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Stretch Codes

A stretch code is an adoptable and enforceable code that exceeds the requirements of the base code. Stretch codes typically enhance building energy efficiency and may also contain additional considerations like building material impacts, water efficiency, renewable energy, and resilience or grid security. Stretch codes may be required for specific building types, building sizes, certain funding or incentive programs, or be voluntary.

Many times, a stretch code will be based on the next version of the model code; for example, a state may adopt the 2021 International Energy Conservation Code (IECC) as the base code and the 2024 IECC as the stretch code. A state or jurisdiction (e.g., [OR](#), [MA](#), [VT](#)) may also produce and adopt a state- or jurisdiction-specific stretch code. A stretch code is adopted and developed using the same public process as other energy codes and provides uniform criteria across a state or municipality.

The approach to developing stretch codes varies and may set requirements for a single code cycle (e.g., 20 percent better than ASHRAE 90.1) or may set an end goal that can be achieved over multiple code cycles. For example, British Columbia, Canada, has adopted a "step" stretch code which is a stretch code with multiple levels of increasingly stringent compliance options. Stretch code compliance paths vary from prescriptive, performance, or points based.

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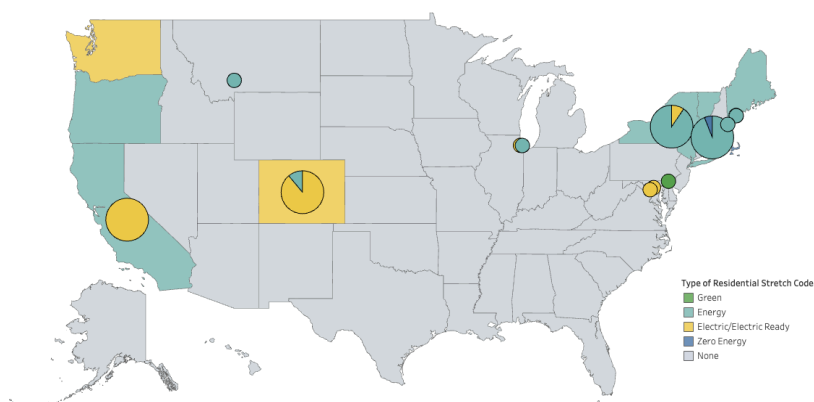
Overall, stretch codes benefit communities, home and building owners, and renters by:

- Reducing operational building and utility costs.
- Improving occupant comfort, and health, and resilience.
- Creating and sustaining efficiency-related jobs.
- Raising a building or home valuation.
- Strengthening the building and design industry and moving market trends toward efficiency.

State and Local Stretch Code Maps

The Building Energy Codes Program (BECP) tracks stretch codes at the state and local levels. The residential and commercial [stretch code maps](#) and corresponding tables visualize the current state of stretch codes in the United States. Navigate the maps below by selecting a state or local jurisdiction to learn what type of stretch code has been adopted and other information. The maps are updated on a quarterly basis.

State and Local Residential Stretch Code







State and Local Commercial Stretch Code

In response to the high demand, the U.S. Department of Energy (DOE) and Pacific Northwest National Laboratory (PNNL) have developed a series of technical briefs supporting national, state, and local initiatives to update and advance building energy codes. These technical briefs are presented in a module-based format, based on technologies, measures or practices (or optimized combinations) that can be incorporated as “plug-ins” to building energy codes. These plug-ins are made available for adoption directly by state and local governments pursuing advanced energy savings, as well as for future consideration for the International Energy Conservation Code (IECC) and Standard 90.1. The collection supports the adoption of stretch codes, helping state and local governments pursue their energy and savings goals, as well as the Department’s broader mission to provide technical assistance supporting the implementation of state and local energy codes (42 USC 6833).

Currently available plug-ins are presented below. Each tech brief provides an overview of a given topic, plus supporting technical information and analysis estimating the associated impacts. In addition, sample code language is provided to illustrate how a given concept can be overlaid on top of the current model codes (e.g., IECC or Standard 90.1). Additional technical assistance is available from DOE and PNNL to support states and local governments who are interested in adding these concepts or other “stretch” provisions to their building codes. Assistance typically

includes technical guidance, customized analysis of expected impacts (e.g., based on state-specific building stock, climate considerations, or utility prices), and further tailored code language to overlay state building codes or other standards. DOE works continuously with states and local governments to identify new concepts and practices that support their needs and plans to issue additional plug-in concepts in the future on a rolling basis.

