

Case Study Results:

This case study outlines home energy efficiency upgrades performed on the Demaree residence in June of 2009.

Case Study: Demaree			
Location: Madison, TN			
House Style / Size: Two Story, 3,100 SF			
Description of Work:		Energy Use - MMBtu/yr	
Air Sealing		Before	180 MMBtu/yr
Spray Foam Roof Deck		After	125 MMBtu/yr
		% Reduction	31%
Energy Use - kWh/yr		Lbs. Coal Used/yr	
Before	52,740 kWh/yr	Before	42,877 lbs
After	36,625 kWh/yr	After	29,776 lbs
% Reduction	31%	Lb. Reduction	13,101 lbs
Air Infiltration		CO2 Emissions	
Before	6,500 CFM50	Before	122,629 lbs.
After	4,670 CFM50	After	85,159 lbs.
% Reduction	28%	% Reduction	31%
Duct Leakage - 1st Floor		# Of Cars/Year Off the Road:	
Before (est.)	N/A CFM	3.82	
After	N/A CFM		
Reduction	N/A		

Energy Efficiency Upgrades:

This list includes everything E3 did to ‘tighten up’ and dramatically reduce air-leaks in the home and insulate the building envelope.

- Attic – E3 installed 6” of 0.5 lb polyurethane spray foam insulation on the roof deck, effectively creating a semi-conditioned attic. Upon temperature testing of the home by a third party after installation, the temperature in the house on a hot day measure 77 degrees F and the attic temperature measure 85 degrees F.
- Air Infiltration – E3 caulked or foamed all penetrations into the subfloor, including plumbing and electrical lines, penetrations into the ceiling including recessed lights and fans, around window and door frames, and at baseboards where the trim meets the floor. E3 added foam insulating pads to all outlets and light sockets, helping seal this common area of air leakage to the attic and crawl space. We recommend having an effective fireplace damper or ‘balloon’ installed to address this large area of air infiltration.

