

Adhesion Testing of Prebuck Engineered Framing System

INTRODUCTION

This technical bulletin contains adhesion testing of Tremco Construction Product Groups (CPG) materials and systems applied to Prebuck Laminated Strand Lumber (LSL).

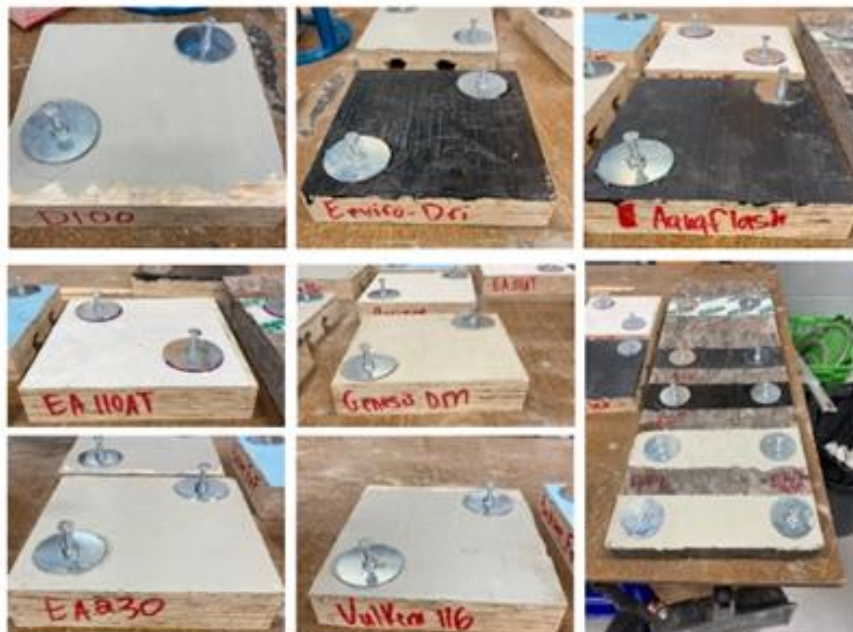
Adhesion is defined as the attachment process where a substance adheres to the surface of another, a critical factor in determining the effectiveness of sealants and membranes. This testing explores the process of substances bonding to surfaces, known as adhesion.

The focus of this study was the Prebuck Engineered Framing System, serving as the primary surface for assessing the adhesion capabilities of various Tremco CPG sealants and membranes utilizing ASTM D4541. ASTM D4541 is the adhesion capacity testing method commonly used to evaluate the bonding strength of a sealant or membrane to a substrate.

TEST METHODOLOGY

Prebuck Engineered Framing System samples were obtained and treated by applying each sealant and/or membrane. These substances then underwent a minimum 7-day curing period at room temperature. Once cure was established, epoxy or silicone sealants were used to adhere the test puck to the cured surface of the sealant or membrane. The testing area was isolated by cutting around the pucks. Next, the pull-off strength was recorded using a pull tester.

When evaluating adhesion using ASTM D4541, an acceptable minimum pounds-per-square-inch criteria is applied. This value is calculated by dividing the pounds obtained from the adhesion testing apparatus by the testing area. We are typically looking for a threshold of at least 16 psi (110 kPa).



The mode of failure is also recorded and noted in the results.

TEST PROTOCOL

The adhesion strength of the Prebuck Engineered Framing System was evaluated according to ASTM D4541, *Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers*.

For more information on ASTM D4541 refer to Technical Service Bulletin titled, ASTM D4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.

[BulletinASTMD4541StandardTestMethodPull-OffStrength.pdf \(tremcosealants.com\)](#)

TEST RESULTS

Adhesion Testing of Various Materials to the Prebuck Engineered Framing System		
<u>SEALANT / MEMBRANE</u>	<u>MODE OF FAILURE</u>	<u>STATUS</u>
AquaFlash	Partial substrate failure	Approved
Backstop NTX (smooth)	Substrate failure	Approved
Backstop NTX (textured)	Substrate failure	Approved
Dymonic 100	Epoxy failure	Approved
Genesis DM	Partial substrate failure	Approved
Enviro-Dri	Partial substrate failure	Approved
ExoAir 110 (with ExoAir Primer)	Cohesive failure	Approved
ExoAir 110AT	Adhesive failure	Approved
ExoAir 230	Partial substrate failure	Approved
Spectrem 1	Substrate / cohesive failure	Approved
Spectrem 2	Substrate / cohesive failure	Approved
Vulkem 116	Epoxy failure	Approved

Mode of Failure

Substrate / cohesive failure



Partial substrate failure



Epoxy failure



CONCLUSION

Based on the testing that was performed, the Prebuck Engineered Framing System proved to be an excellent substrate for bonding. All the materials listed in the results section have been approved for use due to their tenacious adhesion properties, meeting the industry recognized 16 psi (110 kPa) minimum. Other tests associated with Prebuck can be found at www.prebuckproducts.com.

We welcome any inquiries into this testing and would appreciate any feedback on additional testing that you would like to see performed. Additionally, we extend the ability to evaluate your specific assembly or project-specific assembly at the Tremco Building Science lab so that we can incorporate your window, façade anchors or adhered veneer, below grade to wall, and roof to wall connections.

PATTB/0620

Tremco Construction Products Group (CPG) brings together the Commercial Sealants & Waterproofing and Roofing & Building Maintenance divisions of Tremco CPG Inc.; Dryvit, Nudura and Willseal brands; Prebuck LLC; Tremco Barrier Solutions, Inc.; Weatherproofing Technologies, Inc.; Weatherproofing Technologies Canada, Inc.; and Pure Air Control Services, Inc.



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