



### Review of Thermal Insulation Evaluations

“Thermal Insulation Evaluations by Calculation” are being prepared by James M. Fricker, MIEAust CPEng for assemblies that contain reflective insulation. The calculations are being independently reviewed by David W. Yarbrough, PhD, PE, a partner in R&D Services, Inc., a testing and consulting company.

Dr. Yarbrough holds a PhD in Chemical Engineering from the Georgia Institute of Technology and is Professor Emeritus of Chemical Engineering at Tennessee Technological University. In 1983, Dr. Yarbrough published correlations for the thermal resistance of reflective air spaces based on measurements from the U. S. National Bureau of Standards. These measurements and correlations form the basis for the Reflect 3 program presently being used in the Australian evaluations. A second set of correlations based on the NBS data that were published in 1991 are being used in the review process being completed at R&D Services.

Dr. Yarbrough was chairman of the ASTM Subcommittee on Reflective Insulations (C 16.21) for ten years and continues to be an active member of C 16.21 and Committee C 16 on thermal insulation. Dr. Yarbrough is author or co-author of over 200 papers and reports including the following selected items dealing with reflective insulation.

“Prediction of the Thermal Performance of Single and Multi-Airspace Reflective Insulation Materials”, ASTM STP 1116 (1991) with A. O. Desjarlais.

“Estimation of the Thermal Resistance of a Series of Reflective Air Spaces Bounded by Parallel Low Emittance Surfaces”, Proc. of Conf. on Fire Safety and Thermal Insulations (1990).

“Contamination of Reflective Foils in Horizontal Applications and the Effects on Thermal Performance”, ASHRAE Transactions 95 (2) (1989) with J.C. Cook Jr. and K. E. Wilkes.

“Thermal Resistance of Wall Cavities Containing Reflective Insulation” Oak Ridge National Laboratory Report ORNL/SUB-7715/6 (1988) with B. J. Han.

“Thermal Resistance of Wall Cavities Containing Reflective Insulation”, J. of Solar Energy 108 338-341(1986) with B. J. Han and S. M. Han.

“Assessment of Reflective Insulations for Residential and Commercial Applications”, Oak Ridge National Laboratory Report ORNL-TM-8891 (1983).

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