TECHNOTES

Installing Pella Products in Shipping Containers

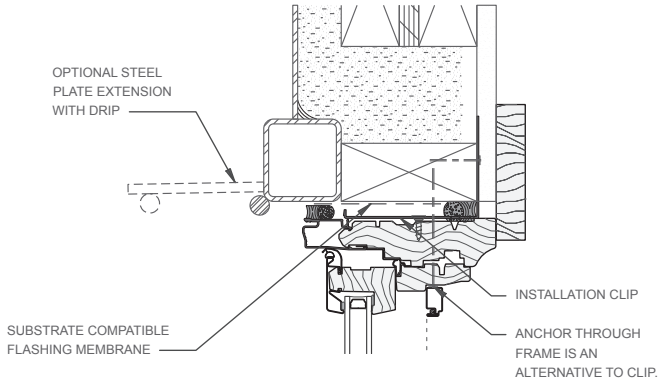


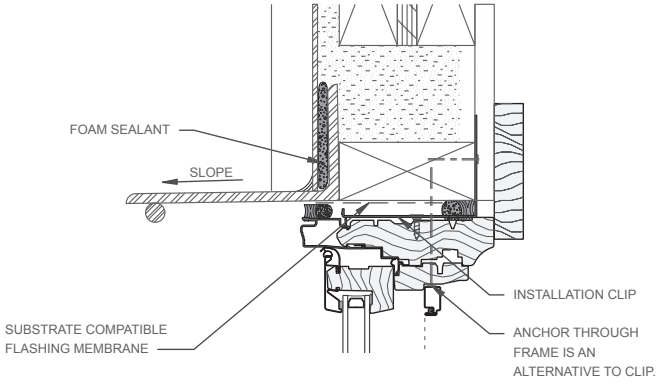




Design Considerations

1) Shipping containers are engineered to be fully enclosed without penetrations. Cutting holes in the container alters the structural integrity of the enclosure. This makes it necessary to not only reinforce or re-frame the window or door openings with steel; but, structurally reinforce or frame the container walls. This is commonly achieved by adding interior wall framing, which also serves to support the addition of windows or doors, add insulation, run utilities, and finish the interior with gypsum wall board and trim.
2) The window and door openings are typically re-framed with steel tubes or angles that are welded to the corrugated metal container walls. Some of the advantages of the steel angle over a steel tube are as follows:





a) A steel angle creates a back dam on the interior which has better water management qualities than a tube. Conversely the steel tube option is more reliant on sealant to prevent the intrusion of water.

b) A steel angle has the potential for easing installation by resting the inside leg of the angle against the exterior metal corrugation. Please note that Pella recommends additional space between the interior leg of the steel angle and the corrugated metal to create a more reliable or robust interior line of perimeter sealant.

c) A steel angle creates an overhang that diverts water away from the window or door. A steel plate can be added to the steel tube to achieve the same result.

d) A steel angle can serve as a shading device that limits the amount of direct sunlight that penetrates the interior when the sun is at steeper angles during certain seasons and times of day. Again, a steel plate can be added to the steel tube to achieve the same result.

3) A steel rod that is welded to the steel frame at the head and sill to create a drip is recommended to divert water away from windows, doors, and wall cladding. Drips reduce the pressures associated with bulk water and protect sealants, window and door components, and help prevent streaking on glass and other wall cladding materials caused by dirt being collected as water cascades down the surface of the exterior of a structure.

Warranty Considerations

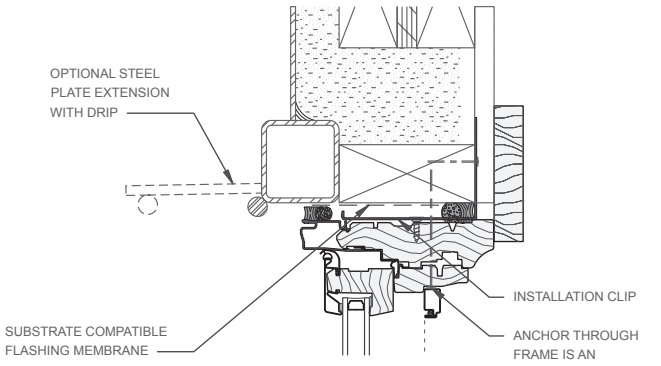
The walls of a shipping container that is being re-purposed and detailed in a manner similar to that shown in this TechNote are barrier walls. Failures that occur as a result of the installation of Pella products in a barrier wall are not covered by Pella product warranty. To address this issue, it is required that window and door installations in shipping containers perform in a way that properly manages the intrusion of incidental moisture and utilizes a method of installation that has been approved by Pella Corporation.

