINAGE PERFORMANCE**

HydroGap® Drainable Housewrap outperforms standard flat housewraps, by providing a 1mm space for water that penetrates the cladding to drain. Getting the water out is essential to the longevity of a wall and cladding system by reducing the following: pressure build up, the potential for mold growth, and the chance for cladding materials to degrade. The 1mm space has been supported by building science research, laboratory testing, and field testing with product comparisons.

BUILDING SCIENCE

Building Science Corporation has published their findings about effective drainage behind cladding. John Straube and Jonathan Smegal determined the space between cladding and housewrap needed to allow water to drain can be as small as 1mm. In their report, “Modeled and Measured Drainage, Storage and Drying Behind Cladding Systems” their tests conclude that:

“...1mm space will be able to drain 1.1 litre/minute-meter width, more than the extreme driving rain intensity for the worst climate in Canada.”

CODE REQUIREMENT

Codes also support the theory behind requiring a space for water to drain:

2006 IRC: Section 703.1

“The exterior wall envelope shall be ... constructed in a manner that prevents the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior veneer ... and a means of draining water that enters the assembly to the exterior.”

Oregon Building Code (04.01.10)

“... the [building] envelope shall consist of an exterior veneer, a water-resistive barrier (housewrap, building paper, etc.) and a minimum 1/8” (3mm) space between the WRB and the exterior veneer. The required space should be formed by the use of any non-corrodible furring strip, drainage mat, or drainage board.

Exception:

A space is not required where the exterior veneer is installed over a WRB... manufactured in a manner to enhance drainage and meets the 75% drainage efficiency requirement of ASTM E2273...”

LAB TESTING

As part of ICC-ES requirements, HydroGap® Drainable Housewrap was tested for multiple properties including moisture drainage per ASTM E2273; which sets HydroGap apart from other standard flat and drainable housewraps on the market today. HydroGap® demonstrated 96% drainage efficiency because of the 1mm spacers. Knowing that maintaining the 1mm space is imperative to HydroGap's performance, it was also tested for its compression strength. Each HydroGap® spacer can withstand over [478psf](#) before it is compressed by 10%. (Actual spacer height 1.2 mm; Nominal spacer height 1.0 mm)

FIELD EVALUATION

Lastly, HydroGap was tested internally using fiber cement cladding, installed with a nail gun per manufacturer's instructions. Competitive housewraps, both drainable and flat, were also installed. Then, fiber cement boards were installed using a nail gun pressurized at 90psi. This was to test how drainable housewraps maintain their drainage space once subjected to the pressure of installing building materials. The photos below show the performance of all three.



Left: HydroGap installed with fiber cement boards as cladding. HydroGap spacers are holding off the fiber cement.



Left: 0.9mm Feeler gauge easily slid in between HydroGap and fiber cement board without issue. This demonstrates HydroGap's spacers maintain the gap for drainage.

SUMMARY

In conclusion, building science theory supports the need for a space behind cladding of at least 1mm. National and local codes also have recognized water will penetrate the cladding, and once it does, it needs to be able to drain. The test data and installations support HydroGap's drainability and compression resistance to maintain the crucial 1mm space.

- Optimal Drainage Space based on Research: 1mm
- HydroGap spacer actual thickness: 1.2 mm
- HydroGap spacer nominal thickness: 1 mm
- Drainage Performance: 96% efficiency
- Spacer Compression Resistance: 3.32 psi at 10% deflection (or 478 psf)
- Measured Gap behind installed Fiber Cement plank: >0.9mm

Should you have any questions regarding the information covered in this document or require any further technical assistance, please do not hesitate to contact our Technical Services team at 800-523-5261 or techsupport@benjaminobdyke.com.