



## Georgia Energy Code Field Study: Energy Savings Opportunities



### OVERVIEW

The Southeast Energy Efficiency Alliance (SEEA) conducted a study of 216 new single-family homes under construction in Georgia to determine the level of compliance with the building energy code using an accepted methodology.

The study was conducted in three phases: Phase I collected baseline data beginning in April 2015; Phase II included 15 months of targeted training based on the findings from Phase I; and Phase III collected data after the training, concluding in September 2018. During this time, the residential code in Georgia adhered to the 2009 International Energy Conservation Code (IECC) with additional state-specific amendments.

Analysis indicated that building construction improved with training, and that homes used about 14% less energy than would be expected relative to homes built to minimum requirements. However, significant savings opportunities for improving compliance in **four high-impact areas** were identified. Each year, this has the potential to cut household energy costs by **\$1,751,143**. The full report can be found [here](#).

### AT A GLANCE

#### Goal

Assess energy efficiency and energy savings potential

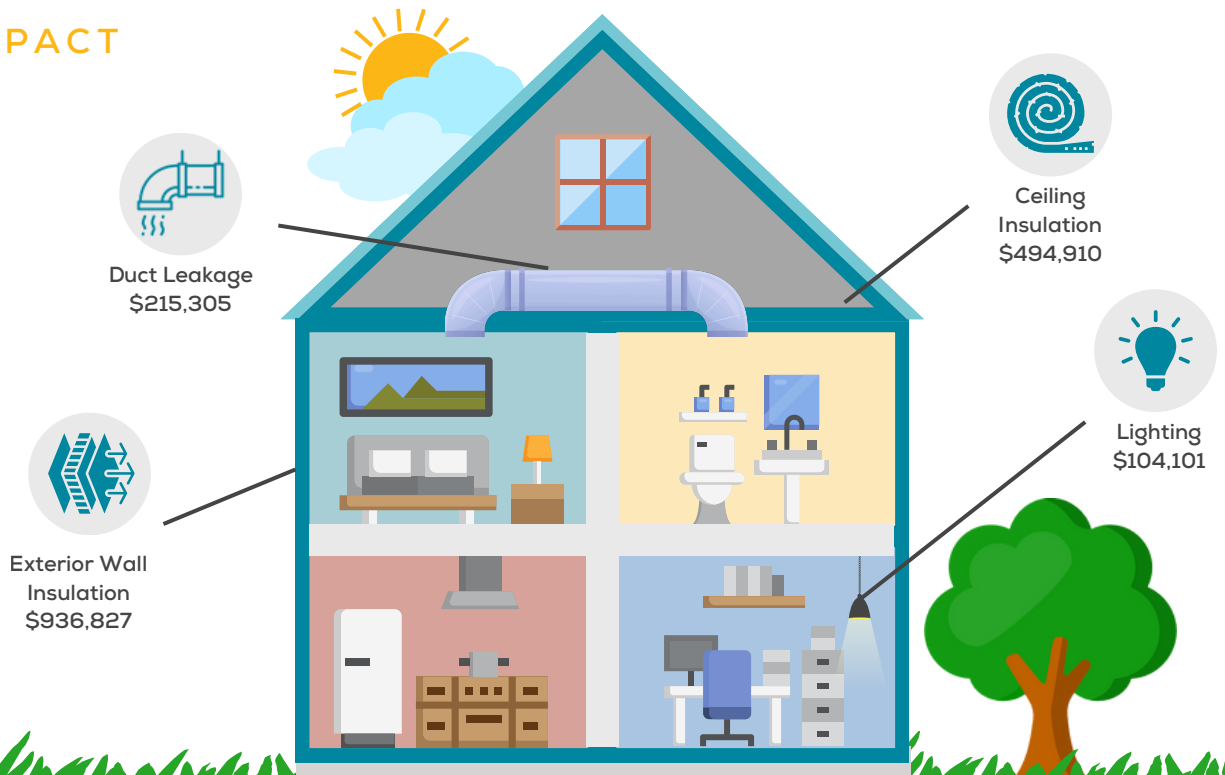
#### Annual Savings Potential

\$1,751,143

#### Largest Savings Impact

Exterior Wall Insulation

### HIGH-IMPACT AREAS



## CEILING INSULATION

- Compliance rates for R-value decreased from 83% in Phase I to 79% in Phase III.
- The overall U-Factor compliance rate showed improvement, rising from 11% in Phase I to 60% in Phase III.

## DUCT LEAKAGE

- Duct leakage compliance improved by 14% (69% in Phase I and 79% in Phase III) after training. Duct leakage testing was required in Georgia at this time.
- In Climate Zone (CZ) 2, 100% of homes met the requirements, but only 77% did so in CZ3 and 83% in CZ4.

## ENVELOPE AIR LEAKAGE

- In Phase I, 96% of the observations met or exceeded the code requirement, and this rose to 100% in Phase III.
- The team noted that envelope air leakage rate has been an area of training focus, including the development of a state-specific program called the Duct and Envelope Tightness (DET) Verifier Program which trained additional individuals to conduct testing.

## FOUNDATION & FOUNDATION INSULATION

- Foundation insulation is not included due to a small number of observations.

## LIGHTING

- The percentage of lighting that met the high-efficacy requirements improved significantly in Phase III after targeted education and training, rising from 38% in Phase I to 84% in Phase III. Also, there were more high-efficacy lighting options available.

## WALL INSULATION

- All observations met or exceeded the prescriptive R-value requirement for wall cavity insulation in both phases.
- IIQ was a challenge across the state and negatively impacted assembly U-Factor. Compliance increased only slightly from 17% to 21% over the study period.

## WINDOWS

- Nearly all windows complied with the energy code in Phase I (100% U-Factor, 98% SHGC) and in Phase III (100% U-Factor, 99% SHGC).
- SHGC performance consistently exceeded minimum requirements in all climate zones (lower values).

