

**TO:** Atlanta Sales, Commercial Field Sales, Regional Managers, Plant Managers and Account Executives

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**FROM:** Director Technical Services, Commercial Products Division

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**SUBJECT:** ACFoam<sup>®</sup> CrossVent<sup>®</sup> and other Ventilating Nail Base Insulation Products

\*SUPERSEDES EXISTING DOCUMENTS

In December 2002, Atlas introduced ACFoam<sup>®</sup> CrossVent<sup>®</sup>, ventilating nail base insulation product that does not require special detailing to allow air flow into hips and valleys. As a result of this change in design, the LTTR-values for the new product are slightly lower than those for Vented-R. Vented-R provided some thermal resistance in addition to the primary layer of ACFoam<sup>®</sup>-II because of the positive framing effect of the polyiso spacing strips. Additional thermal resistance for the air space or the OSB above the air space in Vented-R was not considered in determining the product LTTR-value, since outside air flowing through the product creates a thermal interruption and does not, therefore, provide any appreciable thermal resistance to the product. Further, the air flowing through a properly ventilated air space eliminates the small thermal resistance provided by the 7/16-inch OSB, as well as the roofing materials and outside air film above the air space, since ambient air is flowing above and below these components.

A review of available competitive product literature and websites indicates that unexplained thermal resistance values are being added to the LTTR-values of the polyiso foam portion of some ventilating nail base products. These values range from 0.6 to 2.3, and, when combined with the LTTR value of the polyiso foam layer, are called Total R-value, System R-value, or Product R-value. In one case, the LTTR-value for the foam was reportedly determined according to CAN/ULC-S770, but no test method was provided for the determination of the System R or Total R. In another case, the literature provided only a general reference to 6-month aging and to LTTR. Our review did not discover a single case that cited the test method used to determine the Total R, System R, or Product R.

Because air flows freely through the venting strips of ACFoam<sup>®</sup> CrossVent<sup>®</sup>, the small thermal contribution of the spacing strips to the overall product thermal resistance is reduced. Although this value is not zero, Atlas has chosen not to report it, relying only on the third-party certified LTTR-values of the ACFoam<sup>®</sup> component. This decision was based on the recognized authority of the ASHRAE Fundamentals Handbook, Chapter 24, Table 3, note b; and Chapter 23, "Factors Affecting Heat Transfer Across Air Spaces." This chapter explains that the thermal resistance values claimed for air spaces are applicable only when the air spaces are sealed against air flow in or out of the space. It was also significantly based on the expert recommendations of the U. S. Department of Energy, Oak Ridge National Laboratory.