

Amendment 1
to
CB 119993 - SDCI 2018 Energy Code ORD
Sponsor: CM Mosqueda
Space heating restrictions effective date

Effect: Beginning on January 1, 2022, CB 119993 would prohibit new commercial and multifamily buildings from using electric resistance or fossil fuels for space heating. This amendment would change the delay to the effective date of this provision, making it effective on June 1, 2021.

Amend Section C403.1.4 of Attachment A of CB 119993, as follows:

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C403.1.4 Use of electric resistance and fossil fuel-fired HVAC heating equipment. HVAC heating energy shall not be provided by electric resistance or fossil fuel combustion appliances. For the purposes of this section, electric resistance HVAC heating appliances include but are not limited to electric baseboard, electric resistance fan coil and VAV electric resistance terminal reheat units and electric resistance boilers. For the purposes of this section, fossil fuel combustion HVAC heating appliances include but are not limited to appliances burning natural gas, heating oil, propane, or other fossil fuels.

Exceptions:

- 1. Effective date.** Permits applied for prior to ~~January~~ June 1, 2022 ~~2021~~.
- 2.1. Low heating capacity.** Buildings or areas of buildings, other than *dwelling units* or sleeping units, that meet the interior temperature requirements of IBC Chapter 12 with a total installed HVAC heating capacity no greater than 8.5 BTU/h (2.5 watts) per square foot of *conditioned space* are permitted to be heated using electric resistance appliances. For the purposes of this exception, overhead or wall-mounted radiant heating panels installed in an unheated or semi-heated space, insulated in compliance with Section C402.2.8 and controlled by occupant sensing devices in compliance with Section C403.11.1 need not be included as part of the HVAC heating energy calculation.
- 2.2. Dwelling and sleeping units.** Dwelling or sleeping units having an installed HVAC heating capacity no greater than 750 watts in any separate habitable room with exterior fenestration are permitted to be heated using electric resistance appliances.

a. **Corner rooms.** A room within a dwelling or sleeping unit that has two primary walls facing different cardinal directions, each with exterior fenestration, is permitted to have an installed HVAC heating capacity no greater than 1000 watts. Bay windows and other minor offsets are not considered primary walls.

4.3. **Small buildings.** Buildings with less than 2,500 square feet of *conditioned floor area* are permitted to be heated using electric resistance appliances.

5.4. **Defrost.** Heat pumps are permitted to utilize electric resistance as the first stage of heating when a heat pump defrost cycle is required and is in operation.

6.5. **Air-to-air heat pumps.** Buildings are permitted to utilize internal electric resistance heaters to supplement heat pump heating for air-to-air heat pumps that meet all of the following conditions:

a. Internal electric resistance heaters have controls that prevent supplemental heater operation when the heating load can be met by the heat pump alone during both steady-state operation and setback recovery.

b. The heat pump controls are configured to use the compressor as the first stage of heating down to an outdoor air temperature of 17°F or lower.

c. The heat pump complies with one of the following:

1. Controlled by a digital or electronic thermostat designed for heat pump use that energizes the supplemental heat only when the heat pump has insufficient capacity to maintain set point or to warm up the space at a sufficient rate.

2. Controlled by a multistage space thermostat and an outdoor air thermostat wired to energize supplemental heat only on the last stage of the space thermostat and when outdoor air temperature is less than 32°F.

3. The minimum efficiency of the heat pump is regulated by NAECA, its rating meets the requirements shown in Table C403.3.2(2), and its rating includes all usage of internal electric resistance heating.

d. The heat pump rated heating capacity is sized to meet the heating load at an outdoor air temperature of 32°F or lower and has a rated heating capacity at 47°F no less than 2 times greater than supplemental internal electric resistance heating capacity, or utilizes the smallest available factory-available internal electric resistance heater.

7.6. **Air-to-water heat pumps, up to 2,000 MBH.** Buildings are permitted to utilize electric resistance auxiliary heating to supplement heat pump heating for hydronic heating systems that have air-to-water heat pump heating capacity no greater than 2000 kBTU/hr at 47°F, and that meet all of the following conditions:

- a. Controls for the auxiliary electric resistance heating are configured to lock out the supplemental heat when the outside air temperature is above 32°F, unless the hot water supply temperature setpoint to the building heat coils cannot be maintained for 20 minutes.
- b. The heat pump controls are configured to use the compressor as the first stage of heating down to an outdoor air temperature of 17°F or lower except during startup or defrost operation.
- c. The heat pump rated heating capacity at 47°F is no less than 2 times greater than supplemental electric resistance heating capacity.

