FLORIDA SOLAR ENERGY CENTER

Creating Energy Independence Since 1975

Buildings Research Q & A

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A Research Institute of the University of Central Florida

Q1. How much did this green roof reduce heat flux through the roof assembly relative to the control roof?

A. Negative - the control had less heat flow
B. About even
C. About 15%
D. About 45%

Answer provided – stay tuned

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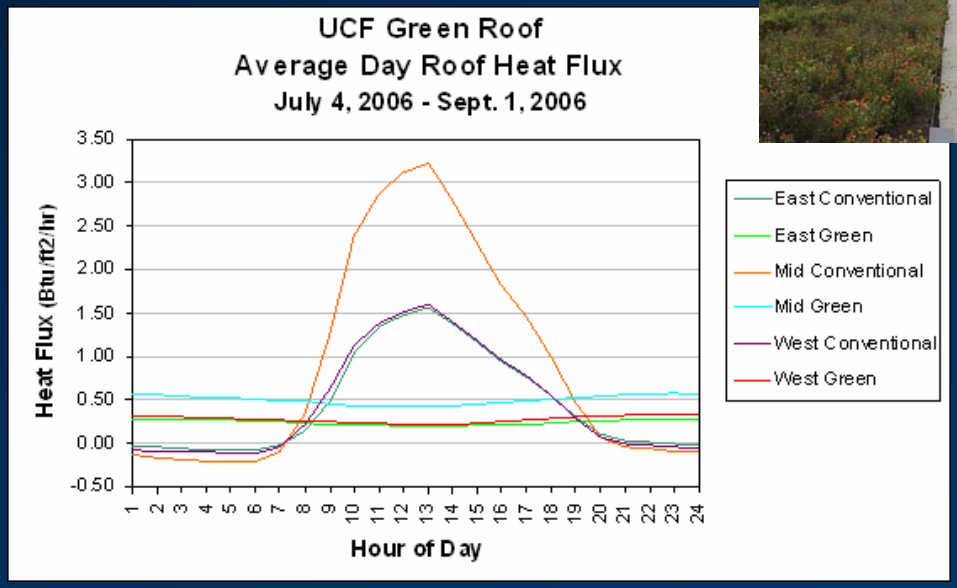
B. About even

C. **About 15%**

D. **About 45%**



1st year → 15%

2nd year → 45%

Sonne, Jeff, "Second Summer Green Roof Results," 16th Symposium for Improving Buildings in Hot and Humid Climates.

Q2. How much increase in home infiltration can occur due to closing interior doors with a single return central air system?

A. Interior doors do not effect air infiltration.
B. About 15%
C. About 30%
D. About 100%

Answer provided in nine slides

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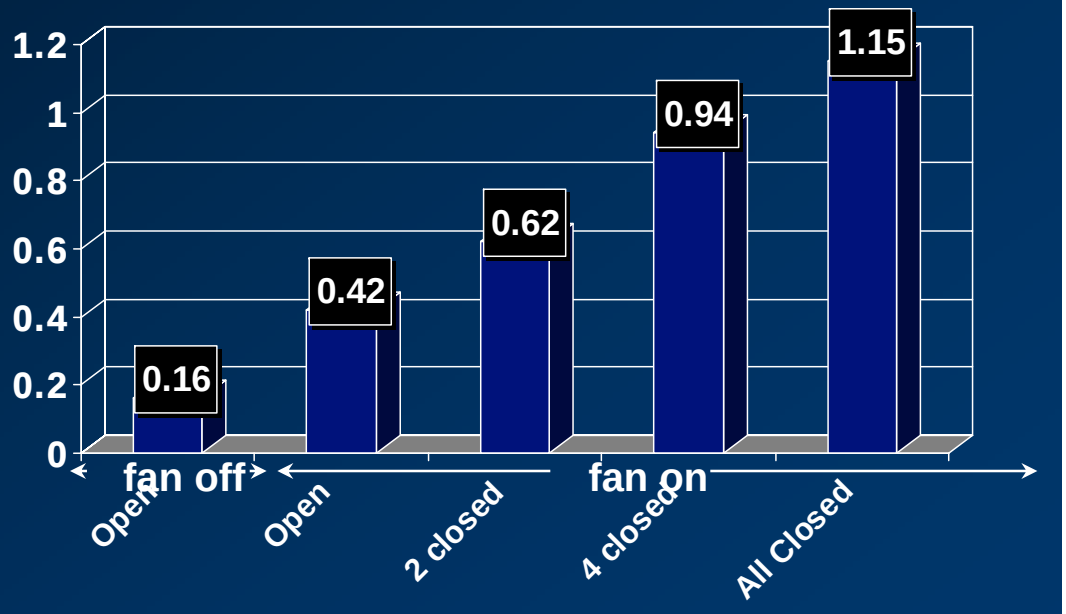

