

Evaluation of Thermal Resistance of Autoclaved Aerated Concrete (AAC) Masonry Systems

Christina M. Behrens¹ and Jennifer E. Tanner²

Abstract:

As increasing efforts are placed on energy resources worldwide, it is important to quantify the thermal efficiency of AAC (Autoclaved Aerated Concrete) masonry. AAC is a lightweight cellular material where raw materials are mixed into a slurry and an expansive agent such as aluminum powder is added to the material causing macroscopic voids to form. The resulting cellular structure has high thermal efficiency which is the basis for this study. The experimentally determined static thermal resistance (R-value) of six specimens constructed of 4in. (100 mm) thick AAC panels including thin-bed mortar joints are compared to other studies conducted in the United States of America. A linear relationship between thickness and R-value is validated and equations for the R-value of AAC masonry are proposed.

To purchase full article: Please use this direct link to purchase the TMS Journal Volume of this article, Volume 26, Issue 1: <https://masonrysociety.org/product/tms-ejournal-vol-26-no-1/>

Otherwise, consider becoming a TMS member for full access to all TMS Journal articles: <https://masonrysociety.org/membership/#join>

DOI: 10.70803/001c.138968

¹ Structural Engineer, Wallace Engineering, Tulsa, OK

² TMS Member/Assistant Professor of Civil and Architectural Engineering, University of Wyoming, Laramie, WY.