

Special Legislative Commission to Study Housing Affordability

Rhode Island General Assembly

October 19, 2023



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About



- NAHB strives to protect the **American Dream** of housing opportunities for all, while working to achieve professional success for its members who build communities, create jobs and strengthen our economy.
- **140,000+ members** design, construct, and supply single-family homes, build and manage multifamily projects, and remodel existing homes.
- **700+ affiliated state and local associations** across the U.S. including the Rhode Island Builder Association (RIBA)



Questions for Today

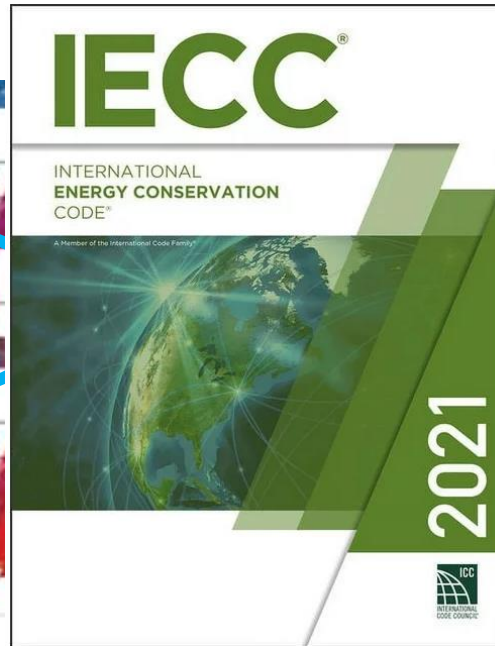
- 1) How does the building code and the inspection process facilitate or inhibit the construction of housing, particularly affordable housing?
 - The residential energy code (IECC) is the biggest driver of added first costs & lower cost effectiveness among (ICC) construction codes
 - Building code requirements do impact the cost of housing, particularly in a market like Rhode Island that already has affordability challenges because of high housing prices



Questions for Today

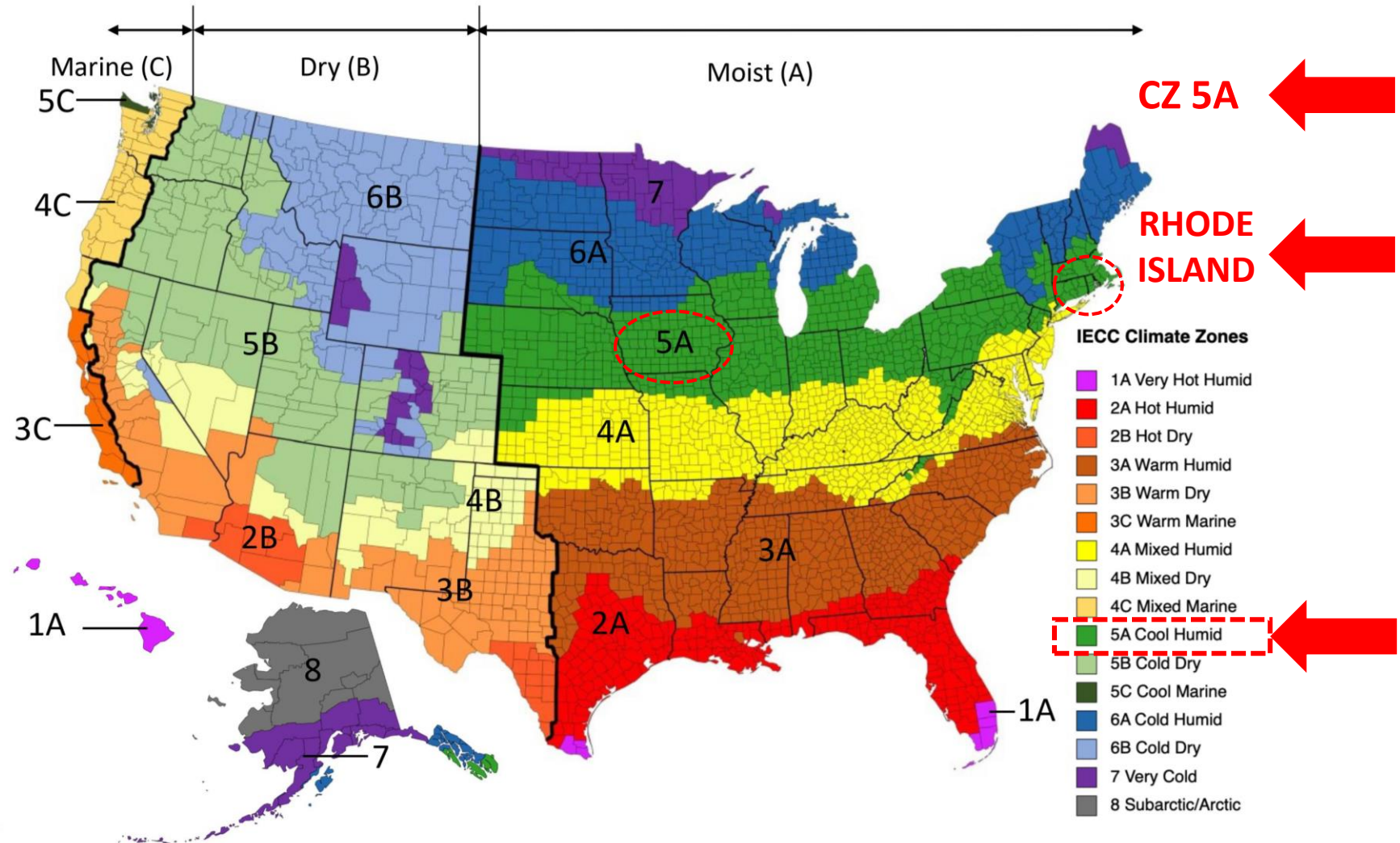
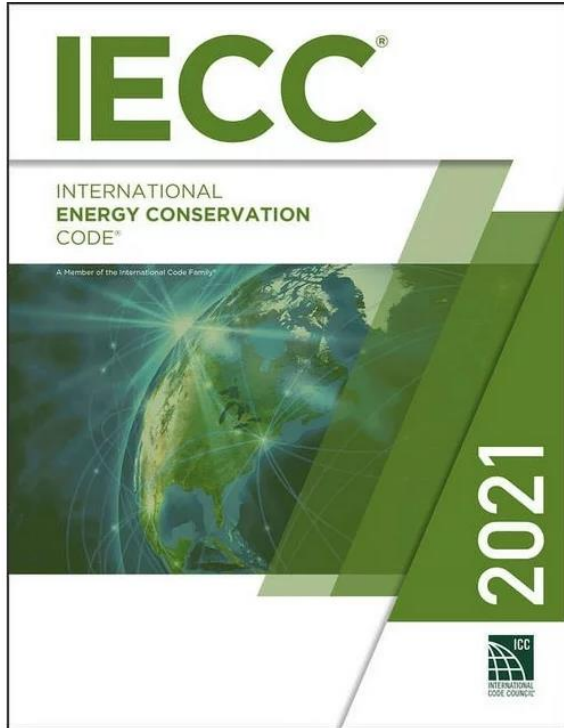
- 2) What [legislative] changes could make the code and the enforcement process better to facilitate construction while protecting health & safety?
 - Setting aside legislative changes – we will discuss certain advantages the energy code Rhode Island has adopted (2024 IECC) offers compared to other recent code editions – flexibility, emphasis on performance-based approaches, range of options complementing builder strategies
 - Promoting collaboration and proactive engagement to facilitate a smoother design and construction process that does not adversely impact occupant health & safety

