



Building Standards and Codes

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TB-7005-ECCNYS

TECHNICAL BULLETIN

Code Effective Date: May 12, 2020¹

Source Document: 19NYCRR 1240—State Energy Conservation Construction Code²

Topic: Programmable Thermostats and Equipment Sizing Alternatives for Residential Buildings

This document is intended to clarify the applicable requirements of the 2020 Energy Conservation Construction Code of New York State³ (2020 ECCCNY) to low-rise residential buildings for programmable thermostats and the applicable requirements for the calculation of heating and cooling equipment sizes, including alternative calculation methodologies.

The residential provisions of the 2020 ECCCNY apply to “*residential buildings and the building sites and [their] associated systems and equipment*” (see Section R101.3). According to the definition, residential buildings include the following:

1. Detached one and two-family dwellings having not more than three stories above grade plane;
2. Townhouse units;⁴
3. Buildings that (i) are classified in accordance with Chapter 3 of the Building Code of New York State in Group R-2, R-3 or R-4 and (ii) have not more than three stories above grade plane;
4. Factory manufactured homes (as defined in Section 372(8) of the Executive Law); and
5. Mobile homes (as defined in Section 372(13) of the Executive Law).

The commercial provisions of the 2020 ECCCNY apply to all other buildings.

Programmable Thermostat

The residential provisions of the 2020 ECCCNY require that “*not less than one thermostat shall be provided for each separate heating and cooling system*” and the thermostat that controls the primary heating or cooling system of the dwelling unit is required to be programmable (See Section R403.1 and Section R403.1.1).

A primary heating or cooling system is one that provides heating and/or cooling to multiple rooms or spaces within a dwelling unit⁵ or to the entire dwelling unit. A primary system can consist of multiple components that are capable of

¹ The “Code Effective Date” for this Technical Bulletin is May 12, 2020, which is the effective date of the 2020 update of the New York State Uniform Fire Prevention and Building Code (the Uniform Code) and the 2020 update of the State Energy Conservation Code (the Energy Code).

² The Energy Code is contained in Title 19 of the Official Compilation of Codes, Rules and Regulations of the State of New York Part 1240 and the publications incorporated by reference into that Part, including, but not limited to the 2020 NYS specific code book which is based on the 2018 International Energy Code and the publication entitled *ANSI/ASHRAE/IES Standard 90.1-2016, Energy Standard for Buildings Except Low-Rise Residential Buildings* published by American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.

³ Access to online versions of the 2020 Codes of New York State may be found on the [DBSC website](http://www.dbsc.ny.gov).

⁴ The term *townhouse unit* means a single-family dwelling unit constructed in a group of three or more attached units in which each unit: (1) extends from the foundation to roof; (2) has open space on at least two sides; and (3) has a separate means of egress. See Section R202 of the 2020 ECCCNY.

⁵ The term *dwelling unit* means a single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation. See Section R202 of the 2020 ECCCNY.

interconnection and capable of being controlled through one single thermostat. Conversely, individual units intended to supply heating and/or cooling to individual rooms or spaces, that function independently of each other, that are not capable of interconnection, or that are equipped with integral thermostats, typically do not constitute primary units.

Where individual units provide the heating or cooling needs of each room or space within a dwelling unit and are not part of an identifiable primary system, a programmable thermostat is not required; for example, where only portable window air conditioning units or mini-split heat pumps are used to provide the needs of individual rooms or spaces. However, where a primary system is augmented with a supplemental unit or units, the primary system is still required to have a programmable thermostat and supplemental units are not.

Approved Equipment Sizing Alternatives

Section R403.7 of the 2020 ECCCNYL establishes the methodologies for the calculation of heating and cooling loads and the sizing of heating and cooling equipment. The section also provides an option for the use of “*other approved heating and cooling calculation methodologies*” (emphasis added).

Section R104.1 of the 2020 ECCCNYL indicates that alternative materials, designs, methods of construction, and insulating systems can be used, provided that such alternative is approved by the building official,⁶ in writing, as:

1. meeting the intent of the provisions of the Energy Code; and
2. achieving energy savings that are equivalent to or greater than that which would be achieved by the prescribed method of construction, design, or insulating system.

The term “*approved*” is defined in the 2020 ECCCNYL as “*acceptable to the building official.*” Permit applicants and their registered design professionals are advised to communicate with the building official before performing calculations following “*other approved*” methodologies and prior to utilizing alternative materials to ensure that their chosen methods and materials meet the approval of the building official.

Nothing stated in Section R104.1 of the 2020 ECCCNYL “*shall be construed as permitting any building official or any governmental unit or agency responsible for administration and enforcement of the Energy Code to waive, vary, modify, or otherwise alter any provision, standard, or requirement of the Energy Code.*” Modifications to the 2020 ECCCNYL are only authorized through a variance in accordance with Section 11-106 of the Energy Law.

The information contained in this bulletin is neither a complete review of all possible system configurations nor a comprehensive listing of all Uniform Code and Energy Code requirements applicable to programmable thermostats and calculating heating and cooling equipment sizes. Other provisions of the Uniform Code and Energy Code may apply depending on the circumstances.

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⁶ The term *building official* means the officer or other designated authority charged with the administration and enforcement of the Energy Code, or a duly authorized representative. See Section R202 of the 2020 ECCCNYL.