FOAM CONTROL EPS

Nailbase No. 4003

Subject: **Metal Roof Ventilation with Enkamat 7020**

Date: **September 2009**

The ventilation of metal roofing when installed over Foam-Control Nailbase is a recommended procedure that provides a number of building science benefits.

The primary benefit of venting above Foam-Control Nailbase is the removal of unintended moisture vapor that may emanate from the interior of the building. The venting of moisture vapor between the roof covering and the top of the Foam-Control Nailbase reduces the risk of condensation and the potential of moisture damage. In addition to the venting of interior moisture, any rainwater or melting snow that circumvents the metal roofing materials is also removed by virtue of the ventilation space.

Additional benefits of a ventilation cavity is the reduction in the temperature of the Foam-Control Nailbase upper surface which reduces the cooling loads for a roof system in the summer. Some metal roofing systems, particularly Zinc and Copper, can expose Foam-Control Nailbase roof decks to high temperatures and this reduction of temperature is required. In winter, the ventilated space assists by reducing ice damns when the depth of snow is significant. Impact noise of rain and hail are mitigated as well.

Foam-Control has investigated a unique product that is compatible and works well with Foam-Control Nailbase for above deck ventilation - Colbond's Enkamat 7020. Enkamat 7020 is commonly used in roofing applications to provide the ventilation, drainage, and thermal separation needed for a long service life.

Enkamat 7020 is a three-dimensional mat made of continuous nylon filaments fused at their intersections. The 95% open structure of the entangled filaments facilitates drying of condensed water vapor from the building interior while giving full support to the metal roof. The nylon filaments do not fail under the load of the roof and the rigors of the construction environment, including construction foot traffic. The space created between the Foam-Control Nailbase roof deck and the roof covering will allow moisture to flow away or evaporate.

Enkamat 7020 from Colbond

Testing has been conducted on the temperature difference that Foam-Control Nailbase experiences when ventilated with Enkamat 7020 compared to no ventilation. A standing seam metal roof on a small scale Foam-Control Nailbase roof structure was constructed specifically for this evaluation. Dark standing seam metal roof panels were fixed to the roof over the Enkamat 7020/roofing underlayment combination and this was compared to the metal roof panels over roofing underlayment alone.

The top surface of the metal roofing was brought to a temperature of 194°F (90°C) with the use of infrared heat lamps. This temperature was held for 6 hours to ensure the temperatures through the assembly would stabilize.

Foam-Control Nailbase Ventilation	Temp Reduction From Metal Roof to Top Surface of Foam-Control Nailbase
None	10°F
Enkamat 7020	43°F

The temperature recorded on the top surface of the Foam-Control Nailbase was significantly lower with the use of the Enkamat 7020.

These results cleary demonstrate the effect of an air space on the temperature of an Foam-Control Nailbase roof deck when metal roofing is exposed to high temperatures and solar exposure.

Foam-Control recommends Colbond's Enkamat 7020 as a product that provides the important benefit of easy, cost effective installation with Foam-Control Nailbase and the additional building science benefits of ventilation.