

TEXT  
(CO Detection – Commercial Buildings – Final)

Part 1228 of Title 19 NYCRR is amended by adding a new section 1228.4, to read as follows:

**Section 1228.4. Carbon Monoxide Detection in Commercial Buildings**

**(a) Introduction.** This section 1228.4 covers the provision of carbon monoxide detection, and the application, installation, performance, and maintenance of carbon monoxide alarms and carbon monoxide detection systems, in new and existing commercial buildings.

**(b) Definitions.** In this section 1228.4, the following terms shall have the following meanings, unless a different meaning is clearly required by the context:

(1) 2010 BCNYS. The term “2010 BCNYS” means the publication entitled “Building Code of New York State” published by the International Code Council, Inc. (publication date: August 2010).

(2) 2010 FCNYS. The term “2010 FCNYS” means the publication entitled “Fire Code of New York State” published by the International Code Council, Inc. (publication date: August 2010).

(3) 2010 RCNYS. The term “2010 RCNYS” means the publication entitled “Residential Code of New York State” published by the International Code Council, Inc. (publication date: August 2010).

(4) APPROVED. The term “approved” means acceptable to the code enforcement official for the authority having jurisdiction.

(5) AUTHORITY HAVING JURISDICTION. The term “authority having jurisdiction” with respect to a commercial building means the governmental unit or agency responsible for enforcing the Uniform Code with respect to such commercial building.

(6) CARBON MONOXIDE SOURCE. The term “carbon monoxide source” means any appliance, equipment, device or system that may emit carbon monoxide (including, but not limited to,

fuel fired furnaces; fuel fired boilers; space heaters with pilot lights or open flames; kerosene heaters; wood stoves; fireplaces; and stoves, ovens, dryers, water heaters and refrigerators that use gas or liquid fuel), garages, and other motor vehicle related occupancies.

(7) CARBON MONOXIDE-PRODUCING HVAC SYSTEM. The term “carbon monoxide-producing HVAC system” means a system that uses ducts to provide heat, ventilation and/or air-conditioning to all or any part of a commercial building, provided that (i) such ducts run from a carbon monoxide source to the classroom(s) and/or detection zone(s) served by such system and/or (ii) such system is supplied with recirculated or makeup air from a classroom or detection zone that contains a carbon monoxide source.

(8) CENTRAL LOCATION. The term “central location” means the point that, in the judgment of the authority having jurisdiction, maximizes (i) the detection of carbon monoxide, (ii) the notification of occupants in normally occupied areas, and (iii) the notification of occupants prior to entering normally unoccupied areas.

(9) COMMERCIAL BUILDING. The term “commercial building” means any new or existing building that is not a one-family dwelling, a two-family dwelling, or a building containing only townhouses.

(10) CLASSROOM. The term “classroom” means a room or area that (i) is located in a school, (ii) is a place where classes are taught, and (iii) is occupied or capable of being occupied by six or more persons (including students and teachers) at any one time. For the purposes of this definition, the term “school” means any building used, in whole or in part, for educational purposes, including but not limited to a building classified, in whole or in part, as Educational Group E under Chapter 3 of the 2010 BCNYS. The term “school” includes public schools and private schools, including but not limited to

religious schools. However, the term “school” does not include a school attended only by students above the 12<sup>th</sup> grade.

(11) DETECTION ZONE. The term “detection zone” means a story of a commercial building. However:

(i) if a story is arranged so that two or more separate carbon monoxide-producing HVAC systems are used to serve separate portions of the story, each such portion of the story shall be deemed to be a separate detection zone;

(ii) if a story contains one or more classrooms, each classroom shall be deemed to be a separate detection zone and the portion, if any, of the story that is not a classroom shall be deemed to be a separate detection zone;

(iii) if a portion of a story is used as a garage, the portion used as a garage shall not be deemed to be a detection zone and the portion not used as a garage shall be deemed to be a detection zone; and

(iv) if an entire story is used as a garage, such story shall not be deemed to be a detection zone.

(12) EXISTING COMMERCIAL BUILDING. The term “existing commercial building” means a commercial building that was constructed prior to December 31, 2015. For the purposes of this definition, a commercial building shall be deemed to have been constructed prior to December 31, 2015, and shall be deemed to be an existing commercial building, if (i) the original construction of such commercial building was completed prior to December 31, 2015 or (ii) the complete application for the building permit for the original construction of such commercial building was filed prior to December 31, 2015.