http://www.fsec.ucf.edu/en/publications/html/FSEC-RR-140-06/index.htm Cummings, J.B. and Tooley, J.J., "Infiltration Rates and Pressure Differences in Florida Homes Caused by Closed Interior Doors When the Central Air Handler is On", Proceedings of American Solar Energy Society 14th National Passive Solar Conference, June 1989

Cummings, J.B., Moyer, N., and Tooley, J.J., "Radon Pressure Differential Project, Phase II: Infiltration," FSEC-CR-370-90, Florida Solar Energy Center, Cocoa, FL, November 1990

Q3. How much does lifestyle affect home energy usage if the energy-efficient home is built the same?

A. $ <150/yr
B. $ 500/yr
C. $ 1000/yr
D. $ >1500/yr

Answer provided – stay tuned

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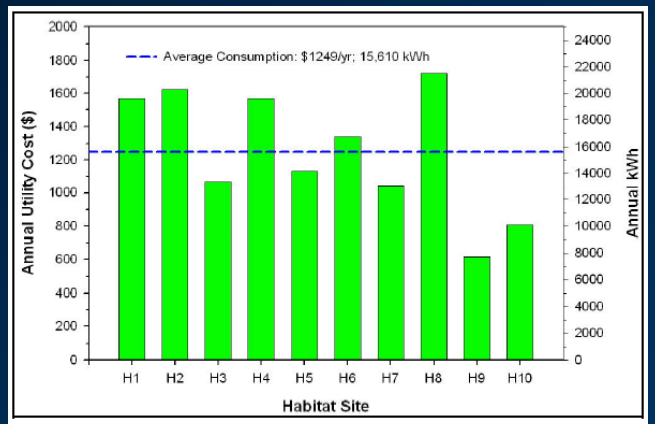

Figure 1. Variation in annual energy use in ten otherwise identical Habitat for Humanity homes in Homestead, FL (1994-1995).

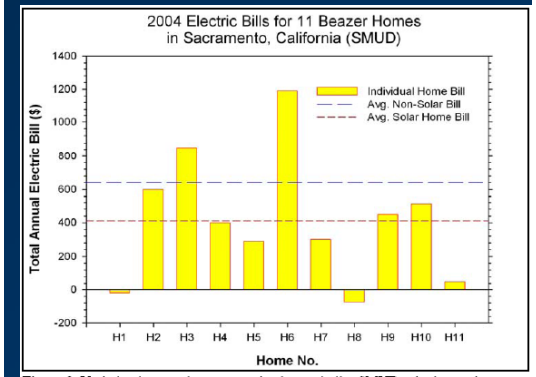

Figure 2. Variation in annyal energy use in eleven similar SMUD solar homes in Sacramento, CA (2004).

Parker, D., Hoak, D., Cummings, J., "Pilot Evaluation of Energy Savings from Residential Energy Demand Feedback Devices," FSEC-CR-1742-08, January 2008, web: http://fsec.ucf.edu/en/publications/pdf/FSEC-CR-1742-08.pdf .

Q4. In a sample of 69 new central Florida homes, what % of the total system air flow is leaking at the air handler?

A. The air handler has no air leakage.
B. About 1%
C. About 3%
D. About 5%

Answer provided in nine slides

Q4. In a sample of 69 new central Florida homes, what % of the total system air flow is leaking at the air handler?

