



## Legislation Text

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### Int. No. 14

By Council Members Levin, Constantinides, Koo, Levine, Palma, Johnson, Mendez, Rosenthal, Lancman, Kallos, Rodriguez, Torres, Vallone, Reynoso, Koslowitz, Crowley, Chin, Van Bramer, Miller, Treyger, Garodnick, Rose, Lander, Richards, Vacca, Maisel, Cohen, Dromm, Gibson, Barron and Ferreras-Copeland

A Local Law to amend the New York city mechanical code, in relation to requiring analysis of heating and cooling needs during building design.

Be it enacted by the Council as follows:

Section 1. Statement of findings and intent. The Council hereby finds and declares that equipment used to heat and cool buildings is often oversized, resulting in operating inefficiency. To size heating and cooling equipment appropriately, it is important to accurately calculate the peak heating and cooling load requirements of buildings and to thoroughly understand these loads. Some designers currently guess or use rules of thumb when calculating heating and cooling loads or rely on equipment manufacturers to provide sizing requirements. Currently, the law does not require the inclusion of detailed heating and cooling load calculations in construction documents. Without the results of detailed load calculations in construction documents, important communication about equipment size between architects, engineers, and owners may not take place. Further, building authorities cannot easily review anticipated loads or readily discern whether a building will meet energy efficiency standards without such information included in construction documents. It is the intent of the Council to ameliorate the problem of oversized heating and cooling equipment by requiring the submission of the results of peak heating and cooling load calculations in construction documents submitted to the Department of Buildings for approval.

§ 2. Section 106.6 of the New York city mechanical code, as added by local law number 33 for the year 2007, is amended to read as follows:

**106.6 Heating systems.** Construction documents for heating systems shall include [the] all of the required information set forth in items 1 through 4 of Section 106.8 of this code, and shall also include the following data and information in a combination of graphic and tabular form as prescribed by the department:

1. The temperature to be maintained in every room [and the output capacity in BTU per hour of the central heating source.];
2. The peak heating load in BTU per hour (BTU/h) in every room;
3. The peak heating load in BTU/h in every thermostatically controlled zone;
4. The peak heating load on the entire building;
5. The total output capacity in BTU/h of the central or aggregated building heating sources, such as boilers, furnaces, or heat exchangers;
6. The thermal transmission load, accounting for all exterior surfaces, thermal bridging of frames and mullions, exposed slab edges, parapets, balconies, concrete columns, steel members, and any other significant thermal connection between the conditioned space and the underground and above ground outdoor environment;
7. The ventilation load, accounting for all specified mechanical ventilation calculated with the assumption that the windows are closed;
8. The infiltration load, accounting for leakage around all doors, windows, and other envelope penetrations, and for air barriers included in the design; and
9. Any constant or permanent internal heat gains, where such heat gains are known to be present in the zone to be heated and are factored into the system design.

Rooms within a zone that are identical with respect to the characteristics listed in this section may be calculated and reported as aggregates.

**106.6.1 Equipment sizes.** Construction documents shall indicate the output values of the equipment selected in a form prescribed by the department.

§ 3. Section 106.8 of the New York city mechanical code, as added by local law number 33 for the year 2007, is amended to read as follows:

**106.8 Air conditioning and [ventilating] ventilation systems.** Construction documents for air conditioning and [ventilating] ventilation systems shall [contain plans that] include the following data and information in a combination of graphic and tabular form as prescribed by the department:

1. The location and sizes of all ducts, coils and pipes; the location of all fire and smoke dampers, motors, fans, and filters; the type, air capacity, [and] size and output capacities of all equipment; and where not shown on accompanying structural plans, the operating weight and manner of support of equipment[.];
2. The locations of smoke detecting devices[.];
3. The location and size of the fresh air intake, the design population, and the required ventilation for each room or space[.];
4. The amount of air to be exhausted or supplied from each outlet for each room or space[.];
5. In the case of ventilating or exhaust systems for ranges, fryers, ovens, and other similar types of restaurant or bakery equipment, for which a hood is required, the plans shall also show the type of extinguishing system, the location of heat detection devices, nozzles, piping, gas controls, manual and automatic control valves, method of joining ducts, method and location of discharging exhaust from building, the location of break-glass controls, and the quantity in cfm designed for each hood[.];
6. The peak cooling load in BTU/h in every room;
7. The peak cooling load in BTU/h in every thermostatically controlled zone;
8. The peak cooling load in BTU/h on the entire building;
9. The thermal transmission load, accounting for all external opaque surfaces, thermal bridging of frames and mullions, exposed slab edges, parapets, balconies, concrete columns, steel members, and any other significant thermal connection between the conditioned space and the underground and above ground outdoor environment or any adjacent spaces that are unconditioned or with diminished air conditioning;

10. The ventilation load, accounting for the design population and required outside air in each room or space calculated with the assumption that the windows are closed;
11. The infiltration load, accounting for leakage around all doors, windows, and other envelope penetrations, and for air barriers included in the design;
12. Any internal heat gains from all relevant sources, including but not limited to lighting, appliances, equipment, and occupants; and
13. Any solar gains, based on glazing and other building characteristics relevant to exterior transparent surfaces.

Rooms within a zone that are identical with respect to the characteristics listed in this section may be calculated and reported as aggregates.

**106.8.1 Equipment sizes.** Construction documents shall indicate the output values of the equipment selected in a form prescribed by the department.

§ 4. Section 312 of the New York city mechanical code, as amended by local law number 85 for the year 2009, is amended to read as follows:

**312.1 Load calculations.** Heating and cooling system design loads for the purpose of sizing systems, appliances and equipment shall be determined in accordance with the procedures described in the ASHRAE Handbook of Fundamentals and the *New York City Energy Conservation Code*. Peak loads for commercial buildings shall be determined in accordance with Section 503 of the *New York City Energy Conservation Code*. Peak loads for residential buildings, as defined in Chapter 2 of the *New York City Energy Conservation Code*, shall be determined in accordance with Section 403 of the *New York City Energy Conservation Code* or the *ASHRAE Handbook of Fundamentals*. Heating and cooling loads shall be adjusted to account for load reductions that are achieved when energy recovery systems are utilized in the HVAC system in accordance with the ASHRAE Handbook - HVAC Systems and Equipment. [Alternatively, design loads shall be determined by an approved equivalent computation procedure, using the design parameters specified in Chapter 3 of the

*Energy Conservation Construction Code of New York State.*] Heating and cooling system design loads for the purpose of sizing systems, appliances and equipment shall also comply with the requirements of Section 1204 of the *New York City Building Code*.

**312.2 Equipment sizing.** Heating, cooling, and ventilation system equipment shall be sized in accordance with the *New York City Energy Conservation Code*.

§ 5. This local law shall take effect October 1, 2014, except that the commissioner of buildings may take such measures as are necessary for its implementation, including the promulgation of rules, prior to such effective date.

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