Example Details

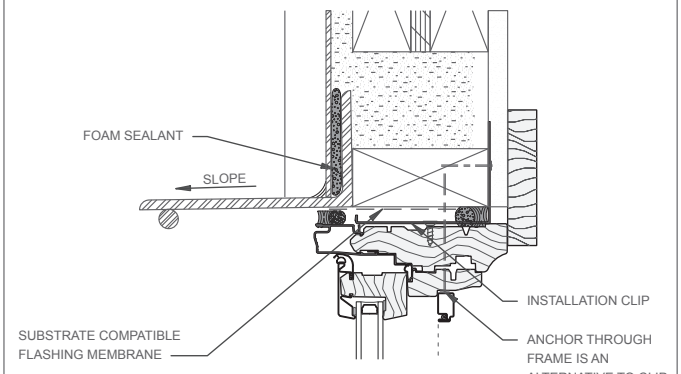
The following pages illustrate example details utilizing a variety of installation methods for Aluminum Clad Wood, Fiberglass, and Vinyl products.

TECHNOTES

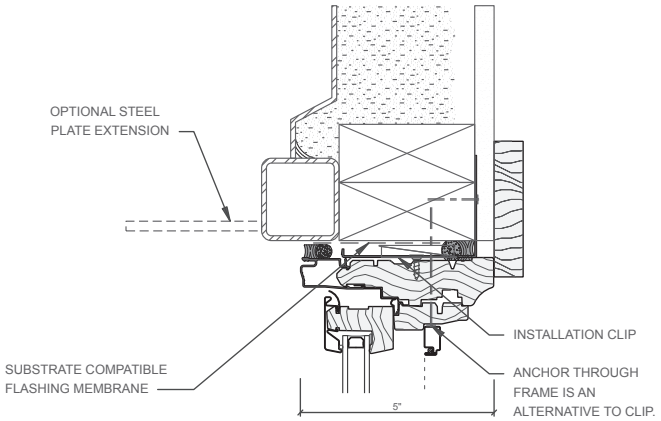
Aluminum Clad Wood



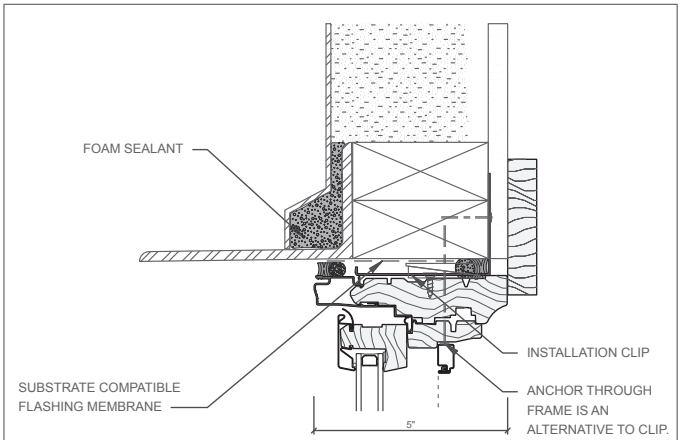
1 HEAD-STEEL TUBE-CLIP INSTALL-CLAD/WOOD



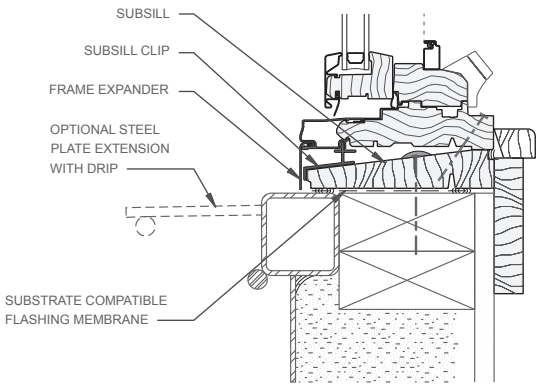