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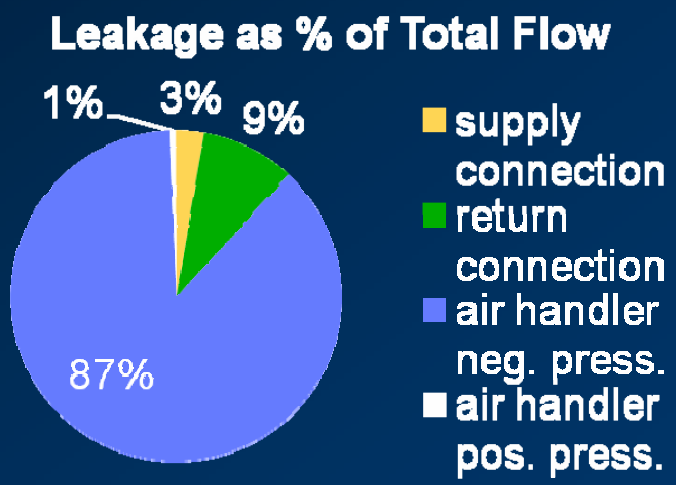
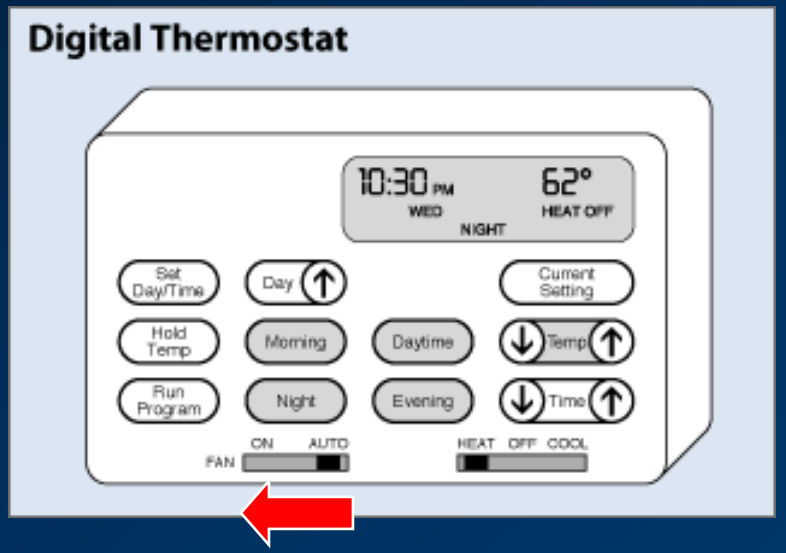


Cummings, J. B., Chuck Withers, Janet McIlvaine, Jeff Sonne, and Matt Lombardi. "Air Handler Leakage: Field Testing Results in Residences". Published in ASHRAE Transactions, Volume 109, Part 1, 2003, http://www.fsec.ucf.edu/en/publications/html/FSEC-RR-138-03/index.htm

Q5. How much can continuous supply air fan operation increase elevated humidity levels in homes?

A. More than 200%
B. About 100%
C. About 50%
D. Very little



Answer provided – stay tuned

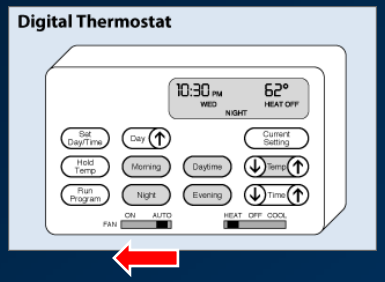
Q5. How much can continuous supply air fan operation increase elevated humidity levels in homes?

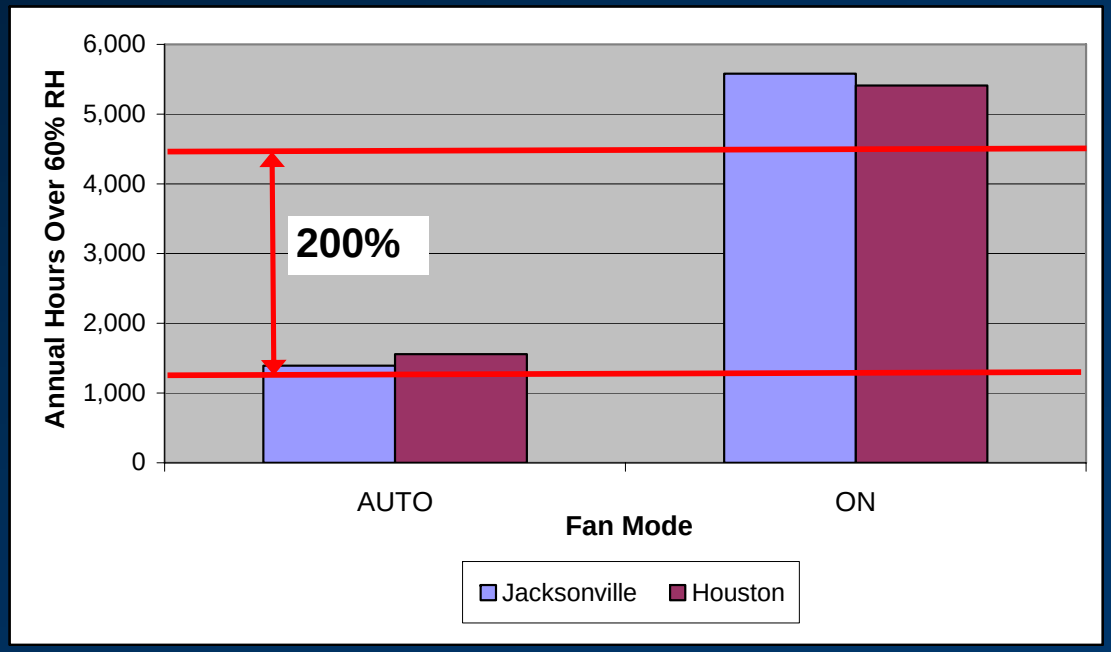
A. **More than 200% (depending on location)**

