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Recently Published:
“Assessing the Effect of Air Intrusion on Reflective Insulation’s Performance with Horizontal Heat Flow”

On January 27, 2023, MDPI published a new research paper entitled “Assessing the Effect of Air Intrusion on Reflective Insulation’s Performance with Horizontal Heat Flow.” Here is a brief overview:

In a recent study by Prof. Hamed Saber from the Royal Commission of Jubail and Yanbu, Kingdom of Saudi Arabia and Prof. David Yarbrough from R&D Services, TN, USA, the effect of air intrusion on the R-value of reflective insulation in walls has been studied in depth using advanced multi-dimensional and validated computer model. This advanced model was extensively used for several applications related to the reflective insulations, including the development of “Innovative Reflective Airspaces Tool”. There is no prior study known that provides the full assessments for the performance of reflective insulation assemblies due to air infiltration or wind washing.

Reflective insulations are “enclosed reflective air spaces”. Practical factors, however, can lead to unwanted air infiltration or wind washing. The effect on R-value depends on the air changes per hour (a measure of the amount of air intrusion) and the difference in temperature between the incoming air and the insulation region without air intrusion. The research paper contains R-value changes for different cavity dimensions, temperature differences, air flow rates, and effective emittances.

The complete study can be downloaded here: <https://www.mdpi.com/2075-5309/13/10/2461> .

Both authors have written multiple papers and articles on behalf of the reflective industry and have presented at conferences around the world, including the recent International Reflective Insulation Conference (I-RIM Conference) May 2023 in Rome, Italy. Their presentation on “Modern Evaluation of Reflective Insulation Performance” is also available at <https://rimainternational.org/i-rim-conference/i-rim-conference-rome-italy/>.

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