

CARLISLE'S DESIGN SERVICES ADVISORY BULLETIN

October 20th, 2011

To: Representatives, Distributors, and Authorized Applicators

RE: Winter advisory alert – Construction generated moisture

In light of the many articles written on construction generated moisture “SPRI Advisory Bulletin of August 2008, the Interface article of August 2009, and the Construction Specifier article of November 2009” and the recent papers presented on the same topic during the recent 2011 International Symposium, we would like to call your attention to the subject matter especially as the cold weather is approaching.

Unlike occupancy-generated moisture which is typically addressed during the design phase construction moisture is often neglected and any subsequent effect is frequently overlooked.

During construction, moisture accumulation in buildings is influenced by construction practices, project scheduling, membrane color, roof insulation (single versus multiple layers), the lack of air/vapor barriers, and lack of building dehumidification (prior to its occupancy). As most of these factors are not directly related to the building's use, they are typically not addressed in the design phase.

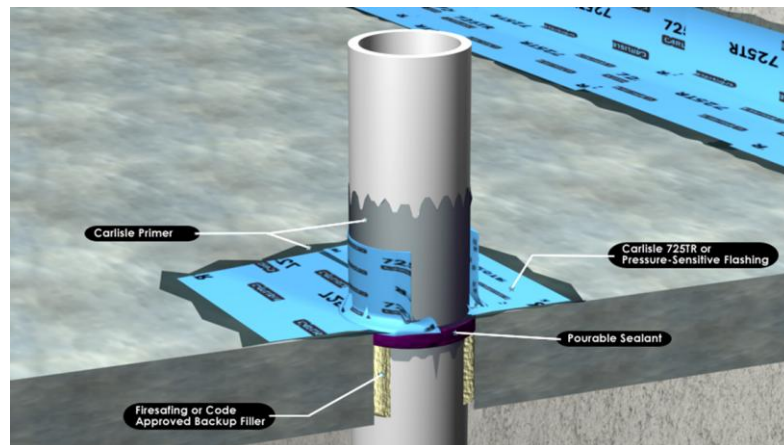
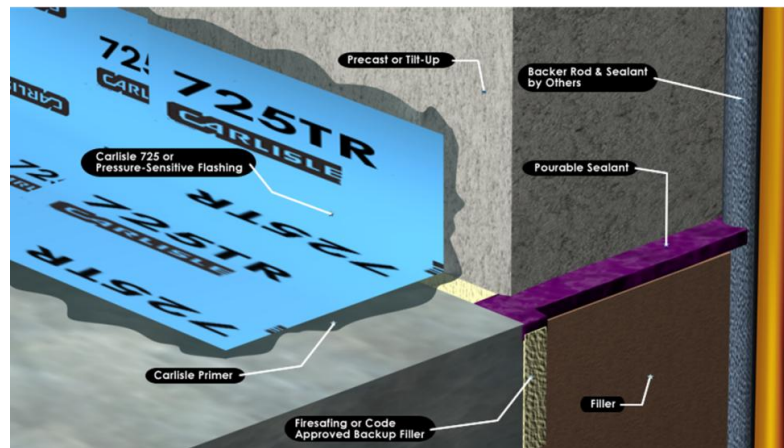
In the absence of air or vapor barriers, warm humid air which is typically found in unventilated spaces (newly constructed or newly renovated) can migrate upward (during cold weather) and infiltrate the roofing assembly through gaps (wall to deck), unsealed joints (steel deck end laps) or around penetrations. Moisture within the humid air will begin condensing once it encounters a surface temperature below the dew point. The longer the surface remains below the dew point, the more condensation will collect as long as the vapor migration is continuing!

White roofs due to their reflectivity, often fall below the dew point and remain below the dew point for longer periods than darker roofs. This natural behavior in material reaction to temperature when not understood and dealt with, continues to contribute to the phenomenon of condensation and moisture drips.

With the above in mind, it is important to **take several steps** to reduce the probability of condensation;

- **Evaluate** the construction practices being followed and assess its impact on the roofing assembly.
- **Consider** building dehumidification to lower moisture levels, reducing and improving the overall health conditions.
- **Incorporate** the use of air/vapor barriers to prevent humid air from reaching the roof assembly/ the cold membrane.

- **Seal** gaps/ joints in the deck, around penetrations and junctions between the deck and a parapet wall or curb when a vapor/ air barrier is not used. See illustrations below as an example.



- **Use** multiple layers of insulation with joints staggered, to obstruct humid air from gaining access to the cold underside surface of the membrane.

It is important to discuss these issues with the building owner, the general contractor and project designer. Documents referenced above should also be referenced and consulted for the best possible approach.

Please direct any questions or concerns to the Carlisle Design Services team or the Project Review group at 1-800-479-6832.

Sincerely,

Samir K. Ibrahim
Director, Design Services & Project Review