ICC Model Code Development Process

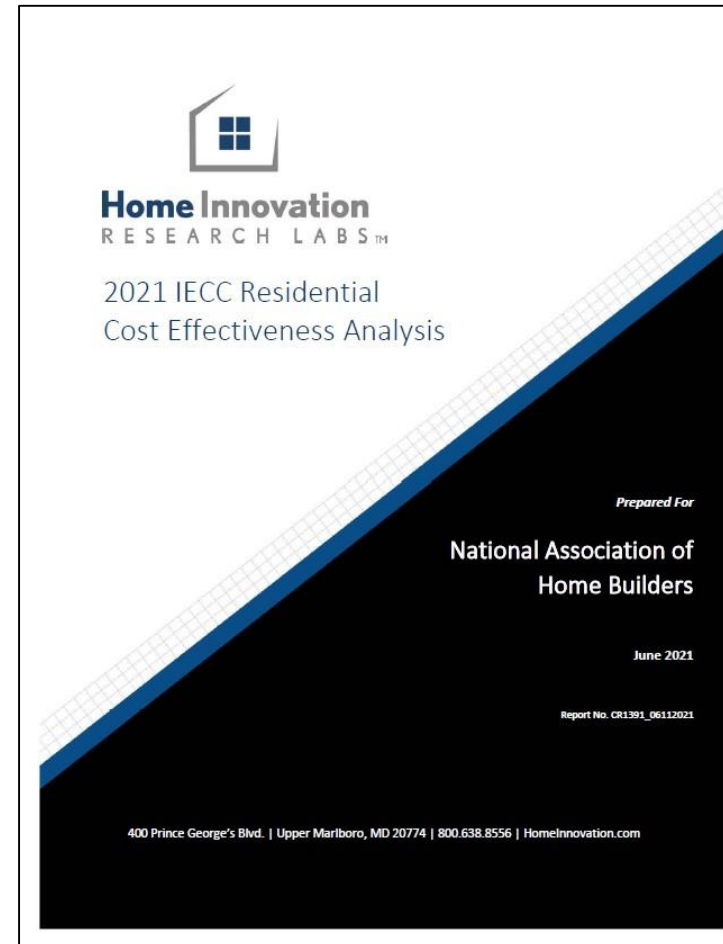
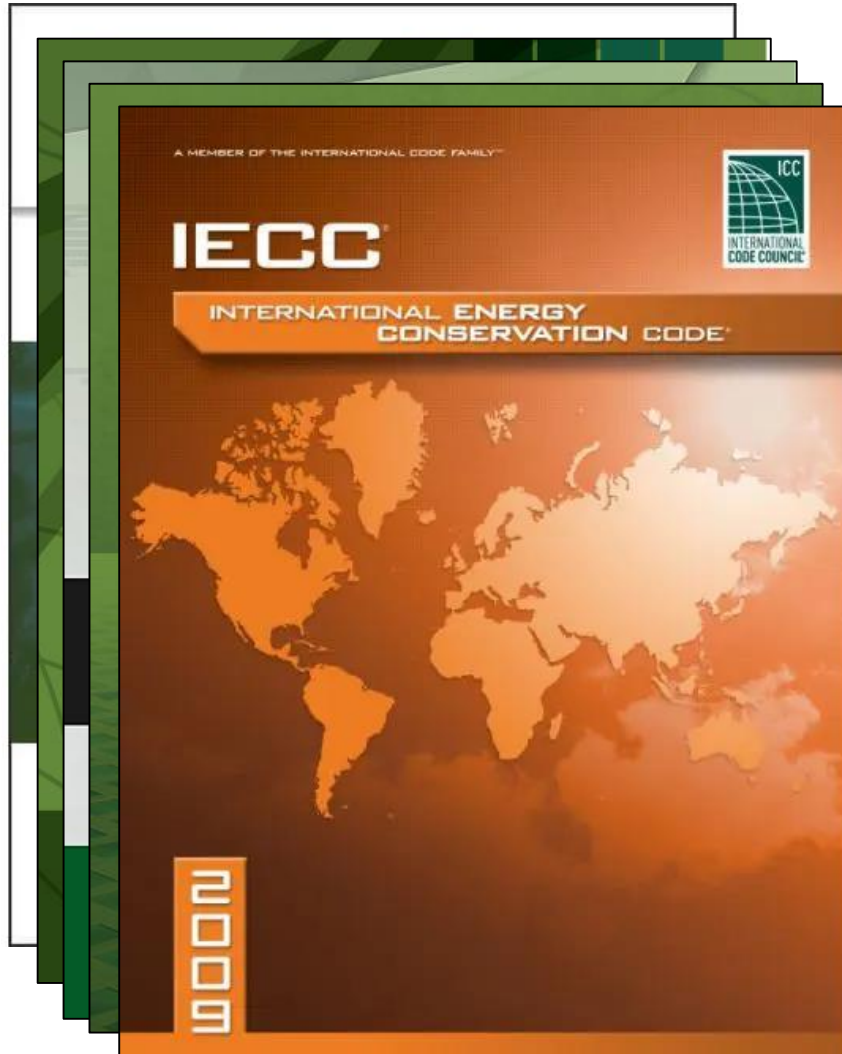


The Code Council also develops a number of standards, including mechanical, plumbing, structural, resilience, accessibility and green, and is accredited by the American National Standards Institute as a standards developer.

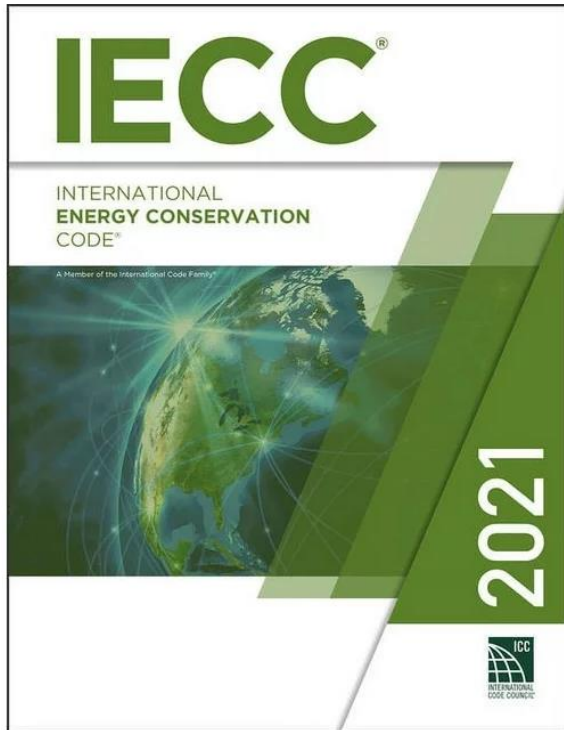
IECC Requirements Based on Climate Zones



Energy Code Cost Effectiveness



2021 IECC Cost Effectiveness



- Many efficiency requirements updated in the 2021 IECC are onerous, not cost-effective, or unusable for most builders
 - Exterior insulation: Ceilings, walls, slab edges
 - Energy Rating Index (ERI) compliance path
 - [Required] Additional efficiency options: Too few, not designed to complement mandatory requirements
- Stringency without flexibility or choice or focus on solutions
- Many of the issues above have been addressed in the code edition RI has adopted (2024 IECC) – more on this later

