

# Georgia Energy Code Field Study

## Overview

The U.S. Department of Energy’s Building Energy Code Program funded the SEEA Project Team to conduct a baseline study to identify the energy use in typical single-family Georgia houses and opportunities for improving energy efficiency. The project team visited 216 under construction houses around Georgia and collected information on the following energy code requirements<sup>1</sup>:

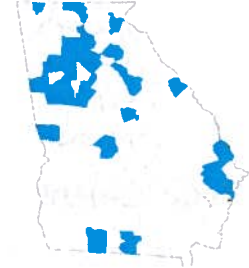


Figure 1: Samples collected from Georgia Counties highlighted in blue

- Envelope leakage results
- Duct leakage results
- Window specifications: U-factor and solar heat gain coefficient (SHGC)
- Exterior wall, ceiling and floor insulation: R-Values and installation quality
- Lighting: Percentage of high-efficacy lamps installed

## Results

When combining all of the data collected, the SEEA Project Team discovered that the typical single-family Georgia house uses less energy per square foot than required by Georgia’s energy code.

Climate Zone	Energy Use Intensity (kBtu/sf)	
	Typical Single-family House	Georgia’s Energy Code
CZ 2	23.07	24.20
CZ 3	27.10	29.22
CZ 4	28.08	28.28

This data analysis demonstrates, that on a whole, houses are being built to meet or exceed Georgia’s currently adopted code. However, this does not indicate that all requirements listed in the overview had 100% compliance.

## Requirements with High Compliance

The SEEA Project Team found high compliance for these energy code requirements:

- **Envelope Leakage:** Georgia’s Energy Code currently requires houses to meet 7 ACH50 or less when tested. The project team conducted 73 envelope leakage tests and found that only 3 houses exceeded the requirement. The average of all houses tested was 4.93 ACH50.

<sup>1</sup> To learn more about the methodology for data collection, please see the BECP website: <https://www.energycodes.gov/compliance/residential-energy-code-field-study>

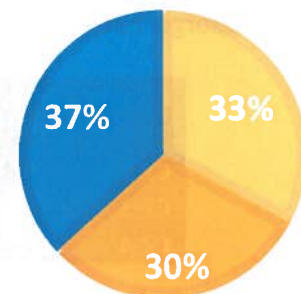
- **Window Specifications:** The project team found 100% compliance for Georgia’s Energy Code for both U-value and SHGC. On average, the U-factor of observed windows was 0.33; the SHGC of observed windows was 0.29.
- **Exterior wall, ceiling and floor insulation (R-values only):** The project team found 100% compliance with prescriptive requirements for exterior wall insulation and floor R-values. For ceiling insulation, 88% of houses complied with prescriptive requirements; however, the project team recognizes that the remaining 12% may have complied through an alternative pathway in the code.

## Requirements with Lower Compliance

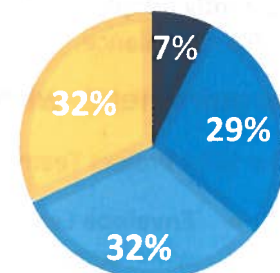
The SEEA Project Team found areas where compliance could be improved, allowing homeowners to benefit from additional energy savings. The second phase of the project requires the SEEA Project Team to provide education, training and resources to improve the areas listed below:

- **Exterior wall, ceiling and floor insulation (Installation Quality):** The project team determined insulation installation quality by following the protocols in the Mortgage Industry National Home Energy Rating Systems Standards. Only 13% of installations met a “Grade I” standard which is often considered an equivalent to meeting manufacturers’ specifications.
- **Lighting:** Georgia’s Energy Code requires at least 50% of lamps to be high-efficacy (e.g. CFL, LED). The project team found that 63% of houses did not comply. One third of the houses visited had zero high efficacy lamps. The project team found that no houses had over 86% of high efficacy lamps installed.
- **Duct Leakage:** Georgia’s Energy Code requires duct systems to meet 12 CFM25 or less of total leakage. The project team found that 29% of duct systems did not pass. A small percentage of the duct systems that failed were exempted from the test because they were located completely within conditioned space; however, the systems were not exempt from meeting duct sealing requirements.

- No high efficacy lamps
- 1 - 50% high efficacy lamps
- 50 - 99% high efficacy lamps



- Less than 4 CFM25
- 4 to 8 CFM25
- 8 to 12 CFM25
- More than 12 CFM25



## About SEEA

The Southeast Energy Efficiency Alliance (SEEA) is one of six regional energy efficiency organizations in the United States working to transform the energy efficiency marketplace through collaborative public policy, thought leadership, outreach programs and technical advisory services. SEEA promotes energy efficiency as a catalyst for economic growth, workforce development and energy security across 11 southeastern states. For additional information, visit [www.seealliance.org](http://www.seealliance.org) or contact Energy Code Associate Amy Dzura at [adzura@seealliance.org](mailto:adzura@seealliance.org)