B. About 100%

C. About 50%

D. Very little





Henderson et al. "Develop New Climate-Sensitive Air Conditioner: Simulation Results and Cost Benefit Analysis," Task 4 Report, April 2007, http://www.fsec.ucf.edu/en/publications/pdf/FSEC-CR-1716-07.pdf

Q6. How much energy was saved by performance enhanced relocatable classroom design (PERCs)?

A. 0- 10%
B. 10- 35%
C. 35 – 85%
D. 85 – 100%

Answer provided in nine slides

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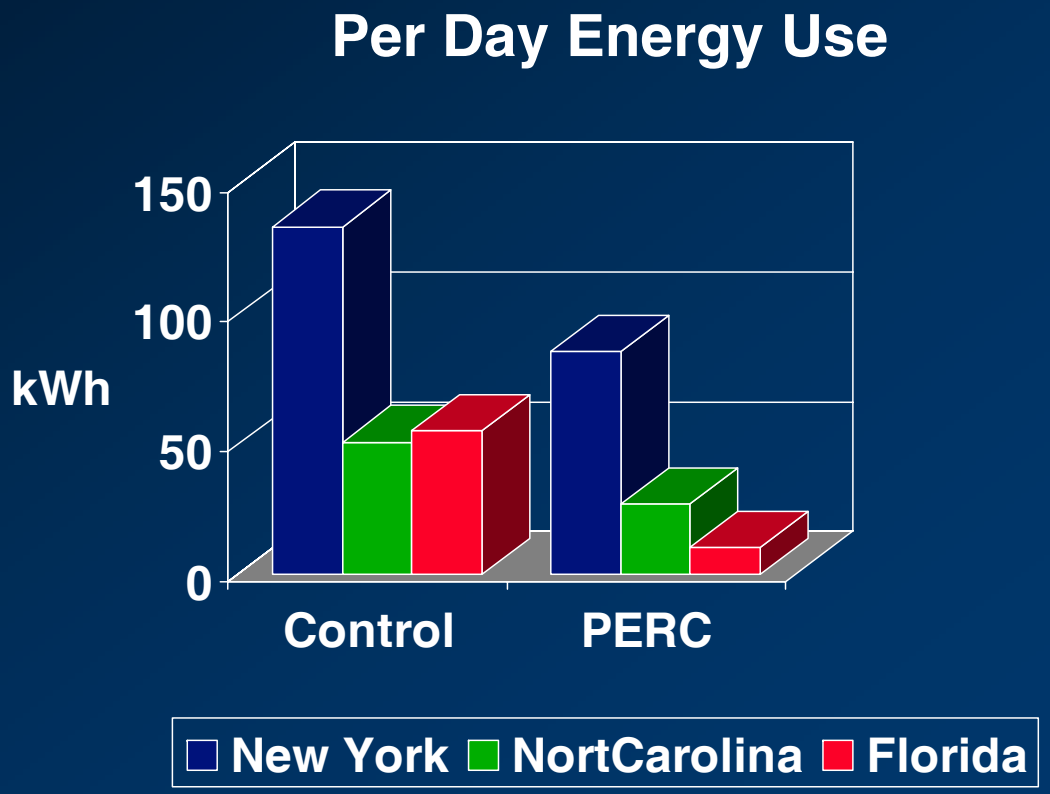

Q7. What is the largest summer residential peak electrical load for Florida homes?