Cost Impacts of Updated Energy Code Requirements

**Table 1: Cost Impact Summary
2009 to 2021 Residential International Energy Conservation Code Editions**

Climate Zone	2009 to 2021 IECC ^{b,c,d}	2012, 2015 or 2018 to 2021 IECC ^{a,b,d}
2	\$8,859 - \$13,819	\$4,496 - \$9,457
3	\$15,828 - \$20,789	\$6,392 - \$11,353
4	\$19,787 - \$22,572	\$10,498 - \$13,282
5	\$16,757 - \$19,542	\$10,662 - \$13,477
6	\$13,847 - \$16,170	\$5,001 - \$7,787
7	\$15,947 - \$17,909	\$7,478 - \$9,440

a) 2015 and 2018 editions did not significantly increase construction costs from the 2012 IECC

b) Costs are adjusted using inflation rates based on [CPI Inflation Calculator \(bls.gov\)](https://www.bls.gov/calculator/)

c) Source: [Home Innovation – 2012 IECC Cost-Effectiveness Analysis](#)

d) Source: [Home Innovation – 2021 IECC Cost-Effectiveness Analysis](#)



Example of Major Cost Driver: Exterior Insulation

- A major concern for builders:
 - High costs of complying with new IECC requirements significantly increasing wall and ceiling R-values
- Habitat for Humanity model evaluating performance tradeoffs looked at installing spray foam installation, an increasingly common approach to meeting stringent insulation requirements
 - Model estimated additional costs of \$10,000+ (including labor and materials)

Example of Major Cost Driver: Exterior Insulation

Figure 1: Cost Impact Summary for Select 2021 IECC Insulation Requirements

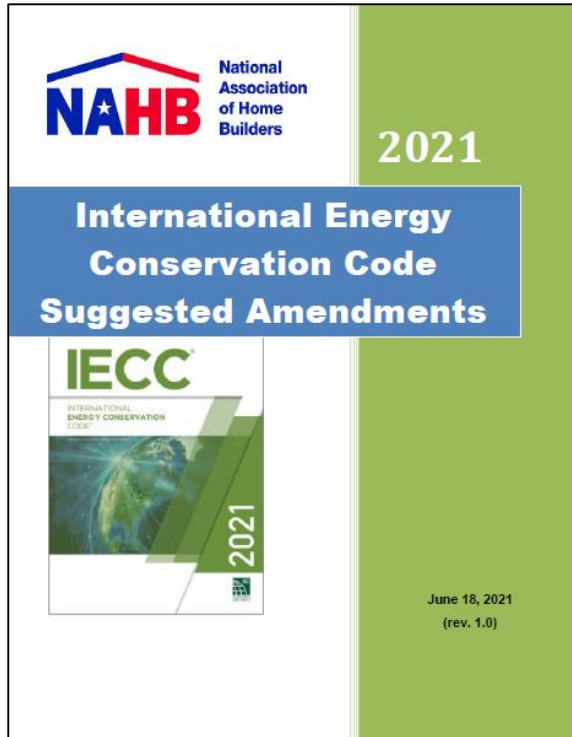
Ceiling Insulation							
	Annual Energy Savings	Home Innov. Cost	DOE Cost with 1.15 Mark-up	Average Cost	NPV @ 3% Discount Rate	NPV @ 7% Discount Rate	Simple payback
CZ2	\$8	\$1,272	\$1,121	\$1,197	-\$885	-\$653	150 years
CZ3	\$11	\$1,272	\$1,121	\$1,197	-\$826	-\$615	109 years
CZ4	\$9	\$1,272	\$1,100	\$1,186	-\$780	-\$579	122 years
CZ5	\$12	\$1,272	\$1,100	\$1,186	-\$797	-\$596	99 years
CZ6	\$12	\$1,272	\$1,100	\$1,186	-\$797	-\$596	99 years
CZ7	\$15	\$1,272	\$1,100	\$1,186	-\$737	-\$558	79 years

Example of Major Cost Driver: Exterior Insulation

Figure 1: Cost Impact Summary for Select 2021 IECC Insulation Requirements

Wall Insulation							
	Annual Energy Savings	Home Innov. Cost	DOE Cost with 1.15 Mark-up	Average Cost	NPV @ 3% Discount Rate	NPV @ 7% Discount Rate	Simple payback
CZ4	\$57	\$4,630	\$3,363	\$3,996	-\$2,355	-\$1,799	70 years
CZ5	\$63	\$4,630	\$3,363	\$3,996	-\$2,236	-\$1,724	63 years

Amendments to Lower Costs of 2021 IECC



- NAHB offers states suggested amendments to address some of the least cost-effective energy code requirements:
 - Wall insulation
 - Slab edge insulation
 - Attic insulation
 - Energy Rating Index (ERI) path
 - Additional efficiency package options

