



Misconceptions Surrounding Building Energy Codes and Affordable Housing

Introduction

The United States needs more affordable housing, and a common misperception is that stricter energy codes will lead to additional costs for new projects which will prevent the projects from being constructed. The reality is that even with strict building energy codes, affordable housing can be constructed affordably, and can yield additional benefits for building owners and their occupants. This resource is intended to address the misconception that energy codes negatively impact affordable housing, explain how energy codes have a significant positive impact on the health and safety of building occupants, and clarify how these codes provide monetary savings from reduced energy bills.

Misconceptions and Realities

Misconception: Incentives are split. Builders, owners, and developers invest in energy efficiency, but only tenants benefit from meeting stringent energy code requirements.

Reality: Builders benefit from price premiums added to the property value from meeting green certification and labeling requirements that align with the latest energy code. In addition, jurisdictions can minimize up-front cost premiums through federal and state incentive programs, Low-Income Housing Tax Credits (LIHTCs), and Qualified Allocation Plans (QAPs).

One of the most significant challenges associated with creating support for affordable housing projects that meet or exceed energy code requirements is builder buy-in. Builders may focus narrowly on up-front costs of constructing new affordable housing in compliance with more stringent energy codes without considering the long-term benefits.

Energy efficiency is an attractive feature of new homes, and green features are among the most desirable for home buyers. A survey found that the most attractive qualities of new homes include efficient lighting, Energy Star rated windows and appliances, and a whole home energy rating that meets Energy Star certification requirements.¹ In addition, a Zillow analysis found that homes with energy efficient features such as double-pane windows, solar panels, smart thermostats, smart sprinkler systems, and smart lights can help a home sell faster.² This is helpful in

¹ <https://stucco.com/blog/what-buyers-want>

² <https://zillow.mediaroom.com/2022-04-18-Eco-friendly-features-help-homes-sell-up-to-10-days-faster>



avoiding additional costs often associated with a delayed closing, especially if the seller is purchasing a new home at the same time.

Green certifications and labeling add sale price premiums when compared to other similar homes. A study found that green labeled homes in California added a nine percent price premium, which equates to adding \$34,800 to the value of the home.³ A similar study was conducted in Georgia, which found an 11.7 percent price premium with an added \$47,000 value of the home.⁴ Another study conducted in 2023 found that multifamily properties with LEED certified apartments have a rental premium of 14.7 percent.⁵ A nationwide study by Freddie Mac found homes with an energy rating are sold for 2.7 percent more than comparable houses that haven't been rated; and that more energy efficient homes are sold for 3-5 percent more than less energy efficient homes.⁶

New energy codes generate significant energy savings over the life of a building through lower energy bills and better health impacts, and although these energy benefits are only realized by occupants, builders also benefit from the added property value from building to the latest code requirements.

To generate additional buy-in from builders, the federal government and individual states can also create incentive structures that benefit homebuilders who construct affordable housing projects. The Inflation Reduction Act (IRA)'s [45L Tax Credit](#), that has been extended through 2032, provides an incentive of \$500 per unit in a multifamily building that meets Energy Star Requirements.⁷ States can also provide additional incentives. For example, the Mass Save Program provides incentives of \$2,500 per unit to multifamily builders in Massachusetts who construct their buildings to passive house standards and get those buildings certified.⁸

[Low-Income Housing Tax Credits \(LIHTCs\)](#) offer investors a dollar-for-dollar reduction in their federal tax liability in return for providing financial support to affordable housing projects. The allocation of these resources is determined by [Qualified Allocation Plans \(QAPs\)](#), which establish the priorities and guidelines for new construction projects that are developed by each state and territory of the United States.

States have the ability to shape their QAPs for LIHTCs, which allows them to incentivize energy efficiency in affordable housing projects. By incorporating energy-saving measures into their QAPs, states can encourage developers to prioritize energy efficiency, reduce greenhouse gas emissions, lower utility costs, and improve the quality of life for residents in low-income housing. It's important to increase awareness of LIHTC and QAP programs so that homebuilders know about the benefits of constructing affordable housing.

