

Code Amendment Proposal Form

For public amendments proposed to the 2021 editions of the International Codes



Instructions: Upload this form and all accompanying documentation. If you are submitting your proposal on a separate sheet, make sure it includes all information requested below.

All proposals must be received by **July 23, 2021**.

CONTACT INFORMATION

Name: Christine Brinker **Date:** July 23, 2021
Phone: 720-939-8333 **E-mail:** cbrinker@swenergy.org
Organization or Representing Self: Southwest Energy Efficiency Project

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Signature: 

AMENDMENT PROPOSAL

Please use a separate form for each proposal.

- 1) Code(s) associated with this proposal. Please use acronym: IECC
If you submitted a separate coordination change to another code, please indicate which code: _____

<u>Acronym</u>	<u>Code Name</u>	<u>Acronym</u>	<u>Code Name</u>
DBC-AP	Denver Building Code–Administrative Provisions	IFC	International Fire Code
DBC-xxx	Denver Building Code–xxx (code) amendments (e.g., DBC-IBC, DBC-IEBC)	IFGC	International Fuel Gas Code
IBC	International Building Code	IRC	International Residential Code
IEBC	International Existing Building Code	IMC	International Mechanical Code
IECC	International Energy Conservation Code	IPC	International Plumbing Code
		DGC	Denver Green Code

- 2) Please check here if a separate graphic file is provided:
Graphics may also be embedded within your proposal below.
- 3) Use this template to submit your proposal or attach a separate file, but please include all items requested below in your proposal. The only formatting needed is **BOLDING**, **STRIKEOUT** AND **UNDERLINING**. Please do not provide additional formatting such as tabs, columns, etc., as this will be done by CPD.

Code Sections/Tables/Figures Proposed for Revision:

R403.1.2 Heat pump supplementary heat. (*modify*)
R403.13 Heat pump space heating (*Add new section*)

Proposal:

Modify section as follows:

R403.1.2 Heat pump supplementary heat. Heat pumps having supplementary ~~electric resistance~~ heat systems shall have controls that, ~~except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.~~ limit supplementary heat operation to only those times when one of the following applies:

1. The heat pump is operating in defrost mode.
2. The vapor compression cycle malfunctions or loses power.
3. The thermostat malfunctions.
4. Outside air temperature is below 20°F (-7°C)

Add new section as follows:

R403.13 Heat pump space heating. Space heating in new *buildings* shall be provided by an electric heat pump system.

Exceptions:

1. Up to 1000 watts of electric resistance heating per *dwelling unit*
2. Resistance heating elements integrated into unitary heat pump equipment
3. Solar thermal systems
4. Waste heat and energy recovery systems
5. Supplementary heat in accordance with Section R403.1.2.

Supporting Information:

Purpose:

Move Denver towards its community-driven climate goals, health goals, and affordability goals through the use of clean, highly-efficient, cost-effective, and all-electric technologies.

Reason/Substantiation:

Electrification is a critical pillar of Net Zero Energy, and is required to meet Denver’s goal of Net Zero Energy in new homes and buildings by 2030. Denver’s existing building policy is likely to start requiring heat pumps for space heating ahead of the next 2024 code cycle, as recommended by the Energize Denver Task Force. New homes should pave the way for electrification, and should be on a more ambitious track than existing homes. Denver’s recently-released Renewable Heating and Cooling Implementation Plan and other local and regional studies have already demonstrated both the cost-effectiveness and the importance of this approach.

All-electric homes are healthier, more comfortable, and lower-cost to build and operate. The health disparities and energy burden are already greatest for low-income households, and this proposal helps on both fronts. On the health side, people living in the United States spend roughly 90% of their time indoors where pollution levels are largely unregulated and often worse than outdoor air quality (RMI 2020). Indoor air pollution caused by natural gas contributes significantly to exacerbating asthma and triggering asthma attacks, risks carbon monoxide poisoning, and causes other adverse health impacts.

Denver can transition its homes and buildings to clean, highly efficient, all-electric heat powered by renewable electricity through the use of heat pump technology. Heat pumps use electricity to move heat from a cool space to a warm space, making the cool space cooler and the warm space warmer. They can work in either direction: providing heating in the wintertime (in temperatures down to -12 Fahrenheit) and cooling in the summertime, all in one unit. The cooling is particularly important for Denver’s under-resourced communities and communities of color, which currently bear the greatest burden of lack of air conditioning, heat island effects, lower tree-cover, and negative health impacts of excessive heat.

In addition to the health, climate, and efficiency benefits outlined above, all-electric and renewably-powered buildings are affordable and can reduce construction costs. See more detail on cost impacts in the “Impact” section below.

Additional Notes:

- These requirements allow either air source heat pumps or ground source heat pumps, as each have their own advantages for particular homes.
- These requirements include multiple exceptions. The intention is to make this only apply to general purpose space heating systems that are found in nearly all homes and not to the specialty systems that are sometimes present for which heat pumps may not be a good fit.
- The requirements are structured to ensure that solar thermal and waste heat recovery systems aren't inadvertently prohibited.
- Each list of exceptions includes “other systems as approved.” This allows the code official to respond to unique situations without a full “alternate means and methods” submission.
- The exceptions specifically list the resistance coils found in most storage heat pumps for clarity.