Technical Briefs


Title	Description	Report Link	Fact Sheet Link
Service Water Heating System Performance Approach	This technical brief provides an additional Service Water Heating (SWH) System Performance path that goes beyond the prescriptive energy code by outlining a comprehensive performance-based approach for SWH system evaluation and analysis.	SWH Performance Approach Tech Brief 	
Simplified HVAC System Performance	The technical brief provides an additional heating, ventilation, and air conditioning (HVAC) System Performance (HSP) path that goes beyond the prescriptive energy code. It	HSP Tech Brief  HSP TSD 	HSP Fact Sheet 

provides a comprehensive performance-based approach for HVAC system evaluation and analysis. The approach develops a Total System Performance Ratio (TSPR) to compare proposed, target, and reference HVAC systems.



The technical support documentation (TSD) provides background on development of mechanical system performance factors for use in the HSP for ASHRAE Standard 90.1-2022. It provides documentation of HVAC system input parameters and simplified HVAC measure modeling approaches.





Energy Credits




This technical brief provides additional efficiency measures that go beyond the current prescriptive

[Energy Credits Tech Brief](#) 
[Energy Credits Application Guide: ASHRAE](#)

[Energy Credits Fact Sheet](#) 

	<p>commercial energy codes. It demonstrates relative savings for multiple measures and shows a base savings package by building type and climate zone that is cost effective for building owners and tenants.</p>	<p>Standard 90.1-2022 </p>	
<p>BPS and Energy Code Alignment</p>	<p>This technical brief presents recommendations for changes that may be incorporated into energy codes to facilitate future compliance with the building performance standard (BPS) policies that a newly constructed building has to meet once it is occupied. It provides background on the basis and benefits of the proposed changes and model code language that can be inserted into ASHRAE Standard 90.1 or adapted into other energy codes.</p>	<p>Code Alignment Tech Brief </p>	











<p>GEB (Demand Response)</p>	<p>To assist states and jurisdictions that have requested assistance in future proofing their buildings, this technical brief provides requirements for demand-responsive thermostats, water heaters, and energy storage to provide additional grid flexibility to states and jurisdictions working to strengthen the security of their electrical grid. It provides background on the benefits of these devices, impacts on the cost of construction, and model code language that can be plugged into the IECC or adapted into other energy codes.</p>	<p>GEB Tech Brief </p>	<p>GEB Fact Sheet </p>
<p>Electric Readiness</p>	<p>This technical brief provides requirements for electric readiness for the future installation of these technologies. It</p>	<p>Electric Readiness Tech Brief </p>	<p>Electric Readiness Fact Sheet </p>




	<p>provides background on the basis and benefits of the provisions, and model code language that can be plugged into the IECC or adapted into other energy codes.</p>		
EV Charging	<p>States and local governments have requested that DOE provide technical assistance to develop energy code overlay requirements to support their policy goals. This technical brief provides code language for PEV charging infrastructure for adoption by model codes, and states and local governments.</p>	<p>EV Tech Brief </p>	<p>EV Fact Sheet </p>
Zero Code Plug-In	<p>This commercial zero code plug-in technical brief presents modified code language that can be amended to adopted commercial building model energy codes to achieve net zero</p>	<p>Commercial Plug-In </p>	

energy (NZE) in newly constructed buildings, either immediately or over several code cycles. An option to achieve net zero operational energy emissions (NZOEE) has also been included to align with the ASHRAE 90.1 standard.


Code Change Proposals Currently Being Considered


Below are draft code change proposals DOE is considering for stretch code and model code development.

Title	Proposal Link
Clarify Slab Insulation Requirements	Proposal 
Commercial PV Required	Proposal 
Decorative Lighting Power Reduction	Proposal 
Demand Control Ventilation Update	Proposal 
EV Charging	Proposal 
Expanded C406 Energy and Demand Response Credits	Proposal 
Exterior Lighting	Proposal 
HVAC Total System Performance Ratio	Proposal 
Interior Lighting LPD Update	Proposal 
Lighting System Performance	Proposal 
Residential Demand Response	Proposal 

Residential Electrification	Proposal 
Residential PV Required	Proposal 
Residential Renewable Tradeoffs for Performance Path	Proposal 

Other Resources

[Building Energy Codes and Grid-Interactive Efficient Buildings](#) 

[Filling the Efficiency Gap to Achieve Zero-Energy Buildings with Energy Codes](#) 

[Realizing Demand Flexibility with Commercial Building Energy Codes](#) 

DOE BUILDING ENERGY CODES PROGRAM

The U.S. Department of Energy supports the advancement of building energy codes, including stretch codes that empower states and local governments in achieving their energy and climate goals. Modern building codes and standards offer cost-effective solutions, contributing to lower utility bills for homes and businesses, and helping to mitigate the impacts of climate change.

Building Energy Codes Program is a resource of the U.S. Department of Energy's Building Technologies Office.

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