³ <https://maastrichtrealestate.com/upload/researches/value-of-CA-green-rated-homes-report.pdf>

⁴ <https://www.sciencedirect.com/science/article/abs/pii/S0378778817323241?via%3Dihub>

⁵ <https://www.tandfonline.com/doi/full/10.1080/19498276.2022.2162515>

⁶ https://sf.freddie.mac.com/docs/pdf/fact-sheet/energy_efficiency_white_paper.pdf

⁷ https://www.energystar.gov/about/federal_tax_credits/federal_tax_credit_archives/tax_credits_home_builders

⁸ <https://www.masssave.com/en/residential/rebates-and-incentives/passive-house-incentives>



Misconception: Stricter energy codes will lead to additional costs for new affordable housing projects

Reality: Although upfront cost is higher, the monetary savings achieved over time through lower utility bills and other health and safety benefits will result in overall net positive cashflow for owners and decreased energy burden for residents. On top of that, everyone benefits from investing in energy efficiency because it reduces the combustion of fossil fuels, improves air quality, and mitigates the impacts of climate change.

Some estimates show that low-income households in the United States spend approximately two-to-three times more than the average U.S. household on energy - 7.2⁹ to 8.6¹⁰ percent of their household income vs. about three percent. This disparate energy burden raises concerns around equity and justice. All human beings rely on critical infrastructure such as heating and cooling to survive, but low-income communities are more likely to face exorbitantly high utility bills from the energy burden caused by homes that don't adhere to modern energy code requirements. These homes typically haven't been properly air-sealed and may not have appropriately-sized mechanical equipment, leading to wasted energy. Higher utility bills increase vulnerability to missed payments and power interruptions. New affordable housing developers can lower this energy burden by meeting and exceeding modern energy code requirements. Model energy codes aim to improve energy efficiency, which in turn decreases the cost of utility bills. The application of better energy codes improves equity in affordable housing by lowering energy burdens for low-income communities.

Affordable housing developers should prioritize health and safety, because doing so can lead to better long-term health outcomes for occupants, families, and society as a whole. Poor building and construction practices, along with substandard building materials, have led to a host of unsafe living conditions that have historically overburdened low-income communities of color.

Lead paint and asbestos were once common in homes, but over the years building codes and regulations have evolved to remove those health hazards from homes. Similarly, new energy codes require testing and verification of mechanical ventilation systems in order to prevent health problems. Such testing and verification can identify and allow owners to fix poor ventilation to prevent respiratory issues, allergies, and infections that might result from mold, mildew, and rot growth. Excessive moisture levels contribute to increased humidity, creating a conducive environment for the growth of dust mites, bacteria, and other allergens. These allergens can trigger allergic reactions, worsen asthma symptoms, and cause respiratory distress. Excessive moisture in buildings can also lead to the degradation of building materials, compromising their structural integrity. This degradation can result in the release of particulate matter, such as dust or fibers, into the air. The release of volatile organic

⁹ <https://www.aceee.org/research-report/u1602>

¹⁰ <https://www.energy.gov/scep/slsc/low-income-community-energy-solutions#:~:text=Energy%20burden%20is%20defined%20as,which%20is%20estimated%20at%203%25.>



compounds (VOCs) and mycotoxins from these microbial agents further affects indoor air quality, causing irritation, headaches, and potential toxicity.

The implementation of model building energy codes can have a significant impact on various aspects of a building's functionality, including moisture management, indoor air quality, fire safety, protection against extreme weather conditions, and overall resilience. Incorporating building science principles into affordable housing construction can improve indoor air quality and provide non-energy benefits that vastly improve living conditions for both occupants¹¹ and area residents.

Misconception: Tight building thermal envelopes are bad for occupant health and safety.

Reality: Tight envelopes that utilize a whole building approach and have properly installed ventilation systems improve health and safety.

A common misconception in the building community is that “we’re building houses too tight,” implying that energy codes create problems associated with stricter insulation requirements in the building thermal envelope.

This is false because building science requires a [whole building approach](#), meaning that aspects of design cannot be separated from each other. When a tight envelope is accompanied by continuous [mechanical ventilation systems](#) that work properly, problems related to excess moisture accumulation can be avoided. Energy codes have verification requirements for mechanical ventilation systems, ensuring positive impacts on the health and safety of occupants.

