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DRAINING WATER FROM A SYSTEM AND REMEDIAL REPAIRS

Thermal Design's Simple Saver System® was designed to be an extremely strong and durable vapor barrier liner material that has a very minimal water vapor transmission rating. All such ceiling and wall liner sheets are also designed to be completely sealed against humidity infiltration to the abutting building structures where all edges are terminated and then structurally retained to insure a durable attachment. These systems perform extremely well in actual use.

Occasionally there are circumstances that occur in buildings that result in humidity or liquid water entering the insulation cavity and being trapped inside the cavity. In the ceiling or roof systems, humidity can condense to liquid water during night hours as the roof surface cools. Liquid water can also enter the insulation cavity during construction from rain, sleet and snow. Roof leaks also account for some water intrusion and occasionally a plumbing leak as well. Migration from adjacent connected structures also can be a source of humidity as well as air pressure infiltration through poorly sealed construction joints.

No matter how water enters the insulation cavity, it can easily condense and collect as liquid water on the top side of any high quality vapor retarding materials. When this happens, it is important to understand that the water or water vapor is entering the insulation cavity from somewhere. It does not just come with the building or the insulation system materials.

Step One: Define where the water and water vapor is entering the insulation cavity and shut that source off. In new building construction, poor workmanship in sealing construction joints is often the culprit.

Once the source of water entering the insulation cavity is shut off, then comes the task of removing the accumulated liquid water and venting out the evaporated water from the system. Fortunately water vapor moves through fiberglass insulation almost as if the insulation is not there.

Step Two: Drain out the accumulated liquid water from the ceiling system. This is done by making a 4" to 6" straight slit in the ceiling sheet material at the points of most accumulation. This point is where the most deflection shows in the ceiling liner. Due to an effect called capillary action, the water will simply drip slowly from the slit. To accelerate this drainage, insert a small plastic cup, or anything similar through the short slit which will lift the fiberglass off the ceiling liner sheet at the slit. This will result in breaking the capillary action forces holding back the water and it will drain out.

Tip: Using a separate sheet of polyethylene sheet material to catch the water can divert the flow of water to a collection vessel. The steel straps of the Simple Saver System can be used to hold up the edges of the poly sheet. It is possible to rig up a collection valve in the polyethylene collection sheet and at the low point and to use a light weight tubing to a drainage receptacle.

Step Three: Make sure there are relief vents adjacent to the ridge to vent excess humidity to the outside air. A simple Dek-Tite flashing with a 5 inch diameter, black ABS pipe or Painted Black PVC pipe along with a vent cap, Tek style screws with sealing washers and a roof sealants, placed about 25 to 30 feet apart will vent out the humidity over time. This works because of the solar heat effects on the building which naturally concentrates hottest air and highest humidity under the building ridge (highest points).

Step Four: Remove the plastic cup from the top side of the ceiling sheet near the slit and then patch the short drainage slits in the ceiling vapor barrier sheet. This is accomplished using the smallest patch of matching tape possible to cover the slit. The surface of the ceiling sheet must be dry to get the best adhesion. Rounding off all square corners of the tape using a scissors to form an oval or circle shape is less noticeable and less likely to peel off than square pointed corners.

Tip: The **G220 Simple Saver Pressure Sensitive Sealant™**, spray-on liquid aerosol adhesive applied on the back side of the Simple Saver Patch Tape converts it from a pressure sensitive, semi-solid adhesive to one that is a tacky liquid contact surface to be applied immediately and tends to be more permanent, as it is difficult to apply much pressure on a flexible ceiling sheet material. Small punctures are often best sealed with **G720 Simple Saver Air-Tight™ Sealant** which comes in caulk style tubes.

Step Five: Inspect all surfaces to be sure they are all sealed effectively and permanently. This includes cracks along walls, rafters, columns and base conditions too! Air pressure differences can cause humid air to flow through cracks and holes as well as to circumvent the vapor barrier at any point. Wind pressures on exterior walls create higher pressures on the windward side and lower pressures on the leeward side of buildings. So exterior and interior construction joints that are not properly sealed can breathe humid air through the breaches due to these pressure differences. Minimizing these effects along with using humidity relief vents allow buildings to naturally recover from moisture accumulation. Active dehumidification of insulation cavities at their highest points of elevation is also available and manageable with controls, but at a higher cost.