A. Air conditioning
B. Water heating
C. Swimming pools
D. Miscellaneous

Answer provided – stay tuned

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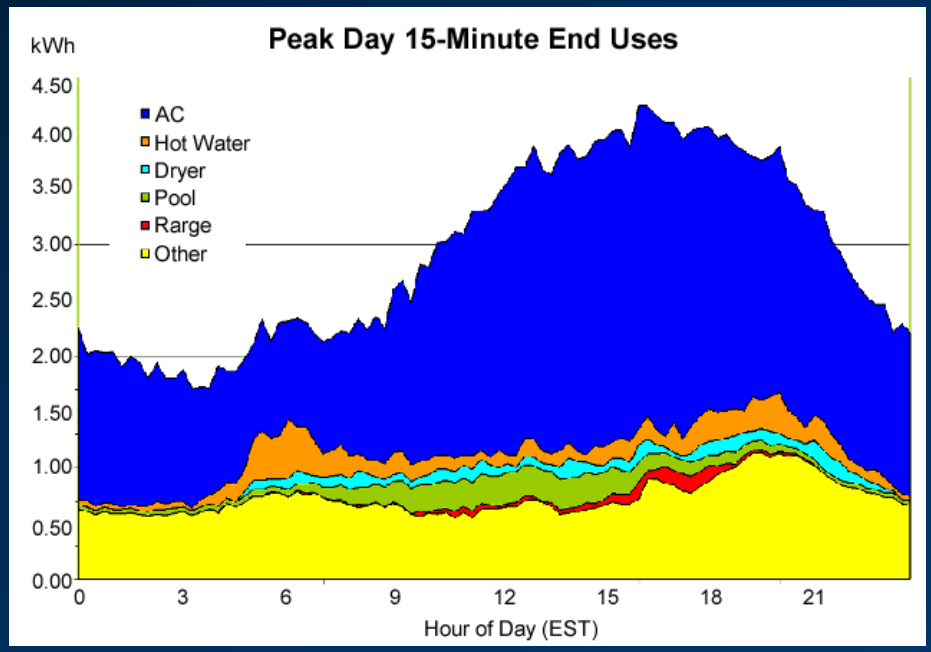


Parker, D. S., "Research Highlights from a Large Scale Residential Monitoring Study in a Hot Climate." Proceeding of International Symposium on Highly Efficient Use of Energy and Reduction of its Environmental Impact, pp. 108-116, Japan Society for the Promotion of Science Research for the Future Program, JPS-RFTF97P01002, Osaka, Japan, January 2002. http://www.fsec.ucf.edu/en/publications/html/FSEC-pf-369-02/index.htm

Q8. Compared to a dark shingle roof, how much does a white metal roof reduce ceiling(R19) heat flux in summer?

A. Less than 15%
B. 15 – 30%
C. 30 – 45%
D. > 45%

Answer provided – stay tuned

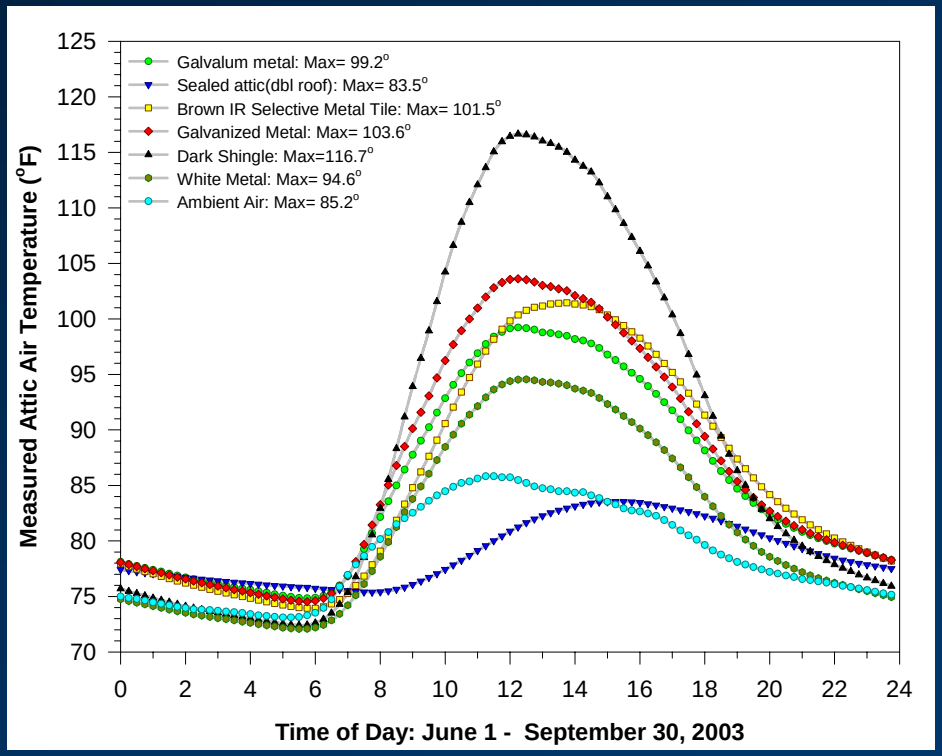
Q8. Compared to a dark shingle roof, how much does a white metal roof reduce ceiling (R19) heat flux in summer?

