# BUILDINGS 2021-006 BULLETIN

OPERATIONAL

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NYC Buildings

**ISSUER:** **Gus Sirakis, P.E.**
*First Deputy Commissioner*

**PURPOSE:** This bulletin focuses on electricity as a power source for heaters and describes the process of installing, permitting, and operating such heaters.

**SUBJECT(S):** Electric Powered Radiant Heat; NYC Electric Code Requirements for Temporary Outdoor Electric Heaters

## I. Background

In conjunction with DOT's Open Restaurants Program for sidewalk and roadway dining, the Department of Buildings issues the following guidance information about who can install outdoor heat equipment and the required permits and inspections that are necessary to operate electrical heating in a safe and efficient manner.

The installation of electric heaters is allowed on both sidewalks and roadways. Natural gas radiant heaters are allowed on sidewalks only and are prohibited in roadways. Open flame natural gas-fired heaters are not permitted. Under Emergency **Executive Order 200**, **use of propane heaters is not permitted after May 31, 2021**. Any outdoor propane heaters temporarily permitted by Emergency Executive Order 153 must be removed from the outdoor dining area and disconnected from any propane container. Disconnected propane heaters may be stored on the premise in accordance with FDNY guidelines. However, propane containers shall be removed from the premise at the close of business on May 31, 2021, except as permitted by the Fire Code or title 3 of the Rules of the City of New York.

Both options above may be considered for outdoor seating areas within private property as well provided they comply with the respective requirements outlined in the bulletins and other guidance documents.

## II. Radiant Heat and Why It's Used

When selecting radiant heating equipment for outdoor use, it is important to verify that the equipment is listed for outdoor use. Freestanding electric radiant heaters and ceiling/wall mounted electric radiant heaters are two options that can provide comfort heating to outdoor dining spaces. The requirements for electrical wiring differ based on the type of heater selected. See Table 1 for specific requirements related to the NYC Electrical Code.

While this guidance does not specifically address natural gas-powered heating systems, those that meet specific safety requirements are also permissible. Using natural gas-powered heaters as part of the Open Restaurants Program requires a permit from FDNY and requires that restaurant staff hold an FDNY Certificate of Fitness (#G-93), allowing them to supervise such heaters. Information on how to install a natural gas-powered heating system can be found in **Buildings Bulletin 2021-007**. Consult with a NYC licensed master plumber to ensure a safe and compliant installation.

***Figure 1: Freestanding Electric Heater***

*https://www.hsn.com/products/energ-infrared-freestanding-electric-outdoor-heater-wle/9098835*

## III. Overview of Evaluation of Existing and Modification of Electrical System

When used outdoors, radiant heaters receive power from a 120V outdoor outlet that is made to safely operate and provide power under various weather conditions.

***Figure 2: Ceiling/Wall Mounted Heater***

*www.ameritempgroup.com/store/p1560/Sun-Stream_SSR-808G-IHR_Commercial_Wall_Mounted_Infrared_Heater_%7B5%2C100_BTU%7D.html*

The NYC Electrical Code requires that electrical outlets installed in damp or wet locations be listed for weather-resistant type and require in-use covers to ensure that they operate safely. These outlets must be *Ground-Fault Circuit Interrupter (GFCI) type outlets*, which are designed to stop the flow of electricity when there is an imbalance, thus preventing any damage to equipment or injury to persons.

Outlets draw their electricity from the electrical panelboard in specific amounts based on their allowed load. When an outlet is used to draw more electricity than it is sized to carry, an overload can occur and cause damage to the electrical system. Electricians will verify that restaurants' electrical systems are correctly sized for the anticipated load associated with the radiant heaters.

***Figure 3: Wet Location GFCI Type Receptacle***

*https://forums.jlconline.com/forums/forum/jlc-online-expert-forums/the-electric-shop/50680-gfci-damp-wet-location*

The following is an overview of the steps necessary to prepare buildings' electrical system to power outdoor electric heating:

- **Determine the number of heaters required.**

  Consult manufacturer's guidance of the desired heating equipment to be installed to determine the number of units necessary based on area of coverage.

