



Tennessee Energy Code Field Study: Energy Savings Opportunities



OVERVIEW

The Southeast Energy Efficiency Alliance (SEEA) conducted a study of 138 new single-family homes under construction in Tennessee to determine the level of compliance with the building energy code using an accepted methodology.

The study was initiated in September 2017 and continued through July 2018. During this time, the residential code in Tennessee adhered to the 2009 International Energy Conservation Code (IECC) with additional state-specific amendments.

Significant savings opportunities for improving compliance in **seven high-impact areas** were identified. Each year, this has the potential to cut household energy costs by **\$2,552,905**. The full report can be found [here](#).

AT A GLANCE

Goal

Assess energy efficiency and energy savings potential

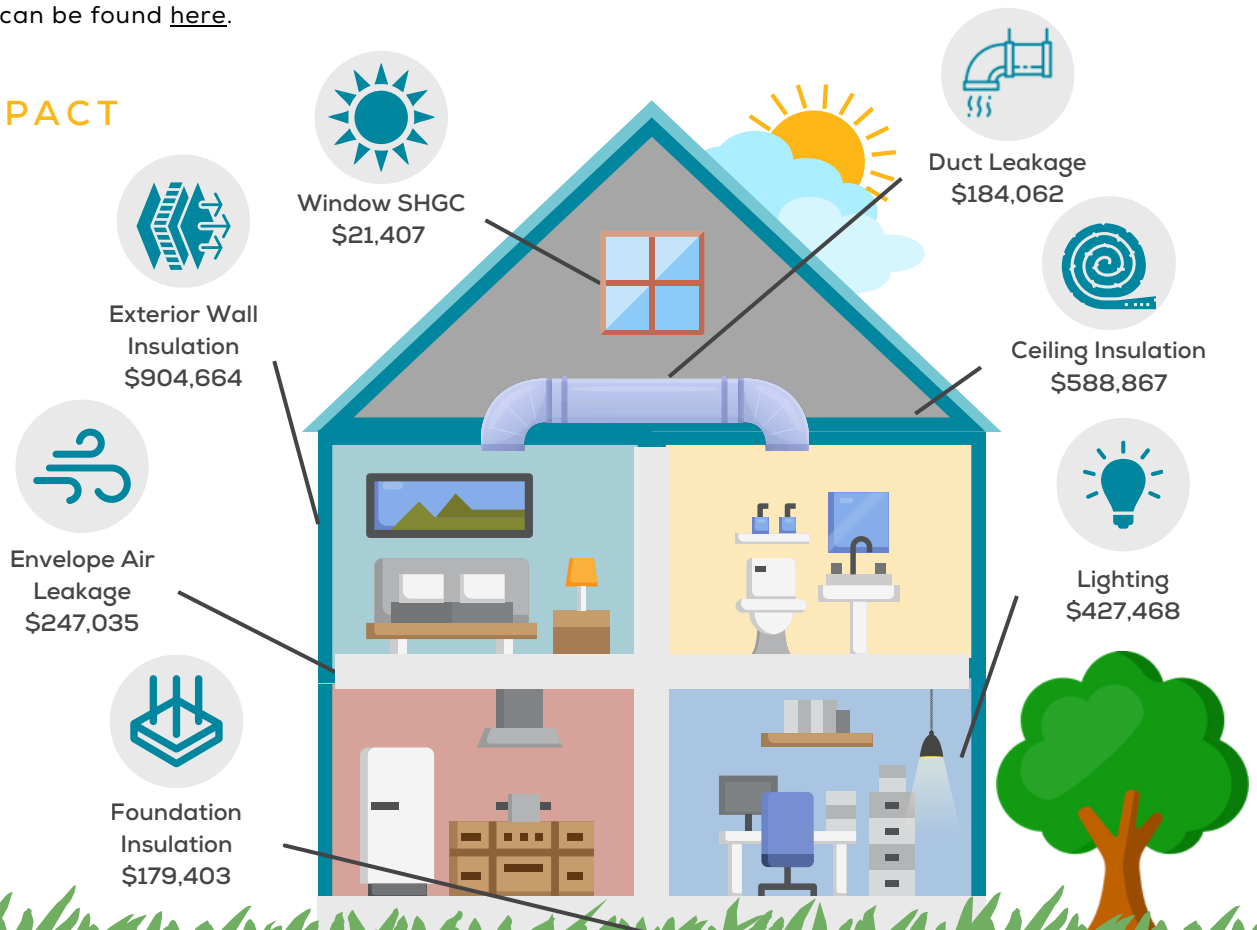
Annual Savings Potential

\$2,552,905

Largest Savings Impact

Exterior Wall Insulation

HIGH-IMPACT AREAS



CEILING INSULATION

- Ceiling insulation met the R-value requirement in 83% of homes.
- Compliance with the U-Factor requirement was lower, at 58%, due to poor insulation installation quality.

DUCT LEAKAGE

- The duct leakage requirement was met in 85% of observations.
- Duct leakage compliance remains an opportunity for improvement.

ENVELOPE AIR LEAKAGE

- The requirement was met in 95% of observations.
- There is room for improvement in Climate Zone 3; however, the number of observations is limited.

LIGHTING

- Only 54% of homes met the prescriptive lighting requirements.
- A significant number and wide range of observations did not comply.

WINDOWS

- All but one observation met the prescriptive SHGC requirement; most exceeded it by a significant margin.
- All observations met the prescriptive window U-Factor requirement, indicating successful implementation across the state.

FOUNDATION & FOUNDATION INSULATION

- **Basement:**
 - Not enough observations to report findings.
- **Slab-Edge:**
 - Only 28% of the slab edge insulation observations met the requirements, including 16% which pass because they are in Climate Zone 3 where there is no requirement.
- **Floor:**
 - All observations met the R-value requirement; however, U-Factor compliance was 0%, representing an opportunity for improvement.
- **Crawlspace:**
 - All cavity and continuous insulation R-values met or exceeded prescriptive requirements.
 - All cavity insulation crawlspace walls failed to meet the U-Factor requirement due to installation quality issues.

WALL INSULATION

- All observations met or exceeded the R-value requirements for wall cavity insulation.
- Overall U-Factor compliance was 16%; this measure of assembly performance represents a continued opportunity for improvement in the state.

