

Oak Ridge National Laboratory Study Determines Dryvit Outsulation® 84% More Thermally Efficient

Dryvit walls out-perform all other cladding in independent tests conducted by ORNL

In a study released by the prestigious Oak Ridge National Laboratory (ORNL) in June of 2002, Dryvit walls were rated more thermally efficient than any competing wall system after being subjected to rigorous independent testing at the nation's pre-eminent scientific research company.

The recently released landmark report provides rich, new evidence of an important source of differentiation for choosing Dryvit Outsulation in an environment where thermal efficiency is desired by the building owner.

The Findings

A clear wall comparison was performed by ORNL scientists at the ORNL facility in Oak Ridge, Tennessee. Seven common cladding types:

- Dryvit Outsulation
- Brick
- Glass
- Stucco
- Concrete
- Wood
- Masonry

were evaluated to arrive at an effective "Clear Wall R-Value" for each cladding as used in their most common installed wall configuration. The Clear Wall R-Value considers the entire wall construction, including material discontinuities and thermal bridging effects. The overall opaque wall performance for a typical building is then measured using the "Whole Wall R-Value" concept, which additionally included effects from transition details at areas such as windows and doors, roof and floor lines, foundation and corners and others.

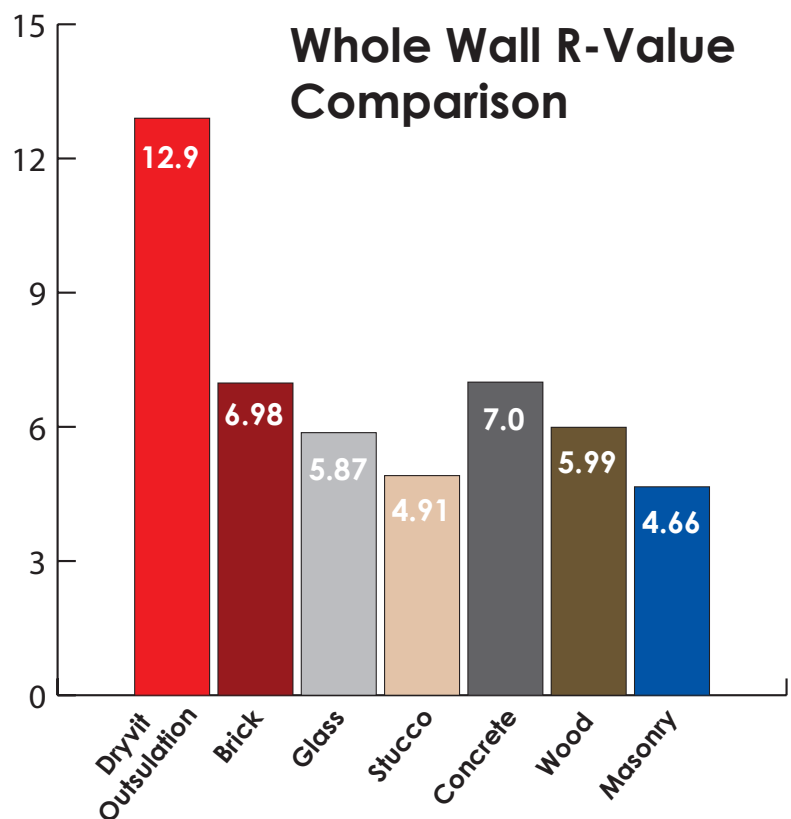
The result?

Dryvit Outsulation achieved an 84% higher R-value than the next best-performing cladding.

The Methodology

Hot-box test and finite difference computer modeling were used to analyze steady state thermal performance of the clear wall area and wall interface details for the Dryvit Outsulation system with 3 5/8-inch light gage steel framing.

Guarded hot box tests formed the basis for a finite difference computer model calibration. This



Source: Oak Ridge National Laboratory, 2001

computer model was then used to calculate local R-values for all typical wall interface details and the whole wall R-value. A one-story office building (140'x 60') was utilized for this analysis.

Thermal performance of the Dryvit wall system was compared with six competitive wall technologies using the geometry of the office building (floor plan, area of elevation, windows, doors, etc.). Nine basic building envelope details were analyzed for each of the considered wall technologies. For all analyzed technologies, clear wall and local R-values for all wall interface details were computed based on three-dimensional finite difference modeling. They served in the calculation of the whole wall R-value and analysis of distribution of heat losses through the building envelope area.

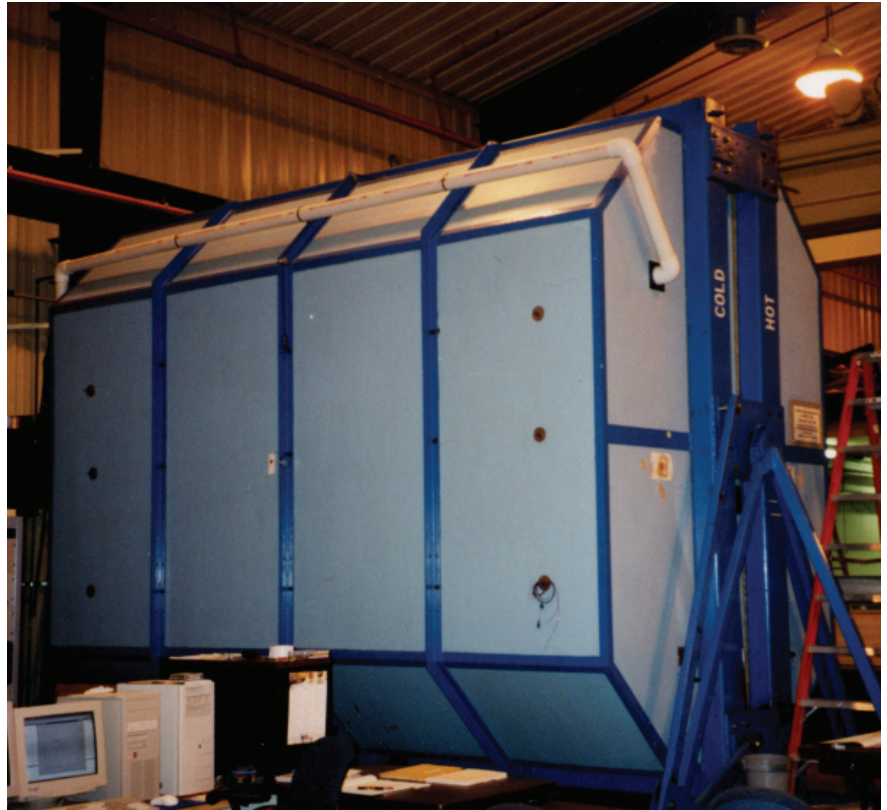
The ORNL report is significant because it considers a whole wall or through wall assembly, taking into account all the materials that make up the wall structure.

What is unique about the ORNL study is that it compares all claddings as they would be used on a building, including thermal bridges and other discontinuities.

The information contained in the study represents “real world” use and measures performance on an equalized footing.

A High-Performance Value

When building owners are seeking energy-efficient, high-performance building options, Dryvit Systems, Inc. offers the best alternative to suit their needs. Combined with extraordinary design flexibility and lower installed cost, Dryvit offers the best of all worlds. For more information call Dryvit Systems at 1-800-556-7752 or visit us on the Web at www.dryvit.com.



The ORNL whole wall testing chamber. (ORNL photo)

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