Building Envelope Expert Trusts TRUFAST® For Ultimate High-Performance, Sustainable Building Envelope On Own Mass Timber Home

TRUFAST®

Case Study

CHALLENGE

Building industry veteran and Technical Director at VaproShield, Kevin Nolan, has made a successful career out of testing new building practices and materials. When designing his 2,100 sq. ft. home on Whidbey Island, Washington, a high-performance building envelope was non-negotiable. In an area known for its challenging climate due to its high moisture levels, Nolan, who serves on the board of directors for the Rainscreen Association in North America (RAINA), knew he needed a rainscreen system that could manage the region's heavy annual rainfall. Due to added risk of fire, he also wanted to incorporate an added level of fire protection by installing a layer of mineral fiber continuous insulation (Ci) and non-combustible facade elements.

However, with the attachment of each added control layer one over the other creates the risk of air and water intrusion into the building envelope. For example, a standard wall consisting of exterior sheathing, a mechanically attached weather-resistive barrier (WRB), mechanically attached continuous insulation, and a typical hat channel style rainscreen cladding attachment system one can expect an average of 184 fasteners penetrating through the combined control layers per each 4' x 8' area of wall section. Said differently, every 1,000 sq. feet of wall surface area equates to upwards of nearly 6,000 fastener penetrations through the air and water barrier!

Nolan knew he needed a versatile, high performing fastening system that could support each component of the building envelope from the WRB to the layer of Ci and installation of the metal rainscreen cladding system.

SOLUTION

Nolan turned to TRUFAST and its team of engineers and product developers for a fastener solution, and after some collaboration, they landed on the ideal fastening systems for the home's building envelope—the Thermal-Grip TubeSeal® fastener for insulation attachment and the ProChannel® ci with Grip-Deck TubeSeal® fastener for rainscreen cladding attachment.

"When it comes to building envelope fasteners, I'm looking for the speed and ease of installation, but most importantly the performance has to be there," Nolan said.

The line of TubeSeal fasteners from TRUFAST checks all the boxes. Available in 1" - 4" lengths for all common insulation thicknesses, Thermal-Grip TubeSeal fastener has a UV resistant semi-rigid washer and tube, making it suitable for any climate. The proprietary self-sealing design of the TubeSeal fastener helps to create a secure, air and water tight seal when making penetrations into any layer of the building envelope, critically important when attaching over a mass timber structure as moisture is the greatest enemy of wooden structures. The pre-assembled design provides ease of installation, which was perfect for Nolan as he, along with the help of his wife, are building much of the home themselves.

"With Thermal-Grip TubeSeal, TRUFAST has an intuitive, innovative solution to seal blind penetrations in the building envelope, works perfect for Ci attachment applications," Nolan said.

Thermal-Grip TubeSeal® fasteners were used to attach mineral fiber insulation to the roof, walls, and crawlspace. For the rainscreen, Nolan used VaproShield PanelShield for the walls and VaproShield SlopeShield for the roof. He attached the rainscreen with Grip-Deck TubeSeal® fasteners in conjunction with a new rainscreen attachment system called ProChannel Ci developed with ClarkDietrich. ProChannel Ci is designed with slotted holes which allows for bulk moisture drainage and convective air movement which aids drying of the building envelope. After installing the insulation, the rainscreen, and the corrugated metal cladding, "the system became bulletproof, and the opportunity for water to get into the sheathing and mass timber structure became next to nothing," he described.

Reflecting on the project, Nolan expressed his satisfaction with constructing his home and using TRUFAST's innovative TubeSeal self-sealing fasteners.

"I definitely would do it again," he said. "I'm a believer in the use of the Thermal-Grip and Grip-Deck TubeSeal Fasteners. I can't thank TRUFAST® enough. They're just a blast to work with, and it was a great collaboration."

For more information on the products used in this project, please visit www.trufast.com. For technical support, please call 616-454-3100 or email wallssales@trufast.com.