4 HEAD-STEEL ANGLE-CLIP INSTALL-CLAD/WOOD



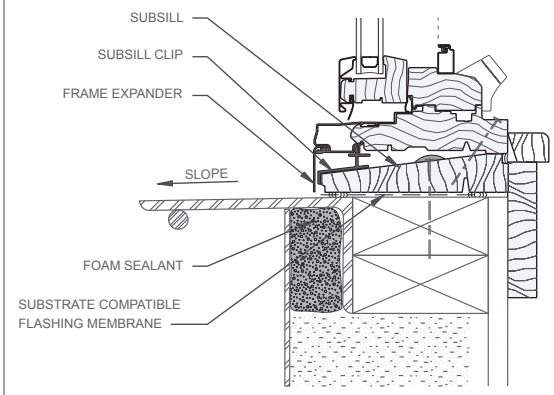
2 JAMB-STEEL TUBE-CLIP INSTALL-CLAD/WOOD



5 JAMB-STEEL ANGLE-CLIP INSTALL-CLAD/WOOD

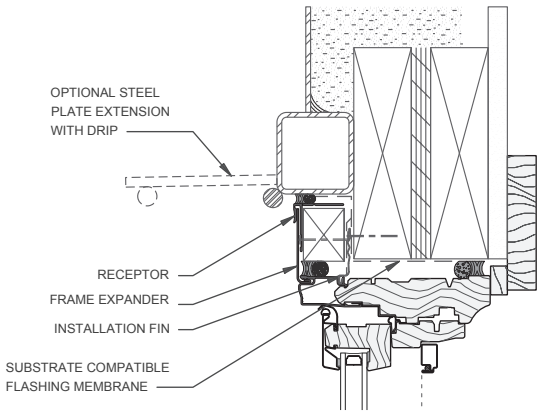


3 SILL-STEEL TUBE-SUBSILL-CLAD/WOOD

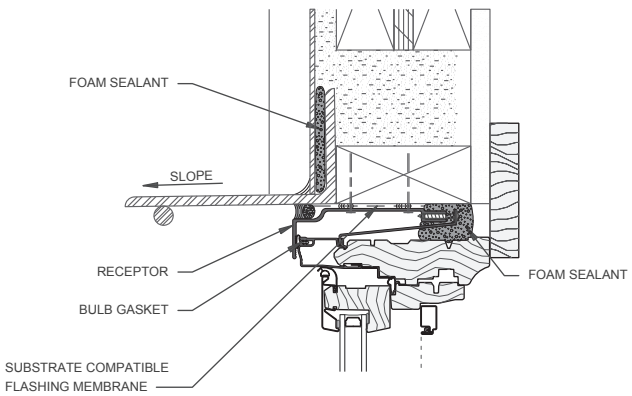


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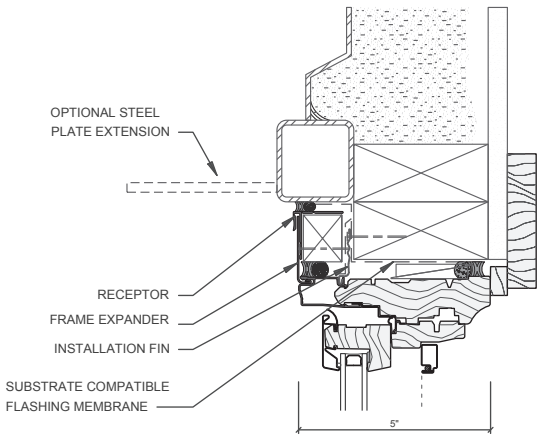
Aluminum Clad Wood



