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## Thermal Transference Findings

Our test unit was a gable end wood roof built to Miami Dade code with a 6 on 12 pitch. The gable ends were fitted with T-111 wood siding with fitted  $\frac{3}{4}$  inch foam weatherboard installed and caulked at the underside to give our unit real attic representation.

Substrate used was white granular modified system also applied to Miami Dade code fully adhered with hot asphalt. Days later our prototype tile product was laid again according to Miami Dade code and adhered using NOA approved polyfoam adhesive.

The test unit was transported and placed inside a climate-controlled facility set at 74 degrees. After one hour the unit's interior and exterior reached room temperature.

Next, the illustration shows the more  $\frac{3}{4}$  inches thick foam weatherboard was retrofitted around the unit so the top area could divide the side with our foam tile from the side without. Two small plexy glass panels, heat lamps and thermometers were installed on each side before the top was boxed off and sealed.

The illustration shows the unit's attic area was divided in half. A base/floor was installed using the  $\frac{3}{4}$  inch thick foam weatherboard so the two underside areas were completely separated and insulated to allow accurate results of heat transformation

A heat source of 250 watts was utilized to simulate sunlight and raise the temperature above the roof on each side to 100 degrees while the room temperature was 74 degrees. Simultaneous electronically monitored temperature readings were taken in each indoor/attic's side.

Test 1. Results were rather predictable for the side without our tiles after 3 hrs of the heat source. The illustration shows the room is 74 degrees, the simulated sunlight is 97 degrees, and the attic/indoor space is 119.

Test 2. However, the results for the side with our tiles after 3 hrs of the heat source were greatly different. The illustration shows the room is 74 degrees, the simulated sunlight is 100 degrees, and the attic/indoor space is only 85.



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Next the same heat source of 250 watts was utilized to simulate indoor/attic heat and raise the electronically monitored temperature under the roof on each side to 150 degrees while the room thermometer temperature was 74 degrees. Simultaneously thermometer temperature readings were taken above the roof on each side.

Test 3. Results were again rather predictable for the side without our tiles after 3 hrs of the heat source. The illustration shows the room is 74 degrees, the simulated indoor/attic heat is 150 degrees, and above the roof is 110.

Test 4. However, the results for the side with our tiles after 3 hrs of the heat source were greatly different. The illustration shows the room is 74 degrees, the simulated indoor/attic heat is 150 degrees, and the above the roof is only 78.

The test results were conclusive. The EternaTile roof system transferred less heat in both directions by 72% to 71%.