- **Electrician or Electrical Engineer performs load calculations.**

  Based on the number of heaters selected, an electrician or electrical engineer will determine the electrical loading requirements necessary to support the heaters.

- **Electrician or Electrical Engineer inspects existing electrical system.**

  Licensed master electrician or electrical engineer inspects the outdoor receptacles, branch circuits, and electrical panelboard to evaluate the existing capacity and the arrangement of the buildings electrical system. The electrician or electrical engineer provides recommended modifications to the existing electrical system necessary to power the heaters.

  *NOTE: All electrical work in New York City is required to be done by a licensed Master Electrician. Visit our website at* ***www1.nyc.gov/site/buildings/industry/disciplinary-actions-surrenders.page****, to make sure an electrician has a license and is in good standing.*

- **Electrician files for necessary permits and performs work.**

  Once the scope of work is established, the electrician will file the required documents online through DOB NOW: *Build* and will use the same system to obtain permits for work. *Electrical work cannot be performed without an approved electrical filing AND permit, but electrical work CAN begin once the required permits are obtained.* In most instances, the permit is issued immediately.

- **Electrician requests an electrical inspection.**

  With the exception of minor electrical work, which generally includes the in-kind replacement of certain pieces of existing equipment (see below for the code section and definition), a DOB electrical inspection is required to complete electrical work and close a permit. Electricians must request inspections online through **DOB NOW: *Inspections***.

- **DOB inspects the electrical work and signs off the work.**

  DOB inspects completed electrical work and if the work does not comply with the requirements of the NYC Electrical Code, will issue objections to the electrician. Once the electrician resolves any objections, DOB signs-off on the electrical work.

- **Heating units operated in accordance with the manufacturer's instructions.**

  Once DOB signs off on the electrical work, the heating units can be operated in accordance with the manufacturer's instructions.

  To help you save time, DOB is allowing the installation be energized and the heaters be put to use as long as the electrician deems it safe for use in advance of a DOB inspection and sign-off.

## IV. Heater Arrangement and Operation

Be sure to read the manufacturer's instructions in order to determine the distance to maintain between the outdoor heater and the heated outdoor area. Electric radiant heat heaters may be placed within tents or other shelters only when heating units are kept at recommended distances from combustible materials (which could include fabric awnings, canopies, decorations, umbrellas, and other materials) in accordance with manufacturer's instructions and specifications. Do not place the heaters beneath or near combustible materials if the manufacturer does not recommend such placement. The manufacturer's instructions also provide guidance on how the unit should be secured to ensure that it remains safely in place.

## V. Requirements for Temporary Use of Cords or Cables for Power Heating Equipment

The Department is allowing temporary cords and cables to be used from the outdoor outlet to the heating unit. Restaurant owners may need to use temporary cords and cables if the distance between the outdoor heater and the outdoor GFCI outlet is greater than the cord provided by the manufacturer. Do not use extension cords to close this gap.

Restaurant owners should only use cords or cables listed for extra-hard usage to power electric heaters. Restaurant owners should also minimize tripping hazards by correctly arranging flexible cords or cables. Cords should not run through windows and doorways. Only draw power from an outdoor GFCI type outlet. No permanent wiring shall be installed in the public right-of-way. Temporary cords or cables installed on or above the public right-of-way shall comply with DOT and FDNY requirements and such installation shall be capable of removal upon request by DOT. Temporary cords or cables shall not be laid on a bike lane unless approved by the DOT. Elevated cords or cables spanning travel lanes shall be prohibited unless such installation complies with the apparatus clearance requirements of the Fire Code. Temporary wiring and protective covers installed on sidewalks should not cause a trip hazard or impede access. Care shall be taken to ensure that delivery and snow removal operations do not damage such temporary wiring.

