

TECHNICAL ARTICLE: WEEP HOLES IN WINDOW EXTRUSIONS, TO SEAL OR NOT TO SEAL?

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There appears to be some confusion regarding air sealing around window extrusions. Some folks have misunderstood what some of the requirements are while air sealing the window extrusions to the wall assemblies. The window extrusions at the sill have purposely designed weep holes that are required to allow for condensation and incidental moisture to exit the window extrusion in the event that the window extrusion accumulates moisture inside the extrusion.

There are various sources of moisture that can accumulate inside the window extrusion due to wind driven rain, condensation, and leaks in the actual window extrusion itself. The sources of the moisture can come from the exterior or from the interior of the building. Warm moist air leaking into the extrusion from the interior of a building can easily condensate inside the window extrusions if they are not an air tight assembly. The same is true when warm moist air enters into the window extrusion from the exterior through the weep holes or other leaks in the extrusion. In warmer climate zones or in hot times of the years in cold climate zones, warm moist air enters into the extrusion from the exterior can also condense on the interior of the extrusion. This occurs because the interior temperature can be cold enough to cool down the extrusion to a temperature that is cold enough to allow for condensation to occur. This condition is called the "Dew Point". In either of these circumstances, the weep holes have to be left open to allow for the liquid moisture to drain out of the assembly.



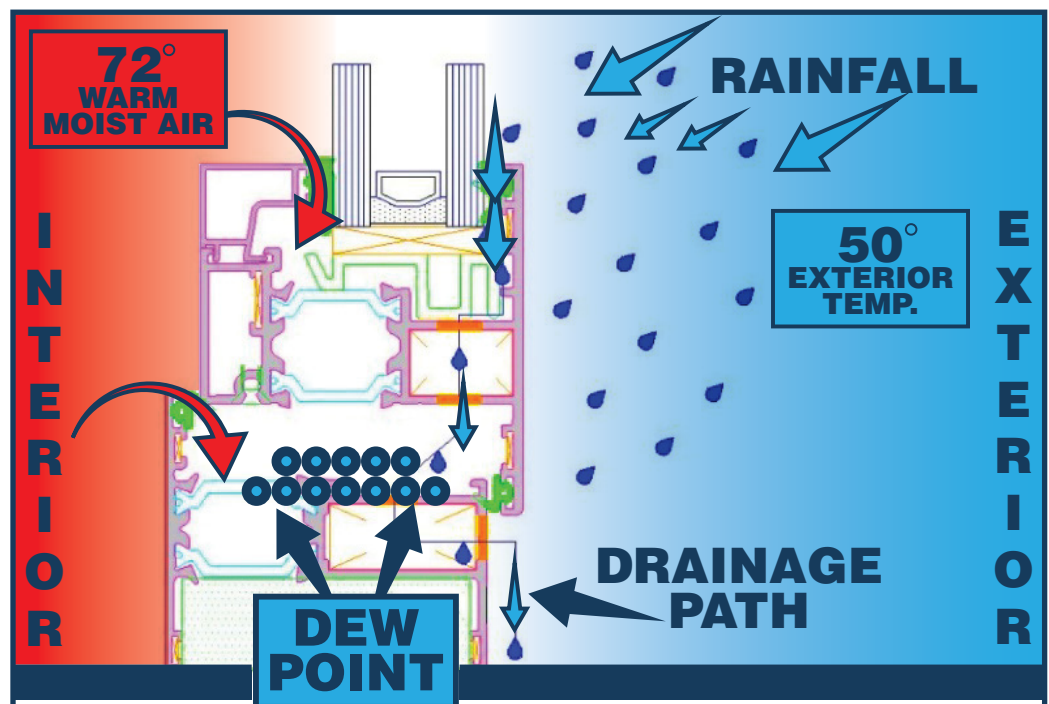
Typical weep hole at the sill of a window extrusion.

At times some of the weep holes can also be blocked by insects getting into the weep holes and nesting. This can lead to a build up of water in the extrusion and cause extensive damage to the rough openings and walls.



Wasp entering weep hole at the sill of a window.

This detail on the right indicates how some designs may allow air & moisture to leak into the extrusion. This design drains out any accumulated moisture from the assembly through the weep holes at the base of the sill. This would soon fill up with water and cause serious damage if someone were to block or seal off the drainage holes with a sealant or an air barrier component. So, please NO NOT SEAL off these weep holes while air sealing around window extrusions.



Moisture can enter as a vapor or liquid into the window extrusion.

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In addition to insects and bugs, dirt and other organic materials can enter the weep holes. When this occurs, mold and mildew can propagate and block the drainage path from the window extrusion as well.



Mold & mildew blocking weep hole.

There are many different types of window styles and opening configurations. Many the extrusions have weep holes designed into the interior side of the



Interior weep holes.

extrusion as well to drain condensation that occurs on the interior of the glass to the outside of the building. These are direct leakage paths for air & water into or out of the buildings. If the weep holes are blocked to prevent drainage from occurring, the water can build up in the extrusion and ultimately leak

into the wall cavity if a leakage path is available. Many things beyond your control as an air barrier contractor or installer can happen that adversely affect the performance and durability of the wall assemblies that you are working on. To greatly reduce the chances of unexpected liability, do your best to install your air barrier assemblies at all penetrations in the building envelope. Windows in buildings are well know to be the weakest link in the air barrier chain and you need to pay extra attention when detailing these areas.



Interior weep holes.

Many design professionals require the air barrier to completely cover or extend to the full width of the window rough openings to prevent such damage. As an air barrier contractor or installer, your understanding of some of these principles is critical to the durability and performance of these wall assemblies. Blocking a weep hole in a window can have catastrophic results in water damage for the building.



Typical full coverage of rough opening with an air barrier material.



Typical full coverage of rough opening with an air barrier material.

When installing fluid applied membranes or spray polyurethane foam systems on the exterior of the buildings it is possible that the installer could inadvertently spray over the weep holes and seal them off if the windows were not covered with a plastic sheathing prior to the spray applications. Great care and forethought are required to prevent overspray from damaging the windows

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Typical full coverage of rough opening with an air barrier material.



Typical masking off of windows prior to the installation of spray polyurethane foam.

or blocking weep holes. In the event that an installer sprayed over the weep holes in a window extrusion, they would be required to repair the affected areas. If spray polyurethane foam directly entered the weep holes during application, the window may have to be completely replaced in order to properly fix the problem. If the exterior cladding has already been installed when the

problem was identified, the costs associated with this would be extremely high. The air barrier contractor may have to pay to have the cladding removed, the window replaced and the cladding reinstalled. Additionally, they may have to pay for the damages that were caused as a result of blocking the weep holes. So, take great care and DO NOT block weep holes in window extrusions.

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