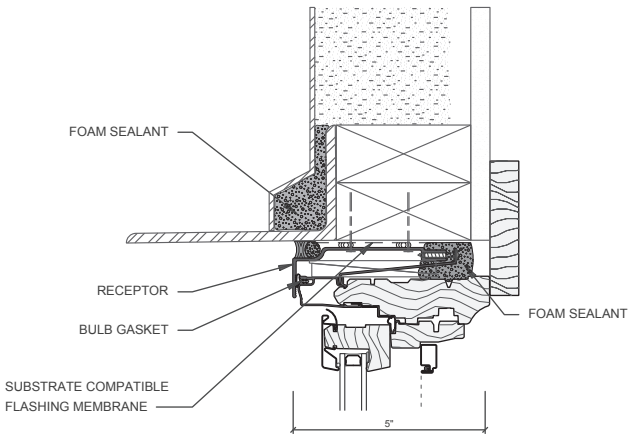
7 HEAD-STEEL TUBE-FIN INSTALL-CLAD/WOOD



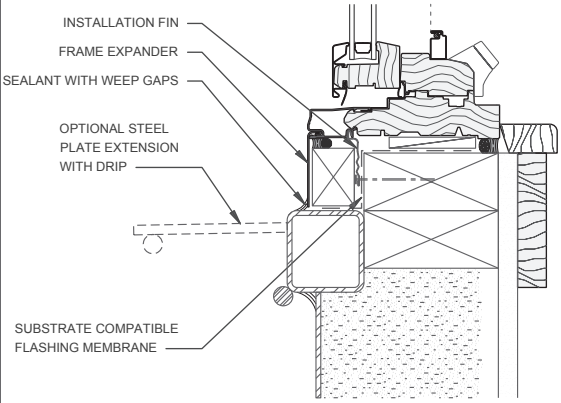
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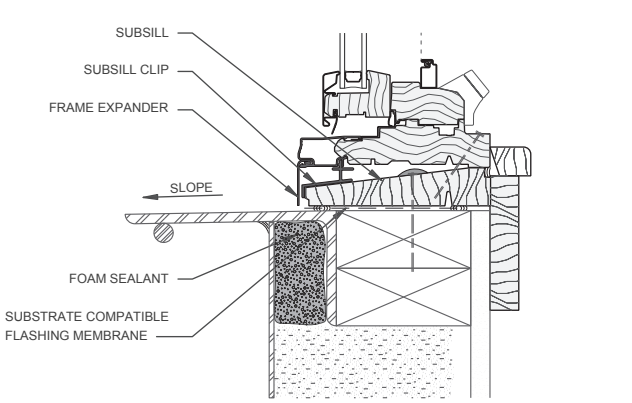
8 JAMB-STEEL TUBE-FIN INSTALL-CLAD/WOOD



11 JAMB-STEEL ANGLE-L-RECEPTOR INSTALL-CLAD/WOOD

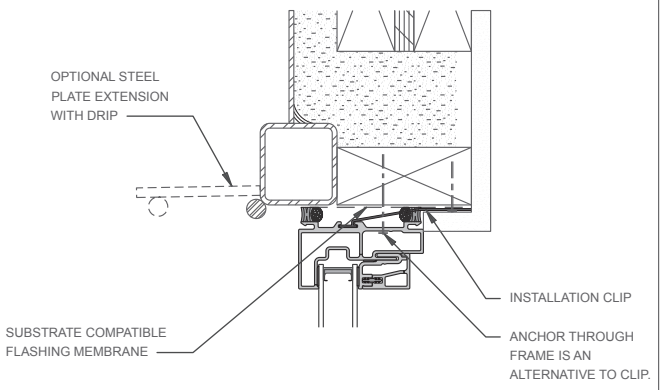


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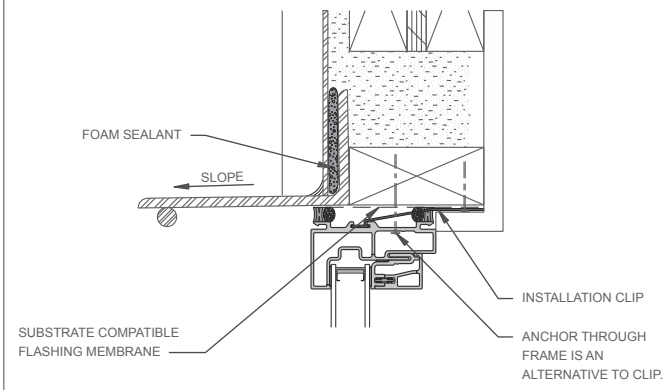


