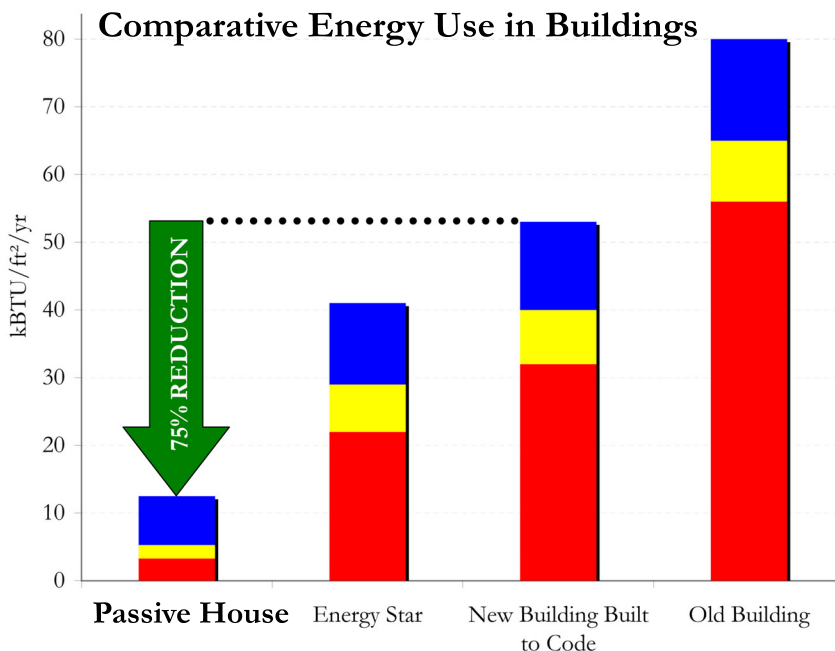


NEAR ZERO ENERGY PASSIVE HOUSES

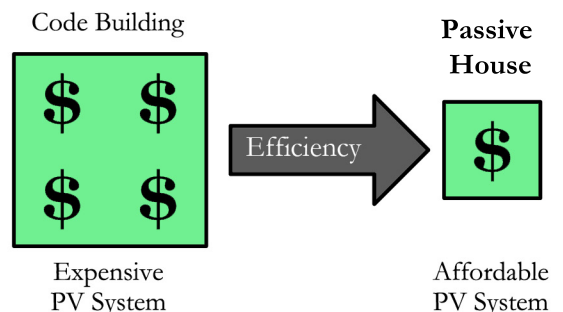
Kentucky Highlands and Southern Tier Housing are nearing completion of a development of five near Zero Energy affordable residences in Emlyn, KY. When complete, they are expected to be the first buildings in Kentucky to be certified Passive Houses. The Passive House Standard is the most rigorous building energy standard in the world. Buildings that meet the standard use 90% less energy for heating and cooling and 75% less total energy than new buildings built to code. These load reductions make it more affordable to achieve Zero Energy with a small solar photovoltaic system. Zero Energy means that these houses will generate as much energy on a net annual basis as they consume. The houses in Emlyn achieve the performance goals of Passive House through:

- superinsulation of the entire building envelope
- elimination of thermal bridges
- airtightness of the building envelope
- energy recovery ventilation
- high performance windows and doors (triple glazed, insulated frame)
- solar domestic hot water
- energy modeling using the Passive House Planning Package (PHPP)

- **Airtightness:** less than 0.6 air changes per hr. at 50 pascals pressure (approx. 10x better than a new house built to code)
- **Walls:** Double 2x4 stud wall w/ 2" rigid foam: R-value: 56
- **Roof:** Raised Heel Trusses w/ cellulose R-value: 67
- **Floor:** Ventilated Crawlspace--2x12 joists w/ 1 1/2" rigid foam underneath R-value: 53
- **Windows:** Triple-glazed, insulated frame U-value: 0.16 SHGC: 0.63
- **Energy Recovery Ventilator:** recovers 95% of the indoor air energy while bringing in continuous fresh filtered air
- **Heating & Cooling:** Ductless Mini Split Heat Pump--26 SEER



PV Required for Net-Zero Energy



Passive House Consultants:



www.cscdesignstudio.com