## VI. Electrical Permit and Department Inspection Required

With the exception of minor work, all electrical work must be inspected by a DOB electrical inspector upon completion. The NYC Electrical Code defines minor work in section 27-3018(h1). Generally, minor work comprises the in-kind replacement of defective equipment such as circuits of limited size, receptacles and fixtures. All electrical work that is not minor work requires DOB electrical inspection. Electricians request inspections after the work for which a permit was issued is completed. Once the electrician requests an inspection, DOB sends a date and estimated time during which the inspection will occur. The inspector must have access to the locations in which work was performed for the inspection to occur. The electrician need not be present during the inspection if the owner or a representative for the owner is present to provide access.

**Table 1 – NYC Electrical Code Requirements for Temporary Outdoor Electric Heaters Under the Open Restaurants Program**

| | Portable/Freestanding Heater (Cord Connected Appliance) 120 V (15- or 20- Amp) | Wall Mounted Heater (Listed with Cord of Hard Wired) 120 V | Fixed in Place (Large) 208/240 Volt (>48 Amp) | Wall mounted Heater (≤50 Amp) |
|---|---|---|---|---|
| **Heater Listing Required/Location** | Yes (NYC EC 110.2(A)) Listed for Damp or Wet Location (NYC EC 110.11) | Yes (NYC EC 110.2(A)) Listed for Damp or Wet Location (NYC EC 110.11) | Yes (NYC EC 110.2(A)) Listed for Damp or Wet Location (NYC EC 110.11) | Yes (NYC EC 110.2(A)) Listed for Damp or Wet Location (NYC EC 110.11) |
| **Disconnecting Device** | Attachment plug (NYC EC 400.7(B)) | Corded: Attachment plug (NYC EC 400.7(B)) Hard Wired: NYC EC Article 422 Part III | NYC EC Article 422 Part III | NYC EC Article 422 Part III |
| **GFCI Protection for Personnel** | Yes, by GFCI type receptacle outlet or GFCI circuit breaker (NYC EC 210.8(B)(4)) | Yes, when cord-and-plug-connected to 15- or 20-Amp circuit. N/A when the electric heater is hardwired | N/A | N/A |
| **Overcurrent Protection** | NYC EC 422.11(A) | NYC EC 422.11(A) | NYC EC 422.11(F) | NYC EC 422.11(D) |
| **OPTION 1: Permanent Wiring Method** | NYC EC Chapter 3 wiring method (raceway and conductors) suitable for outdoor. Outlet: Receptacle outlet is weatherproof enclosure and in-use weatherproof cover, receptacles shall be listed for weather-resistant type (WR) (NYC EC 406.8(B)(1)) | NYC EC Chapter 3 wiring method (raceway and conductors) suitable for outdoor. Outlet: Receptacle outlet is weatherproof enclosure and in-use weatherproof cover, receptacles shall be listed for weather-resistant type (WR) (NYC EC 406.8(B)(1)) Disconnecting Means: NYC EC Article 422 Part III | NYC EC Chapter 3 wiring method (raceway and conductors) suitable for outdoor. Disconnecting Means: NYC EC Article 422 Part III | NYC EC Chapter 3 wiring method (raceway and conductors) suitable for outdoor. Disconnecting Means: NYC EC Article 422 Part III |
| **OPTION 2: Cords/Cables Wiring Method[1,2]** | When installation required frequent change or arrangement: Flexible cords or cables shall be permitted and shall be extra-hard usage flexible cords (NYC EC 422.16(A) and Table 400.4). Cords shall not be installed through doors, windows or similar openings (NYC EC 400.8(3)) | Not permitted | Not permitted | Not permitted |

[1] Such cords shall be arranged to minimize tripping hazard and shall be covered with nonconductive matting

[2] Cord Connectors shall not be laid on ground unless listed for wet locations and shall not be accessible to public unless guarded