

Nebraska Energy Codes

A Guide to LB 405

What does LB 405 propose?

LB 405 proposes updating the Nebraska Statewide Energy Code from the 2009 International Energy Conservation Code (IECC) to the 2018 IECC for residential and commercial buildings.

What are energy codes?

Building energy codes lay out the minimum requirements for the envelope (insulation, windows and air sealing), mechanical equipment and lighting of a building (residential and commercial) in terms of energy efficiency/conservation for new construction or major renovations. The IECC is updated every three years to incorporate continual improvements in building efficiency in a collaborative, transparent process by a diverse group of stakeholders.

What are the costs associated with updating the energy code?

While there are modest incremental construction costs associated with updating the code, an analysis by the U.S. Department of Energy shows that updating Nebraska's statewide energy code from the 2009 IECC is cost-effective for homeowners. Indeed, the new code was found to be cash flow positive for homebuyers within the first year.

What are the benefits of updating the energy code?

The 2018 International Energy Conservation Code (IECC) offers a multitude of benefits to homeowners, builders and residents in Nebraska, including:

- Healthier indoor environments
- More resilient buildings
- Energy and cost savings for building owners and occupants
- More flexibility for builders through the addition of a performance compliance pathway

Who is supportive of updating the energy code?

- Nebraska Code Officials Association
- League of Nebraska Municipalities
- City of Lincoln
- American Society of Heating Refrigeration and Air-Conditioning Engineers (ASHRAE), Nebraska Chapter
- American Institute of Architects (AIA) in Nebraska
- American Chemistry Council (ACC)
- Polyisocyanurate Insulation Manufacturers Association (PIMA)
- Lifetime Home Services
- Knaggs Construction, Inc.
- International Code Council
- U.S. Green Building Council Nebraska Flatwater Community

Where can I get more information about energy codes in Nebraska?

MEEA - mwalliance.org/initiatives/policy/nebraska/nebraska-building-energy-codes

Contact: Nicole Westfall, nwestfall@mwallinace.org, Phone: 312.374.0918

International Codes Council - www.iccsafe.org

The Trusted Source on Energy Efficiency





Residential Energy Code Savings: Nebraska (CZ 5)

The 2018 International Energy Conservation Code (IECC) offers a multitude of benefits to homeowners, builders and residents in Nebraska. Advancing the statewide energy code from the 2009 to the 2018 IECC is an opportunity to implement energy and cost saving building practices that will allow Nebraskans to realize benefits for decades to come.

A study commissioned by the Nebraska Energy Office found that updating the statewide energy code to the 2018 IECC could significantly reduce the energy use in Nebraskan homes and save residents money on their energy bills. In addition to the substantial energy and cost savings identified in this study, enhancements to building performance stemming from the 2018 IECC will significantly improve the health and resilience of Nebraska homes and their occupants. The results of the analysis and key changes to the code are outlined below.

Savings Associated with the Adoption of the 2018 IECC¹

According to an analysis by Vandemusser Design LLC, if the unamended 2018 IECC was adopted:

A future Nebraskan homeowner could expect to **reduce their energy use by an average of 15% annually**, compared to homes built today.

Nebraskan residents could **save an average of \$191 on their energy bills annually** compared to homes built today.

Significant Building Improvements in the 2018 IECC:

- **Air Infiltration:** A tighter building envelope will limit air pollutant infiltration and a reduced air leakage rate will save energy and money
 - Must be verified by an approved diagnostic blower door test. Difficult to realize energy benefits without testing.
- **Mechanical Ventilation:** Whole house ventilation systems provide controlled make-up air
 - Ventilation coupled with reduced air infiltration is essential for maintaining good indoor air quality and can significantly improve occupant and building health.
- **Ceiling and Foundation Insulation:** More efficient ceiling and foundation insulation levels result in improved building resilience
- **Windows and Doors:** More efficient windows and doors that align with market availability
- **Duct Tightness:** Reduced leakage rate assures required volume of tempered air is provided in all rooms
 - Must be verified with diagnostic duct leakage test when ducts and the air handler are not entirely within conditioned space.
- **Lighting:** 90% of fixtures will include LED or CFL bulbs resulting in reduced electricity usage
- **Energy Rating Index:** Addition of a performance compliance pathway gives builders flexibility to construct the home based on their needs and comply with the code.

¹ Musser, Amy (2018). *Energy Impact Study of the 2009 IECC and 2018 IECC Energy Codes for Nebraska*



Commercial Energy Comparison: Nebraska (CZ 5) 2009 IECC, 2018 IECC

If Nebraska adopts the unamended 2018 IECC for commercial buildings, owners, tenants, renters and businesses can expect to save significantly on energy use and cost. According to an energy savings analysis conducted by the Department of Energy (DOE), updating 2009 IECC to the 2018 IECC is cost effective and would **save buildings 30% in site energy use and 32% in energy costs**, based on a weighted average for all building types.¹

This would result in a **first-year savings of over \$1,500,000 in energy costs and over 60,000 MMBTU in energy use based on commercial construction levels in Nebraska.**²

Table 1. Building Type: Site Energy and Energy Cost Savings between the 2009 and 2018 IECC

Building Type	Prototype Name	Site Energy Savings	Energy Cost Savings
Office	Small Office	34%	34%
	Medium Office	31%	34%
	Large Office	27%	26%
Retail	Stand-Alone Retail	42%	41%
	Strip Mall	32%	36%
Education	Primary School	40%	41%
	Secondary School	44%	45%
Health Care	Outpatient Healthcare	30%	29%
	Hospital	30%	26%
Lodging	Small Hotel	19%	26%
	Large Hotel	22%	23%
Warehouse	Warehouse	37%	44%
Food Service	Fast Food Restaurant	8%	12%
	Sit-Down Restaurant	17%	25%
Apartment	Mid-Rise Apartment	15%	13%
	High-Rise Apartment	17%	17%
National Weighted Average		30%	32%

¹ Department of Energy. ANSI/ASHRAE/IES Standard 90.1-2007 & 2016 Determination of Energy Savings: Quantitative Analysis.

² CMD Construction Database: Based on 10-year average of commercial construction levels, 2008 - 2017.