

Building for the Future: Designing a Passive House Residence Hall at Emory & Henry College

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Introduction

- Who I Am
- What We Did
- How We Did It
- What We Plan To Do

Who we are

- Private, liberal arts college
- Founded 1836
- Just under 1000 students
- ACUPCC Signatory

What we did

- Second of three residence halls
- Nearly identical to it's predecessor (LEED Silver spec)
- Built using modular construction
- Approximately \$4.7 million
- Seeking Passive House Certification



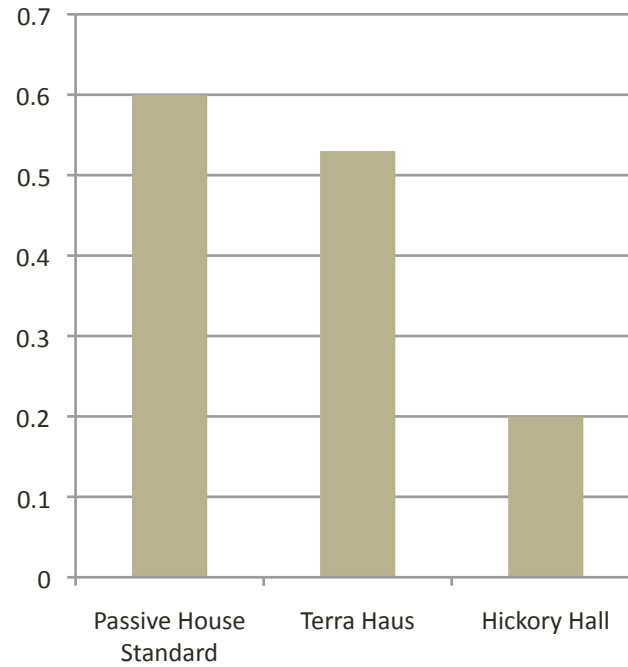
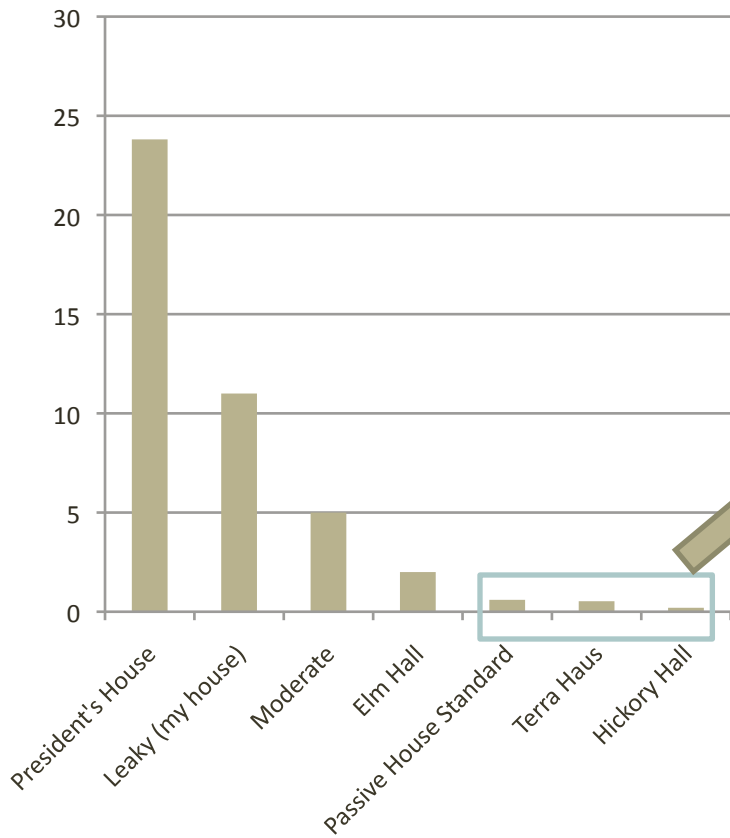
How we did it



- R-30 walls, R-50 roof
- Triple-glazed windows
- Ground-source heat pumps (15 tons)
- 18 Energy Recovery Ventilators
- Air-tight building envelope
 - preliminary blower door test $<.2$ ACH50

