

November 7, 2012

**To: Representatives, Distributors, and Authorized Applicators**

**RE: Winter Advisory Alert – Avoiding Condensation Issues from Occupancy- or Construction-Generated Moisture**

As the cold weather approaches, we would like to remind everyone about the concerns raised in our October 20<sup>th</sup>, 2011 Winter Advisory Alert “Construction Generated Moisture” that related to both occupancy- and construction-generated moisture. Occupancy-generated moisture is typically addressed during the design phase; however, many existing buildings experience changes to their use in their lifetime. If you are involved with reroofing an existing facility, take a moment to verify with the building owner or roofing consultant that consideration has been given to the need for an air/vapor barrier to prevent moisture-related issues.

During the construction of new buildings, moisture accumulation 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 migrates upward during cold weather and infiltrates 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 or light-colored roofs, due to their reflectivity, often fall below the dew point and remain below the dew point for longer periods than darker roofs, and are therefore more prone to the phenomenon of condensation issues and moisture drips.

When considering the use of cool or reflective membranes in colder climate regions to comply with government mandates, think beyond the single component strategy approach. Utilize appropriate insulation levels, multiple layers of insulation and air/vapor barriers to avoid the un-cool consequences of condensation.

With the laws of physics in mind, it is important to **take several steps** to reduce the probability of condensation, especially if using a light-colored roofing membrane in colder northern climates;

- **Evaluate the construction practices** being followed and assess their impact on the roofing assembly
- **Consider building dehumidification** to lower moisture levels

# DESIGN ADVISORY

- **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 an air/vapor barrier is not used
- **Use multiple layers of insulation** with staggered joints to obstruct humid air from gaining access to the cold underside surface of the membrane
- **Use at least the minimum ASHRAE recommended R-values**
- **Specify a darker membrane** like EPDM to minimize energy consumption and carbon emissions in colder weather

To avoid the potential issues raised in this advisory, Carlisle recommends that you discuss them with the building owner, general contractor and project designer.

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

Sincerely,

Samir Ibrahim  
Director of Design Services