12 SILL-STEEL ANGLE-SUBSILL-CLAD/WOOD

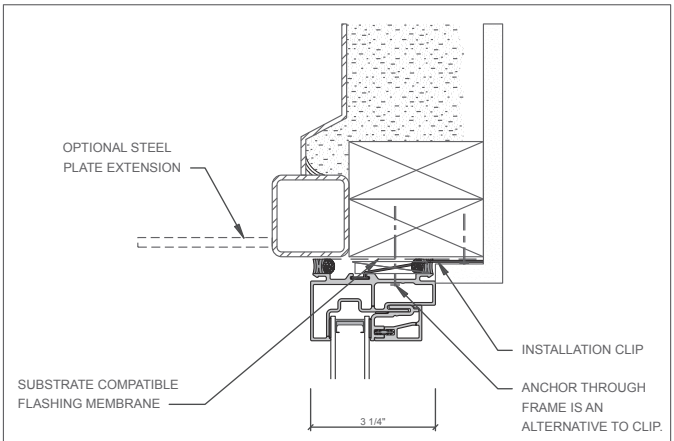
Fiberglass



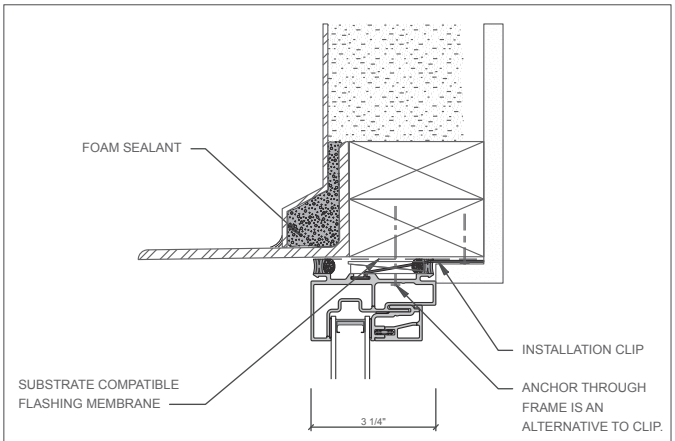
13 HEAD-STEEL TUBE-CLIP INSTALL-FIBERGLASS



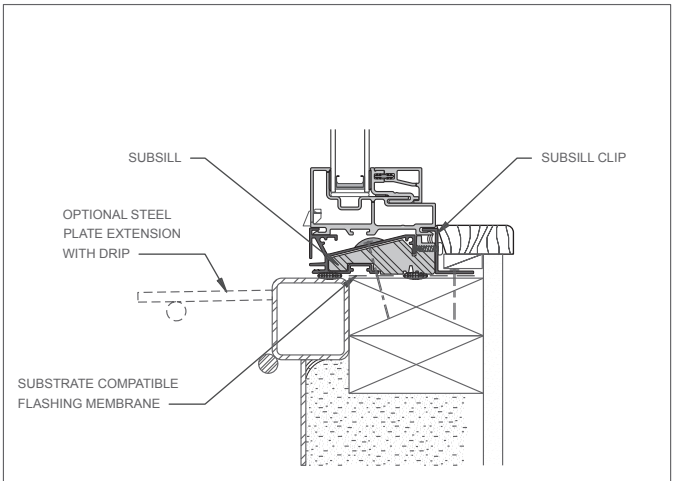
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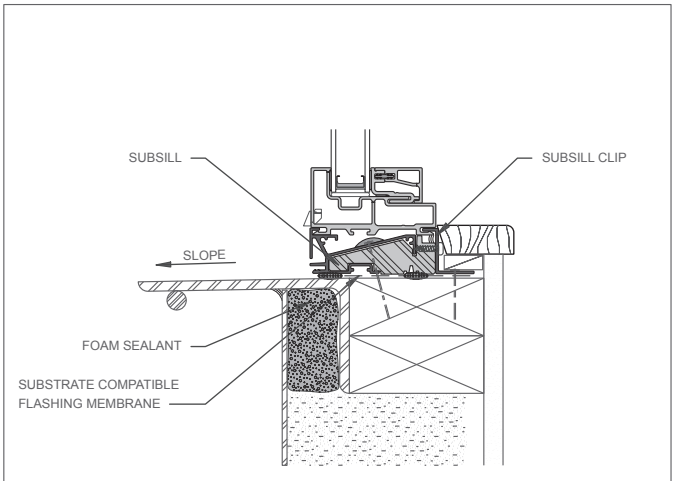
14 JAMB-STEEL TUBE-CLIP INSTALL-FIBERGLASS