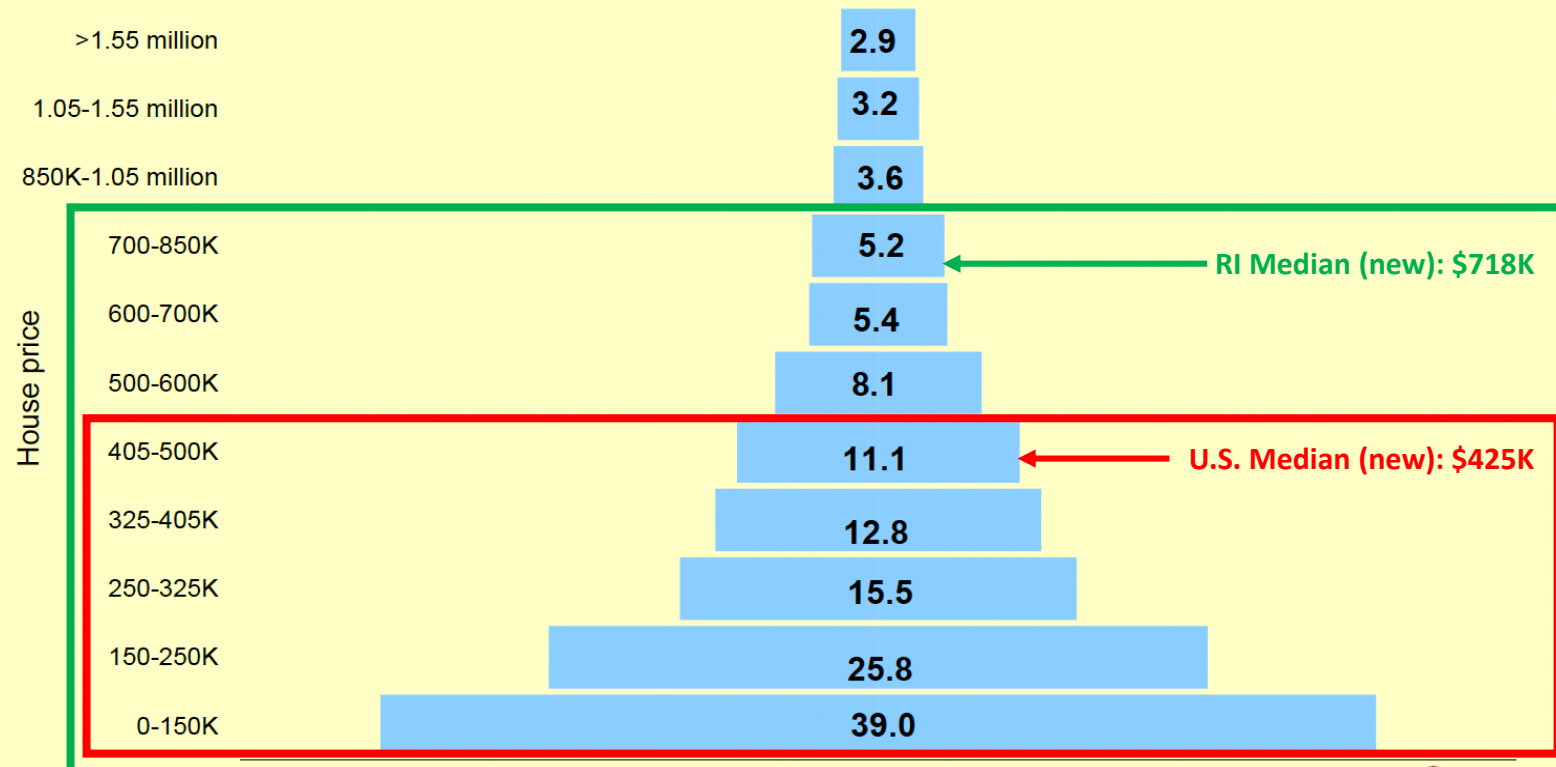
NAHB Affordability Model: Priced Out Estimates

State	Median New Home Price	Household Income to Qualify	Total Households	Households Unable to Afford Median Price	Additional Households Priced Out by \$1,000 Increase
United States	\$425,786	\$129,645	132,469,710	96,537,344 (73%)	140,436
Rhode Island	\$718,404	\$228,588	475,840	442,221 (93%)	241

- 96.5 million (73%) **U.S. households** cannot afford a new home at the median U.S. price (\$425K)
- Almost half a million (93%) of **RI households** cannot afford a new home at the median RI price (\$718K)
- Affordability model assumes a total mortgage payment no more than 28% of monthly gross household income
- Even modest increases (\$1,000) in new home prices can **price out substantial tranches of households** from the market