A. Less than 15%

B. 15 – 30%

C. 30 – 45%

D. > 45% (51%)



Parker, Danny, Jeff Sonne, John Sherwin, "Flexible Roofing Facility Summer 2004 Test Results," FSEC-CR-1514-05, http://www.fsec.ucf.edu/en/publications/pdf/FSEC-CR-1514-05.pdf

Q9. How much is typical cooling reduction from retrofitting an attic radiant barrier?

A. < 5%
B. 5 -10%
C. 10 – 15%
D. >15%

Answer provided – Stay tuned

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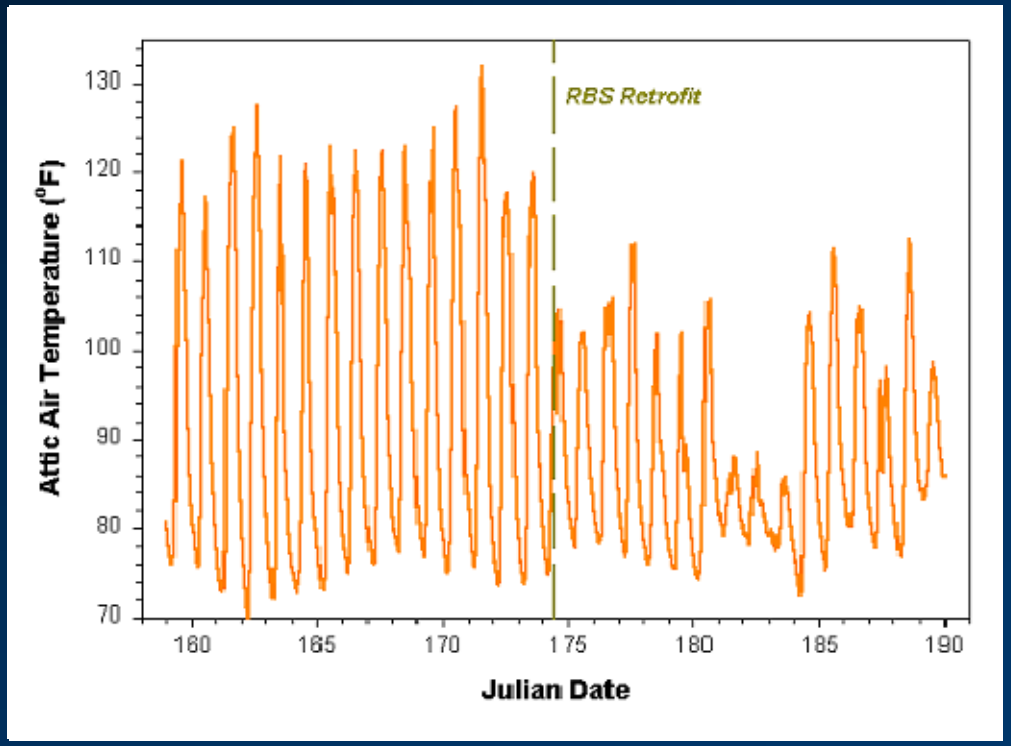

Parker, D.S., J. R. Sherwin and M. T. Anello, January 2001. "FPC Residential Monitoring Project: New Technology Development - Radiant Barrier Pilot Project," Contract Report FSEC-CR-1231-01 , Florida Solar Energy Center, Cocoa, Florida, http://www.fsec.ucf.edu/en/publications/html/FSEC-CR-1231-01/index.htm