

# Envirostrap and Vinyl Siding

Siding is a category of products that falls under the cladding portion of an exterior wall that forms part of first plane protection against the elements protecting the more sensitive wall components from the sun, rain, snow, heat and cold. Traditionally wood siding has been the primary material of choice but stone (e.g. slate), masonry and metal have been used to a lesser extent due to their higher cost. These days, siding is very common exterior cladding material and is available in plastic (vinyl), as composite material (e.g. fiber cement) and in some instances can even be pre-insulated.

## Rainscreen Wall

It is common for siding to be installed as a rainscreen wall assembly but not always required depending on where the project is located geographically. One of the main aspects of a rainscreen cladding installation is the presence of an air gap behind the cladding which can be achieved with the use of vertical furring strips (see Figure 1). Furring strips are sometimes mandatory due to building code requirements or compliance with siding manufacturer warranty and are most common for wood, composite and metal siding.

## Installation

Vinyl siding is a popular siding for both new and retrofit low-rise residential construction. It can imitate the look of many other types and styles of siding, it is lightweight and cost effective which makes it a very attractive choice for construction. Vinyl siding is loose fastened for expansion and contraction and more often than not is required to be installed without strapping. The majority of the time official installation instructions call for it to be installed over a solid substrate, most commonly, wood sheathing.

With the increased use of exterior continuous insulation (CI) on buildings, vinyl siding typically is installed directly over the rigid insulation using longer roofing type nails but is limited to thinner foam thicknesses. The inclusion of strapping/air gap would be great from a moisture management perspective but would also eliminate the vinyl's solid backing, reducing rigidity and in turn, distortion resistance. Strapping is used with vinyl siding but is mostly limited to create an even surface (e.g. shim low spots) for vinyl to be installed on.



Figure 1 - Example of a rainscreen wall assembly with raised Envirostrap creating an air gap behind the wood/composite siding

## Reflective Insulation

Some vinyl siding manufacturers void the warranty if vinyl siding is installed over reflective insulation stating that the added heat radiating back from the reflective surface further increases the temperature of the siding causing potential distortion. Reflective materials do radiate some of the energy back to the cladding if an air gap is present which does mean that the vinyl siding will be warmer but only by several degrees (Hart 2011).

Generally, a bigger issue with vinyl siding is potential damage caused from highly reflective surfaces such as windows which is not covered by the warranties of most of the major vinyl siding manufacturers (Hart 2011).

The inclusion of rigid insulation behind vinyl siding may increase the temperature of the siding itself due to the slower heat migration inward, but this is generally not an issue since there are already pre-insulated versions of vinyl siding products on the market.

## Envirostrap

Although there is a lot more room for research to be done in this sphere, there are alternative products on the market that circumvent these issues as they are designed to provide the best of both worlds for vinyl siding installation. Alleguard's Envirostrap (ES) is a rigid Expanded Polystyrene (EPS) board with integrated furring strips that comes in various configurations.

For vinyl siding installations, ES can be configured with the furring strips being fully recessed inside the foam (see Figure 2). One benefit of this configuration is the ability to fasten the vinyl panels directly into the solid wood strapping since many vinyl manufacturers require a minimum penetration depth of 3/4" (19mm) into a nailable surface (as outlined in vinyl siding manufacturers' installation instructions).

Since the EPS foam and the strapping are in the same plane they create a smooth surface behind the siding increasing the rigidity and distortion resistance of the vinyl. Additionally, Envirostrap uses Alleguard's unfaced Envirosheet (EN) foam insulation allowing full compliance with vinyl siding warranty requirements.

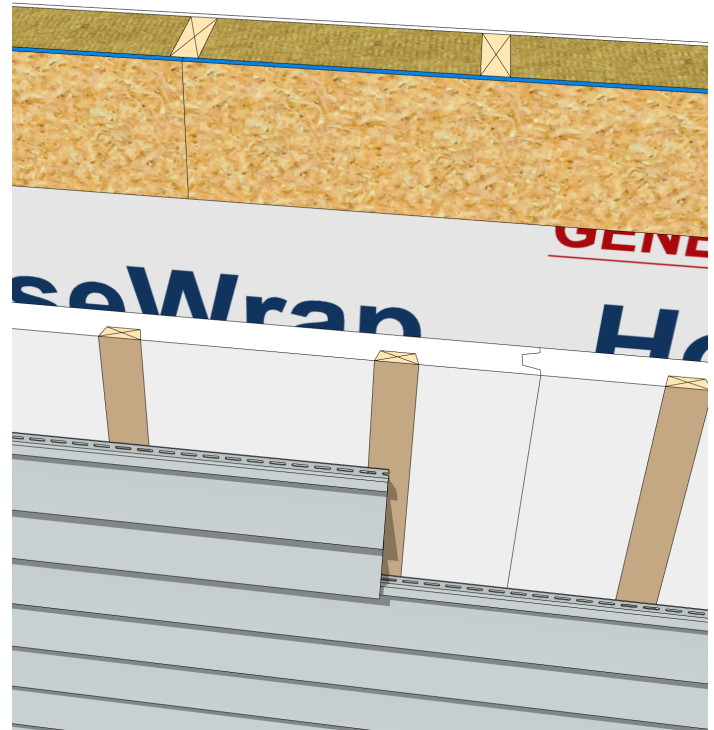


Figure 2 - Flush version of Envirostrap acting as continuous insulation, solid backing and nailing surface for vinyl siding

In addition, the backside of ES can be configured to be flat, or with a drainage pattern. If configured with a drainage pattern on the back, this wall configuration becomes very similar to EIFS where it is similar to a face sealed system but with drainage behind the foam (see Figure 3).

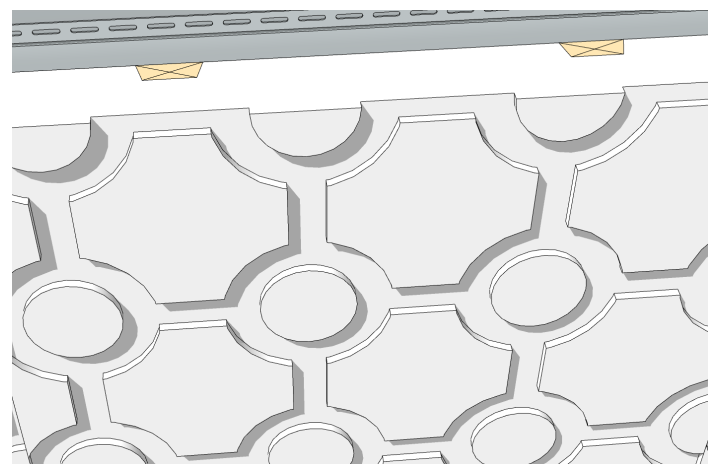


Figure 3 - Flush version of Envirostrap with a drainage pattern on the back (available as a special order item only)

Hart, Robert, Curcija, Charlie, Arasteh, Dariush, Goudey, Howdy, Kohler, Christian, and Selkowitz, Stephen. Research Needs: Glass Solar Reflectance and Vinyl Siding. United States: N. p., 2011. Web. doi:10.2172/1050447.