Housing Affordability Pyramid

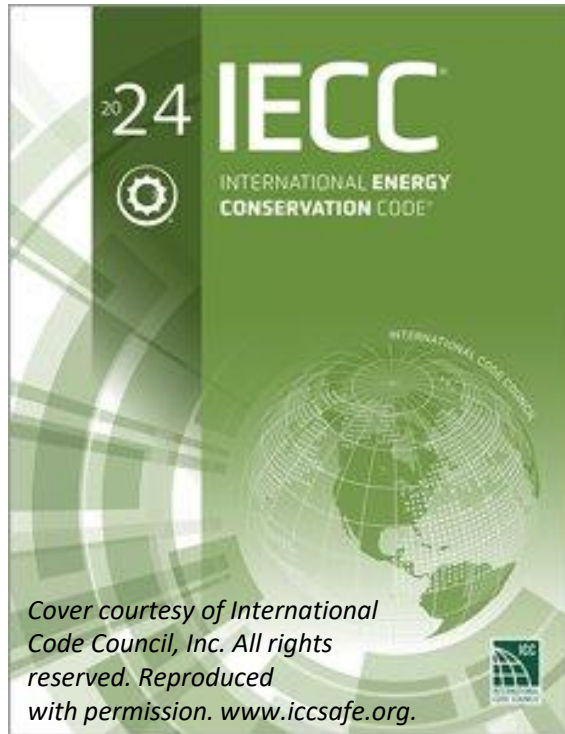
**Figure 1. US Households (in Millions)
by Highest Priced Home They Can Afford Based on Income: 2023**



Source: Calculations by the National Association of Homebuilders Housing Policy Department, based on income data from the 2021 American Community Survey Public Use Microdata Sample File, U.S. Census Bureau