17 JAMB-STEEL ANGLE-CLIP INSTALL-FIBERGLASS

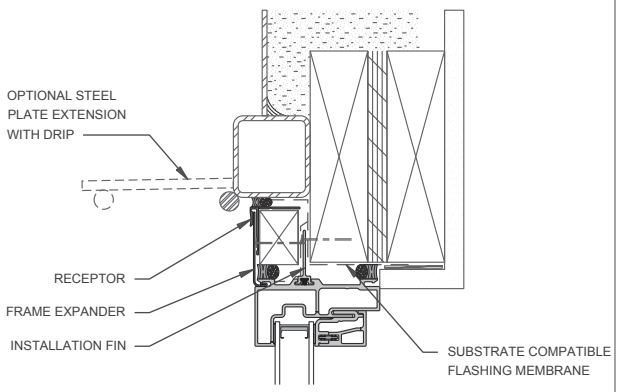


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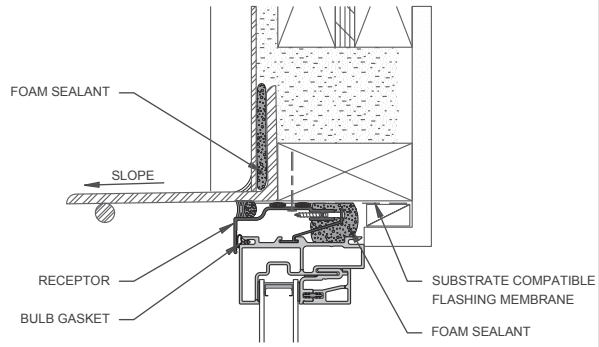


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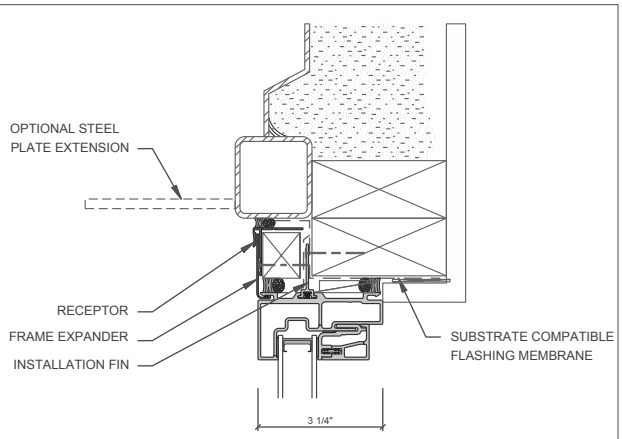
Fiberglass



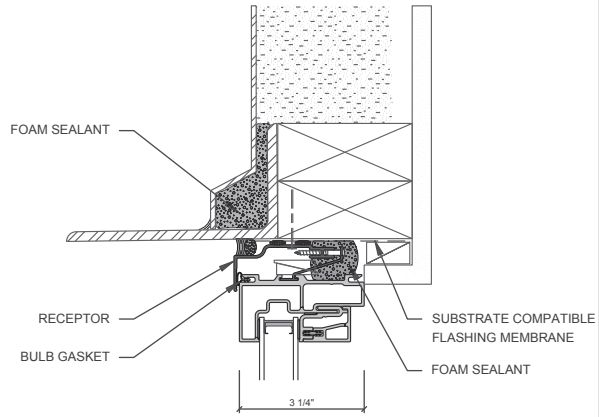
19 HEAD- STEEL TUBE-FIN INSTALL- FIBERGLASS



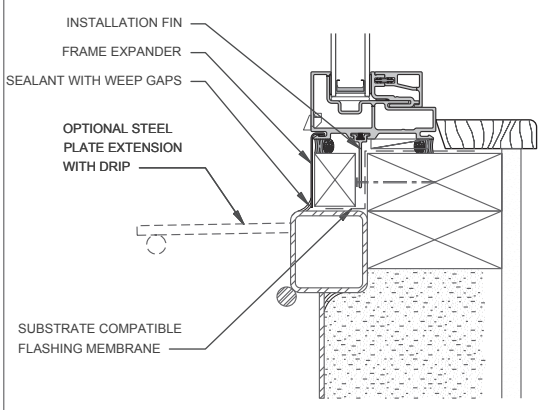
22 HEAD-STEEL ANGLE-L-RECEPTOR INSTALL-FIBERGLASS



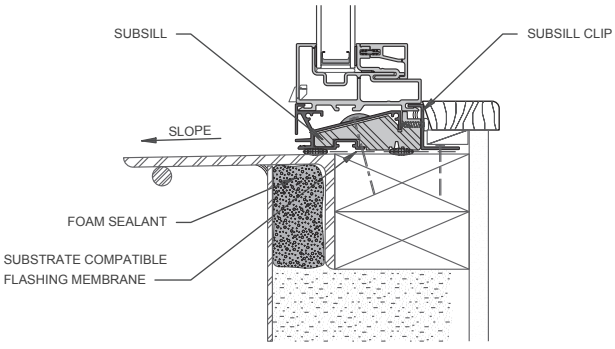
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23 JAMB-STEEL ANGLE-L-RECEPTOR INSTALL-FIBERGLASS

