

Executive Summary

The Rhode Island Residential New Construction (RNC) program provides financial incentives and technical resources to builders and homeowners to encourage efficient construction practices in new homes. The RNC program calculates energy savings by comparing the consumption of program homes to a hypothetical typical home. Periodic baseline studies inform the program about how typical new homes are constructed, allowing the program to claim savings against true market conditions.

Methodology

Conducted 40 onsite visits to newly constructed non-program homes and collected full HERS rating data

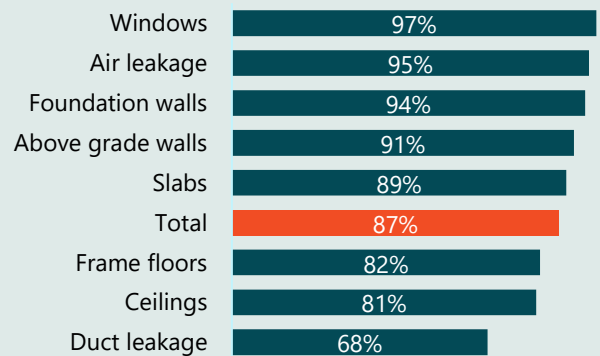
Visited building departments across the state to gather energy code compliance documentation

Analyzed building shell and mechanical equipment data and used energy modelling to assess code compliance

Code Compliance

Overall energy code compliance is high among non-program homes at 87%; an increase from the 80% compliance rate observed in the 2017 baseline. Most measures showed high levels of code compliance, but duct leakage remains low at 68%.

Recommendation: Focus code compliance training activities on measures with the lowest levels of compliance, specifically duct leakage. A majority (93%) of homes sampled in this study had ducts, presenting a large opportunity to increase compliance.



Program Home Performance

Program vs. Non-Program HERS Scores



Program homes continue to outperform sampled non-program homes, but there has been limited improvement in performance since the last baseline study. The 2017 baseline study found the average program HERS score to be 62, which has only decreased by one point to 61.

Recommendation: The program should consider increasing the stringency of program requirements to increase the overall performance of program homes over the general market, otherwise program savings may decrease. This may involve increasing the minimum % savings thresholds for program Tiers or adopting a pay for performance type model.

Building Department Data

The documentation available at building departments was found to be relatively sparse and rarely contained reliable data that could be used to determine UDRH values. The most common types of documentation found were permits and blueprints which specify what is planned to be installed a new home, but documentation containing third party verification of building details was not commonly found.

Recommendation: Focus code official trainings on consistently collecting third party verification of energy code compliance such as prescriptive checklists, blower door and duct blaster results, IECC certificates, or HERS ratings. Collecting building department data to inform UDRH values in future RNC baseline studies is still a worthwhile endeavor, but data from third party verified sources should be prioritized.