

# WASHINGTON'S NATION-LEADING ACTION ON BUILDINGS





## State Building Code Council (SBCC) Energy Codes

Buildings in Washington account for about a quarter of our greenhouse gas emissions and these emissions have been on the rise since 1990. They also contribute to both indoor and outdoor air pollution, due to the use of fossil fuels like gas for space heating/cooling, water heating, cooking, and drying our clothes.

Energy use in new buildings is governed by the state energy code, which is revised every three years. The energy code is divided into two sections:

- **The residential energy code, which regulates single-family homes and townhomes**
- **The commercial energy code, which regulates commercial buildings and multifamily buildings**

In 2022, the State Building Code Council – a 15-member council made up of technical and community experts recommended by trade associations and appointed by the governor – approved updates to the commercial and residential energy codes that will take effect in July 2023, with key provisions to reduce energy use, greenhouse gas emissions, and air pollution.

Appliance Type	Energy Code Provision	Why is this important?
 <b>Space heating &amp; cooling</b>	Heat pumps are required in all new buildings, with a few minor exceptions.	Heat pumps provide ultra-efficient heating, as well as cooling, which is increasingly important as Washington sees hotter summers and more wildfire smoke. All-electric homes save Washingtonians <a href="#">\$1,000 per year</a> in net present costs over the lifetime of the HVAC equipment, according to the Department of Commerce.
 <b>Water heating</b>	Heat pump water heaters are required in all new buildings, with a few minor exceptions.	
 <b>Cooking</b>	For homes and townhomes, improved ventilation is required for any new homes built with gas ranges for cooking. For multifamily buildings, kitchens in dwelling units with gas cooking must be “electric-ready” to allow for future conversions to electric appliances.	Gas cooking appliances emit toxic pollutants indoors like carbon monoxide, formaldehyde, and nitrogen dioxide. This pollution affects children especially, who are <a href="#">42% more likely to suffer symptoms of asthma</a> when they grow up in homes with a gas stove instead of an electric stove.
 <b>Energy efficiency</b>	All new buildings must have high-efficiency building envelopes to minimize heat loss and air leakage; more efficient lighting; and must be electric vehicle-ready. Renewable energy and greater efficiency are also incentivized.	Energy efficiency measures are required to meet legislative requirements that the energy code must become increasingly more efficient every revision cycle such that buildings constructed in 2031 use 70% less energy than those under the 2006 energy code ( <a href="#">RCW 19.27A.160</a> ).



## Frequently Asked Questions

### Is the new energy code requiring heat pumps cost-effective?

**Yes.** Ecotope's cost-benefit analysis of the commercial code found that [both the space and water heating proposals were cost effective](#). For the residential code, in October 2022, RMI completed [an updated cost-benefit analysis](#) to the State Building Code Council's residential code that showed mixed-fuel homes in both Seattle and Spokane cost more than \$7,200 more to build than all-electric homes, and even more to operate over the building's life cycle. Additionally, an [E3 report](#) prepared for the Washington State Department of Commerce in May 2022 found all-electric residential new construction "cost-effective across the state", showing all-electric new homes save about \$2,000 in upfront costs.

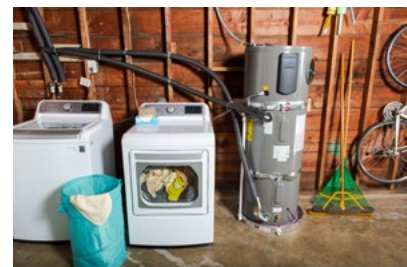
An earlier cost-benefit analysis conducted by PNNL for the residential updates had several methodological issues: firstly, it didn't use the utility rates that the SBCC requires for cost analysis, which meant they used a cheaper rate for natural gas and a more expensive rate for electricity than required. Additionally, the mixed-fuel home that was used as a baseline did not include air conditioning, even though most new buildings in Washington have air conditioning and this is expected to increase as we see higher summer temperatures and a growing concern over wildfire smoke. The [RMI cost-benefit analysis](#) and [E3 report for Commerce](#) take these factors into account and are customized for Washington state.

### Do we have enough energy to power all new buildings with electricity?

**Yes.** Utilities are continuously planning to ensure they have enough energy, and they are regulated by the Utilities & Transportation Commission in doing so. Whether it's from population growth, new businesses, transportation electrification, or building electrification, utilities go through robust planning processes every two years to determine what new resources they need to maintain a reliable grid and keep the lights on. Given that the vast majority of new homes are already being built all-electric, utilities have been planning for electrification. Additionally, since these changes only apply to new construction, any increased load on the grid will phase in gradually. Finally, heat pumps are 200-400% more energy efficient than gas-fired or electric resistance heating equipment, and smart thermostats and demand-response for hot water heaters can help smooth out energy use and avoid using energy during peak demand.

### Does heat pump technology work in cold weather?

**Yes.** This was a valid concern in the past, but new models of heat pump technology that are designed to work in cold climates are now well-established and mainstream, with a huge diversity of product variations available for heat pump space and water heating throughout the United States. These products are tested and rated to provide heating safely and efficiently down to 5°F and below. The new code also allows for supplemental heating in cold parts of Washington, which would only augment the heat pump's power if temperatures go below 40°F - a failsafe, given that new heat pump technology works well below this temperature.



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