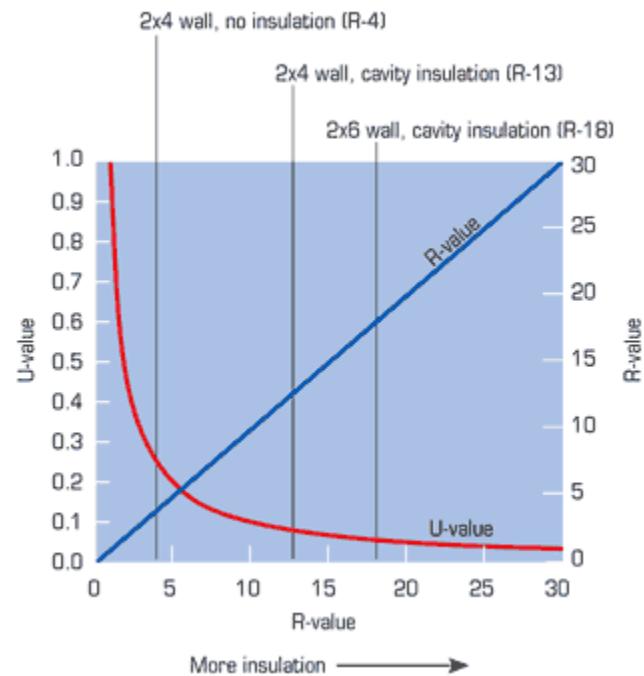
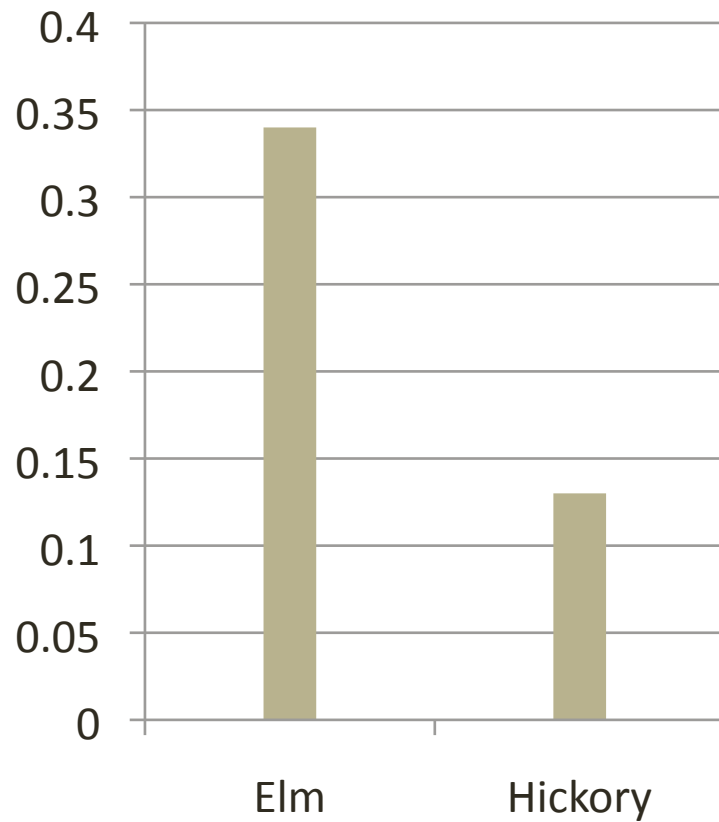
Building Envelope

Air Tightness (ACH₅₀)



Window performance

U Value



Modular Construction



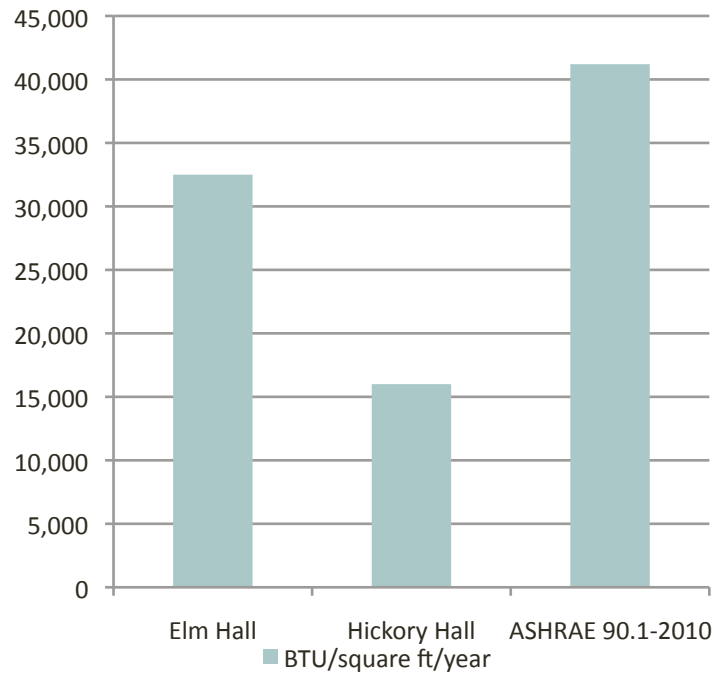




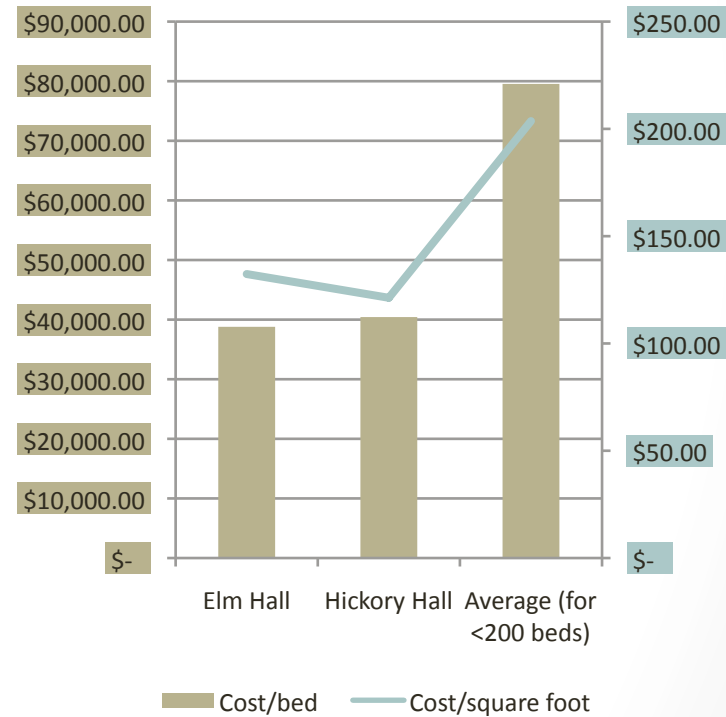


Fiscal and Energy Performance

Energy Intensity*



Costs



*Hickory Hall based on modeled data; average based on ASHRAE 90.1-2013

What we plan to do

- Comparison energy study of Elm and Hickory
- Short-term and longitudinal behavior study
 - Measure student behaviors and academic performance