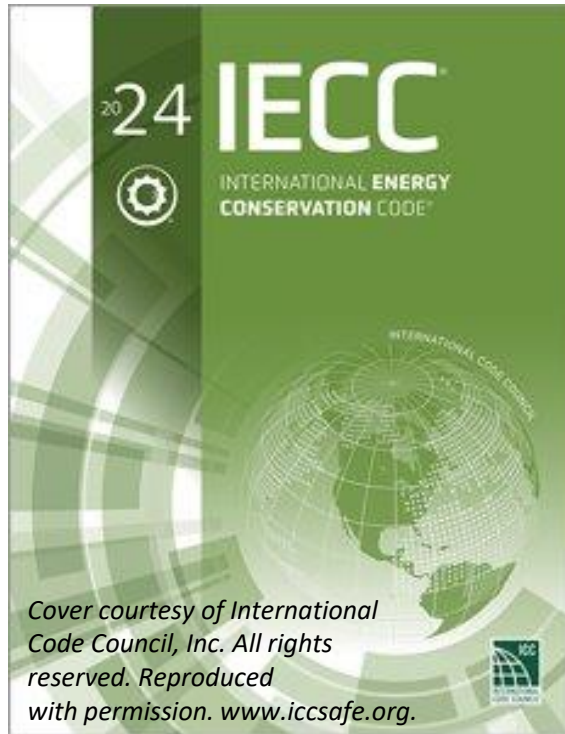


2024 IECC Development Process (NEW)



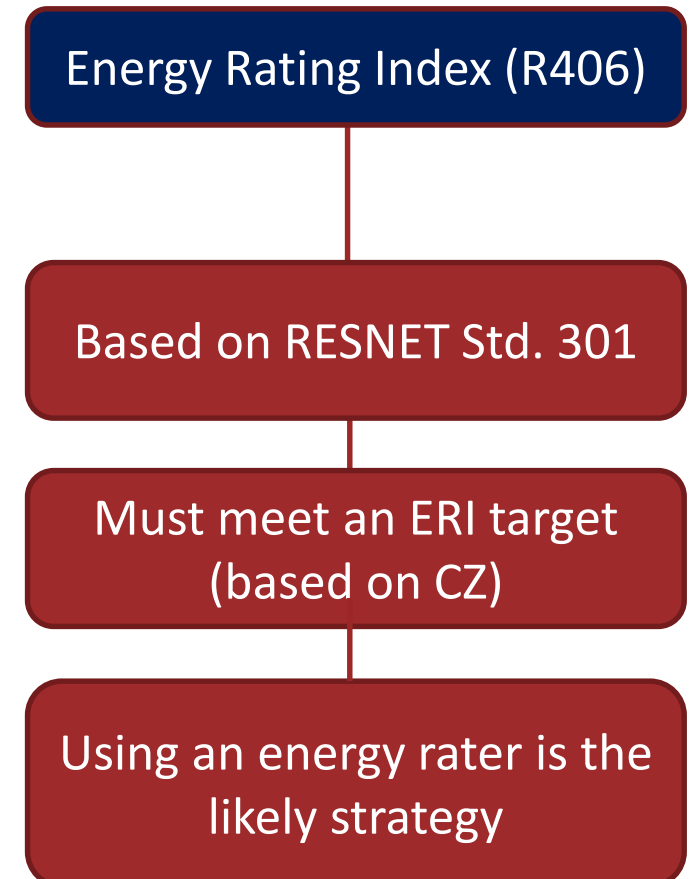
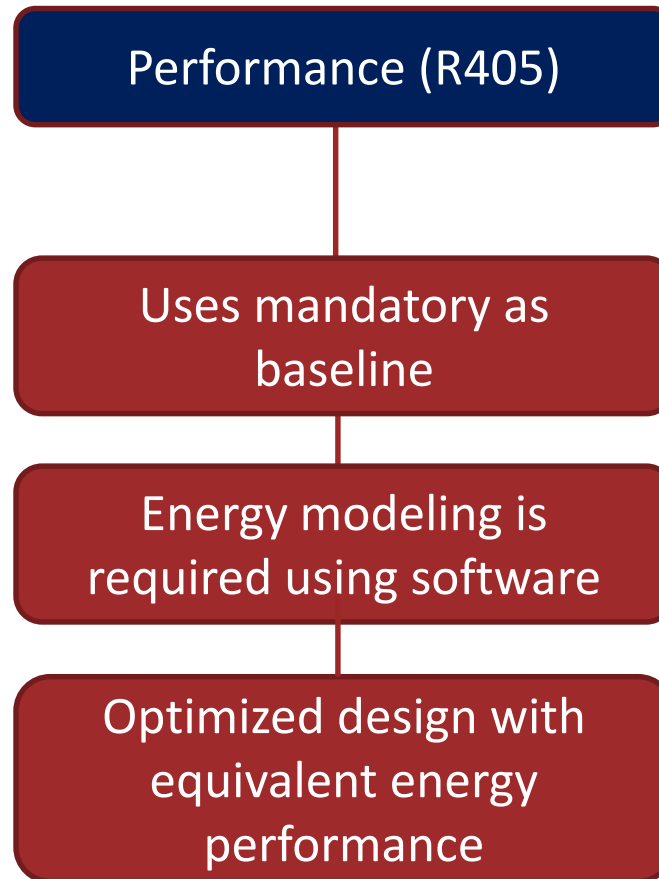
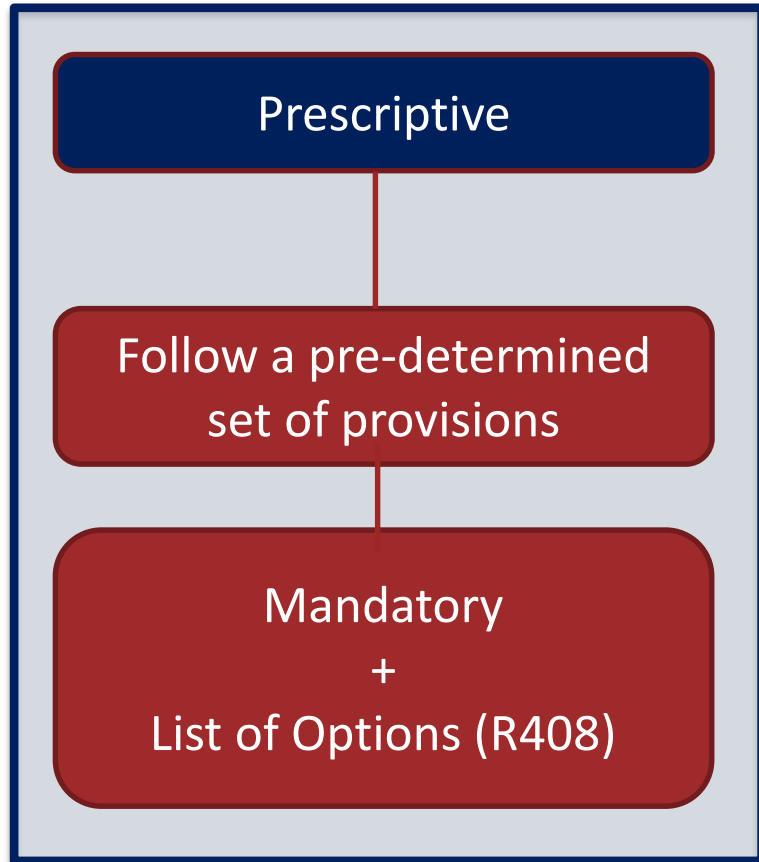
- No longer developed using the same process as the previous IECC editions or most of the other ICC Codes (e.g. IBC and IRC)
- Two separate consensus committees:
 - Residential provisions
 - Commercial provisions
- NAHB closely involved in the process
- NAHB members serve on the committees
- ICC expects to publish 2024 IECC in Q1 2024
- RI implementing 2024 IECC: 3-6 months later