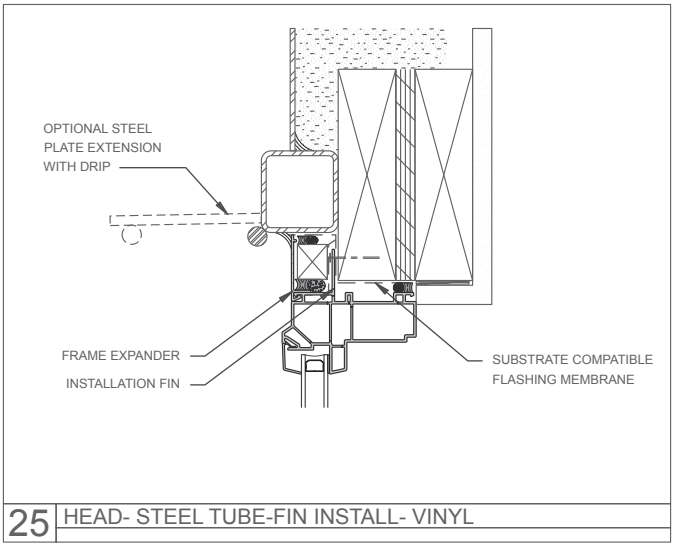


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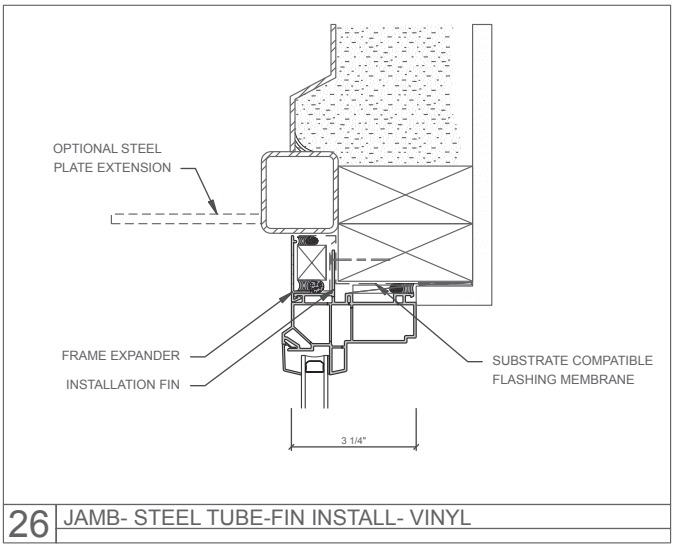


24 SILL-STEEL ANGLE-SUBSILL-FIBERGLASS

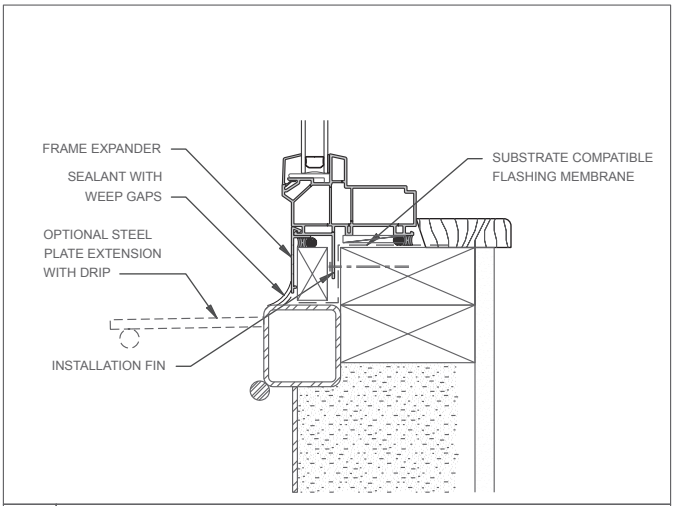
Vinyl



25 HEAD- STEEL TUBE-FIN INSTALL- VINYL



26 JAMB- STEEL TUBE-FIN INSTALL- VINYL



27 SILL-STEEL TUBE-FIN INSTALL-VINYL