Misconception: Energy codes make the construction process too complex and burdensome for the builder.

Reality: Energy codes are no different than other building codes, which are updated over time as new industry best practices become available. Builders have historically learned to adapt and embrace new advances in building technology, and these advances have become second nature with proper training and support.

Some builders are averse to energy code updates because these updates introduce new concepts that were not historically required. Training and education are critical to ensure that builders know how to comply with the latest energy code in their jurisdiction(s). Third-party inspectors and verifiers can effectively work as subcontractors to help coach builders on many aspects of the code -- such as air sealing -- to ensure energy code compliance for current and future projects.

Misconception: Stricter energy codes will prevent new affordable housing projects from being constructed.

Reality: New affordable housing projects that prioritize energy efficiency and go above energy code requirements are already being built.

¹¹ https://www.imt.org/wp-content/uploads/2018/02/non-energy_benefits_of_energy_codes_report.pdf



Many builders already see the benefit of constructing above code affordable housing projects that prioritize energy efficiency. Here are some specific examples of projects and companies that utilize energy efficient design principles.

Harbor Village (Gloucester, Massachusetts)

The North Shore Community Development Coalition constructed a 30-unit affordable housing development in Gloucester, Massachusetts that was built to a Passive House design standard. This project was supported by a grant from the Massachusetts Clean Energy Center. The Coalition believes that building high-quality modern housing can help lessen the stigma surrounding affordable housing.¹²

Melrose Common II (Bronx, New York)

The Blue Sea Construction Corporation built a 90-unit affordable housing development in the Bronx borough of New York City that meets Energy Star Construction Standards as defined by the New York State Energy Research and Development Authority (NYSERDA). Each three-family home is projected to have an annual energy cost savings of \$988, with a simple payback projection of 5.7 years.¹³

Gowanus Green (Brooklyn, New York)

This project is currently under development in Brooklyn, New York and will feature approximately 950 units, all of which are affordable housing units. The project will be built to Passive House standards, will have green roofs, and will have on-site renewable energy generation.¹⁴ This project is co-developed by Jonathan Rose Companies, The Hudson Companies, The Bluestone Organization and Fifth Avenue Committee.

Preservation of Affordable Housing (POAH)

[POAH](#) is a nonprofit organization that manages properties comprised of 13,000 affordable housing units across 11 states and Washington D.C. They were able to reduce energy and water consumption for their whole portfolio by 20 percent through retrofitting, utilizing renewable energy, and new construction.¹⁵

Jonathan Rose Companies

Jonathan Rose Companies is a national development firm that has built over 18,000 units of affordable and mixed-income housing. The company's goal is for "each project to be a replicable model of environmental, social and economic responsibility".¹⁶ Many of the projects are built to energy efficient design standards. The Companies have built a total of 5.5 million square feet of affordable housing while avoiding 17.2 million pounds of carbon dioxide

¹² <https://energynews.us/2022/03/02/incentives-inform-and-inspire-highly-efficient-affordable-housing-in-massachusetts/>

¹³ https://www.pathnet.org/si.asp_id_2652_skip_this202.pdf

¹⁴ https://fifthave.org/wp-content/uploads/2022/02/Gowanus-Green-Fact-Sheet_Final-Dec-2021.pdf

¹⁵ <https://www.poah.org/about/design-and-building-performance>

¹⁶ <https://www.rosecompanies.com/mission/>



emissions across all projects.¹⁷ This company demonstrates that energy efficient affordable housing can be built at scale, providing a replicable, successful business model for other developers and builders.

Conclusion

Jurisdictions should adopt the latest model energy codes, and above code measures such as stretch codes, while educating the public, developers, and builders about how these codes provide positive impacts to new affordable housing. They should also highlight that adopting the latest model energy code saves money on utility bills, reduces household energy and cost burdens, and improves the health and safety of occupants and communities. Incentive structures that benefit builders who construct affordable houses can generate support and buy-in from the homebuilding community and can lead to the development of more energy efficient affordable housing projects.

Resources

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¹⁷ <https://www.rosecompanies.com/sustainability/>