

The Cost of Compliance with Recent Model Energy Codes: 2021 IECC & 2024 IECC



This document summarizes the estimated added construction costs for achieving compliance with the two most recent editions of the International Energy Conservation Code (IECC): **2021 IECC and 2024 IECC**.

The added costs are reported relative to two baselines:

- *2009 IECC*
- *2012 / 2015 / 2018 IECC* (these three codes are grouped together because there were no significant cost increases between these codes)

The goal is to provide cost estimates that show the level of upfront investment by the consumer (i.e., first cost) needed to achieve the continued increases in energy efficiency requirements. The added first costs lead to higher home prices and higher down payments and must be supported by positive cost-effectiveness metrics, an appraisal process that acknowledges higher value, and financing that assigns commensurate credit to monthly energy savings.

A climate zone map is included at the end of the report to help with interpreting the results.

If you have any questions about the changes under the 2021 IECC or 2024 IECC, please contact:

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Cost-effectiveness

The cost-effectiveness of various energy efficiency measures included in recent energy codes ranges widely. For example, some of the increases in insulation requirements added to the 2021 IECC correspond to simple paybacks of over 100 years. On the other hand, the incremental improvements to window specifications reflect the changes in the market and provide value for consumers. The cost-effectiveness analyses of 2012 IECC and 2021 IECC are provided in Home Innovation's studies included in the reference section.

State and local code amendments

IECC is a model code. It is intended to be reviewed and evaluated by adopting jurisdictions. Jurisdictions are empowered to amend the code to better fit their specific conditions. All information in this document is based on the unamended provisions of the model energy codes.

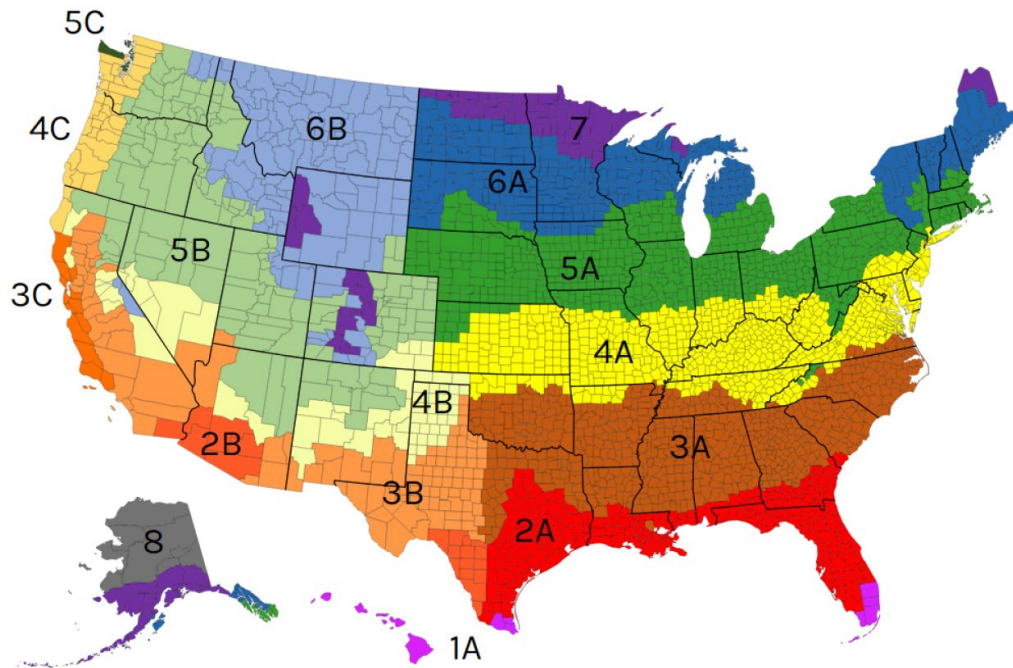
First cost impacts

The data is tabulated by the code version used as a baseline for the comparison: 2009 IECC baseline (Table 1) and 2012/2015/2018 IECC baseline (Table 2). The costs are reported for compliance with the 2021 IECC and 2024 IECC based on studies conducted by Home Innovation Research Labs. The published estimates have been aggregated, adjusted for inflation to allow for direct comparison, and rounded. These costs represent national average numbers and costs in local markets or for individual projects can vary.

Table 1—2009 IECC Baseline		
Climate Zone	2021 IECC	2024 IECC
2	\$9,600	\$7,500-\$9,600
3	\$17,100	\$13,800-\$16,500
4	\$21,400	\$13,200-\$15,700
5	\$18,100	\$11,300-\$13,500
6	\$14,500	\$15,800-\$18,600
7	\$17,200	\$15,900-\$19,400

Table 2—2012/2015/2018 IECC Baseline		
Climate Zone	2021 IECC compliance costs	2024 IECC compliance costs
2	\$4,900	\$2,700-\$4,900
3	\$6,900	\$3,600-\$6,300
4	\$11,400	\$3,100-\$5,700
5	\$11,500	\$4,700-\$7,000
6	\$5,400	\$6,700-\$9,500
7	\$8,100	\$6,700-\$10,200

Climate Zone Map (from [U.S. DOE](#))



References:

[2012 IECC Cost Effectiveness Analysis](#). 2012. NAHB Research Center, Upper Marlboro, Maryland.

[2021 IECC Residential Cost Effectiveness Analysis](#). 2021. Home Innovation Research Labs, Upper Marlboro, Maryland

[2024 IECC Cost Analysis for Single-Family Homes](#). 2025. Home Innovation Research Labs, Upper Marlboro, Maryland

Costs are adjusted to the common reference point of June 2025 using inflation rates based on [CPI Inflation Calculator \(bls.gov\)](#).