§ 7. **Air-to-water heat pumps, up to 3,000 MBH.** Buildings are permitted to utilize electric resistance auxiliary heating to supplement heat pump heating for hydronic heating systems that have air-to-water heat pump heating capacity greater than 2000 KBTU/hr and no greater than 3000 kBTU/hr at 47°F, and that meet all of the following conditions:

- a. Controls for the auxiliary electric resistance heating are configured to lock out the supplemental heat when the outside air temperature is above 36°F, unless the hot water supply temperature setpoint to the building heat coils cannot be maintained for 20 minutes.
- b. The heat pump controls are configured to use the compressor as the first stage of heating down to an outdoor air temperature of 17°F or lower except during startup or defrost operation.
- c. The heat pump rated heating capacity at 47°F is no less than 1.75 times greater than supplemental electric resistance heating capacity.

§ 8. **Air-to-water heat pumps, over 3,000 MBH.** Buildings are permitted to utilize electric resistance auxiliary heating to supplement heat pump heating for hydronic heating systems that have air-to-water heat pump heating capacity greater than 3000 kBTU/hr at 47°F and that meet all of the following conditions:

- a. Controls for the auxiliary resistance heating are configured to lock out the supplemental heat when the outside air temperature is above 40°F unless the hot water supply temperature setpoint to the building heat coils cannot be maintained for 20 minutes.
- b. The heat pump controls are configured to use the compressor as the first stage of heating down to an outdoor air temperature of 17°F or lower except during startup or defrost operation.
- c. The heat pump rated heating capacity at 47°F is no less than 1.5 times greater than supplemental electric resistance heating capacity.

40 9. **Ground source heat pumps.** Buildings are permitted to utilize electric resistance auxiliary heating to supplement heat pump heating for hydronic heating systems with ground source heat pump equipment that meets all of the following conditions:

- a. Controls for the auxiliary resistance heating are configured to lock out the supplemental heat when the outdoor air temperature is above 32°F, unless the hot water supply temperature setpoint to the building heat coils cannot be maintained for 20 minutes.
- b. The heat pump controls are configured to use the compressor as the first stage of heating down to an outdoor temperature of 17°F or lower.
- c. The heat pump rated heating capacity at 32°F entering water conditions is no less than 2 times greater than supplemental electric resistance heating capacity.

44 10. **Small systems.** Buildings in which electric resistance or fossil fuel appliances, including decorative appliances, either provide less than 5 percent of the total building HVAC system heating capacity or serve less than 5 percent of the *conditioned floor area*.

42 11. **Specific conditions.** Portions of buildings that require fossil fuel or electric resistance space heating for specific conditions *approved* by the *code official* for research, health care, process or other specific needs that cannot practicably be served by heat pump or other space heating systems. This does not constitute a blanket exception for any occupancy type.

43 12. **Kitchen exhaust.** Make-up air for commercial kitchen exhaust systems required to be tempered by Section 508.1.1 of the International Mechanical Code is permitted to be heated using electric resistance appliances.

44 13. **District energy.** Steam or hot water district energy systems that utilize fossil fuels as their primary source of heat energy, that serve multiple buildings, and that were already in existence prior to the effective date of this code, including more energy-efficient upgrades to such existing systems, are permitted to serve as the primary heating energy source.

45 14. **Heat tape.** Heat tape is permitted where it protects water-filled equipment and piping located outside of the *building thermal envelope*, provided that it is configured and controlled to be automatically turned off when the outside air temperature is above 40°F.

46 15. **Temporary systems.** Temporary electric resistance heating systems are permitted where serving future tenant spaces that are unfinished and unoccupied, provided that the heating equipment is sized and controlled to achieve interior space temperatures no higher than 40°F.

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Land Use and Neighborhood Committee

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~~47~~ **16. Emergency generators.** Emergency generators are permitted to use fossil fuels.

~~48~~ **17. Pasteurization.** Electric resistance heat controls are permitted to reset the supply water temperature of hydronic heating systems that serve service water heating heat exchangers during pasteurization cycles of the service hot water storage volume. The hydronic heating system supply water temperature shall be configured to be 145°F or lower during the pasteurization cycle.

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