2024 IECC Features Compared to 2021 IECC

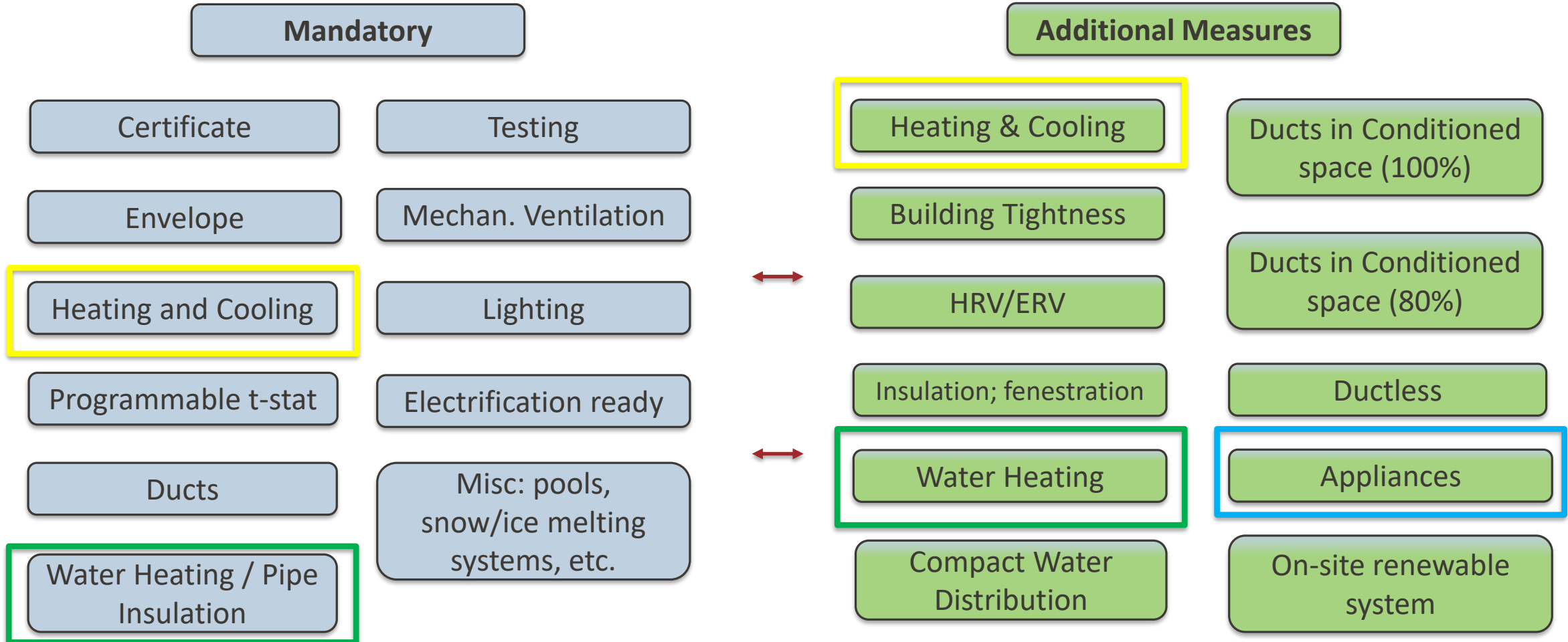


- Efficiency requirements increase, but offers significantly greater degree of flexibility
 - Performance-based compliance paths
 - Tradeoffs allow more cost-effective approaches on exterior insulation
- Broad menu of additional efficiency options
 - Complementary to approaches already used to meet mandatory requirements
 - “Stacking effect” streamlines strategies

2024 IECC: Multiple Compliance Paths



2024 IECC Prescriptive Path Framework



Going Forward





Pivot to Focusing on Existing Housing Stock

- New construction: Very small slice of U.S. housing market (~1%)
 - **144 million** existing housing units (2022)
 - **1.7 million** housing units granted building permits (2022)
- Construction eras: 2016-present vs. pre-1980
 - Newest housing units consume significantly less energy and spend less on energy by almost every relevant metric – per home, per household member, and per square foot
- Far more attention and investment should be steered to **updating and renovating our existing housing stock**

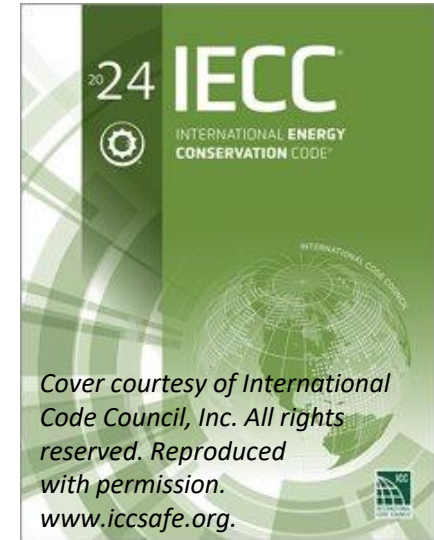
Source: [U.S. Census Bureau](#)

Source: U.S. EIA [2020 Residential Energy Consumption Survey \(RECS\)](#)

RIBA and NAHB Leadership



- RIBA is partnering with NAHB and others to develop builder-focused energy code resources for RI
- Working collaboratively on solutions-focused training to comply with the 2024 IECC in a cost-effective way



Questions and Discussion

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