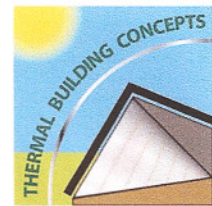


TECHNICAL BULLETIN NO.12



Thermal Building Concepts LLC
1366 Elon Drive
Waukon, Iowa, USA 52172
Phone 877-703-2323
Fax 563-535-7101

DATE: December 4, 2009

SUBJECT: ASTM 1363-05 Thermal Performance Testing – Thermal 3Ht

Description

Thermal 3Ht is a high-performance superior closed cell Type 1 Expanded Polystyrene (EPS) rigid insulation with factory laminated metallic-reflective facers, white facers or a combination of the two. Thermal 3Ht offers a long-term stable R-value, is Energy Star qualified insulation and qualifies for LEED points.

Testing

Architectural Testing Inc., an accredited independent testing laboratory, has performed the ASTM 1363-05 R-Value test on a series of concrete wall assemblies. Assemblies contain different thicknesses of Thermal 3Ht which were installed in a variety of locations throughout the wall assemblies.

Temperature Range: 70 F / 21 C inside and 0 F / -18 C outside.
Attached to the R-19 fiberglass insulation was a paper laminated vapor retarder.

Note* When installed in conventional wall assemblies, R-19 fiberglass insulation's in-service R-value is significantly lower than its stated or labeled R-value. For additional information:
www.ornl.gov/roofs+walls/wholewall/wallsys.html

TEST RESULTS

Wall Construction Details	R-Value
4 inch concrete wall with ½" Thermal 3Ht adhered to the outside (cold side) of wall	3.8
4 inch concrete wall with 1" Thermal 3Ht adhered to the outside (cold side) of wall	5.9
½" sheetrock, empty 6" steel stud cavity, 1" Thermal 3Ht, 4" concrete wall	10.0
½" sheetrock, 6" steel stud cavity with R-19 fiberglass, 4" concrete wall	11.6
½" sheetrock, 6" steel stud cavity with R-19 fiberglass, 1" Thermal 3Ht, 4" concrete wall	21.6

Additional Information & Observations:

- The ASTM 1363-05 is an R-value test (heat transfer via conduction). The test is conducted in total darkness; consequently this testing method does not fully utilize the effectiveness of Thermal 3Ht's metallic-reflective facers.
- When installed in a conventional concrete 6" steel stud framed wall, the in-service R-Value of R-19, 6" fiberglass insulation diminishes by approximately 40%. Conversely, when the components of a concrete steel stud framed wall assembly with R-19 fiberglass insulation are combined with 1" Thermal 3Ht the in-service R-Value of the wall assembly is improved from R-11.6 to R-21.6.
- The R-Value for 1" Thermal 3Ht is approximately R-4.
- 1" Thermal 3Ht adhered to a concrete wall between an empty 2 X 6 steel stud cavity and ½" sheetrock has an in-service R-value of R-10.
- Thermal 3Ht is a highly effective interior insulated vapor retarder.
- LEED: Thermal 3Ht contains up to 25% recycled content and is 100% recyclable.