(13) NEW COMMERCIAL BUILDING. The term “new commercial building” means a commercial building that is not an existing commercial building.



(14) NFPA 72. The term “NFPA 72” means the publication entitled “National Fire Alarm Code” published by the National Fire Protection Association (publication date: 2007).

(15) NFPA 720. The term “NFPA 720” means the publication entitled “Installation of Carbon Monoxide (CO) Detection and Warning Equipment” published by the National Fire Protection Association (publication date: 2015).

(16) UL 2034. The term “UL 2034” means the publication entitled “Single and Multiple Station Carbon Monoxide Alarms” published by the Underwriters Laboratories, Inc. (publication date: February 28, 2008).

(17) UL 2075. The term “UL 2075” means the publication entitled “Standard for Gas and Vapor Detectors and Sensors” published by the Underwriters Laboratories, Inc. (publication date: March 5, 2013).

(18) UL 217. The term “UL 217” means the publication entitled “Standard for Single and Multiple Station Smoke Alarms” published by the Underwriters Laboratories, Inc. (publication date: August 25, 2006).

(19) UL 268. The term “UL 268” means the publication entitled “Smoke Detectors for Protective Signaling Systems-with Revisions through January 1999” published by the Underwriters Laboratories, Inc..

(20) Terms defined elsewhere. Terms that: (i) are used in this section 1228.4, (ii) are not defined in this subdivision, and (iii) are defined in the 2010 BCNYS, the 2010 FCNYS, the 2010 RCNYS or NFPA 720 shall have the meanings ascribed to those terms by the 2010 BCNYS, the 2010 FCNYS, the 2010 RCNYS or NFPA 720, as applicable.



**(c) Commercial buildings required to have carbon monoxide detection.**

(1) General rule. Carbon monoxide detection shall be provided in accordance with the provisions of this section 1228.4 in every commercial building that (i) contains any carbon monoxide source (including, but not limited to, any garage or any other motor-vehicle-related occupancy) and/or (ii) is attached to a garage and/or (iii) is attached to any other motor-vehicle-related occupancy. These requirements shall apply without regard to whether such commercial building is an existing commercial building or a new commercial building and without regard to whether such commercial building shall or shall not have been offered for sale.

**(2) Exceptions.**

(i) Carbon monoxide detection shall not be required under this section 1228.4 in a commercial building that is (A) classified, in its entirety, in Storage Group S or Utility and Miscellaneous Group U under Chapter 3 of the 2010 BCNYS and (B) occupied only occasionally and only for building or equipment maintenance.

(ii) Carbon monoxide detection shall not be required under this section 1228.4 in a commercial building that is a “canopy” (as that term is defined in the 2010 FCNYS).

(iii) Carbon monoxide detection shall not be required under this section 1228.4 in a commercial building during any period when each of the following conditions is satisfied: (A) no part of such commercial building is occupied; (B) each carbon monoxide source in such commercial building is removed or disabled in a manner that makes it incapable of producing carbon monoxide; (C) each exterior opening in such commercial building is boarded, locked, blocked or otherwise protected to prevent entry by unauthorized individuals; (D) no garage or other motor-vehicle-related occupancy in such commercial building or attached to such commercial building is in use; and (E) each garage or other motor-vehicle-related occupancy in such commercial building or attached to such commercial

building is boarded, locked, blocked or otherwise protected to prevent entry by motor vehicles or by unauthorized individuals.

**(d) Detection zones required to be provided with carbon monoxide detection.**

(1) General rule. Where a commercial building is required by subdivision (c) of this section 1228.4 to have carbon monoxide detection, carbon monoxide detection shall be provided in each detection zone which is located in such commercial building and in which at least one of the following triggering conditions exists:

(i) Triggering Condition 1: The presence of any carbon monoxide source in a detection zone shall be a triggering condition for such detection zone.

(ii) Triggering Condition 2: The presence in a detection zone of a duct opening or other outlet from a carbon monoxide-producing HVAC system shall be a triggering condition for such detection zone. However, the presence in a detection zone of a duct opening or other outlet from a carbon monoxide-producing HVAC system shall not be deemed to be a triggering condition for such detection zone if (a) carbon monoxide detection is provided in the first room or area served by each main duct leaving the carbon monoxide source in such carbon monoxide-producing HVAC system and (b) the signals from the carbon monoxide detection equipment in the first room or area served by each such main duct are automatically transmitted to an approved location.

(iii) Triggering Condition 3: The presence of a garage or other motor-vehicle-related occupancy in location that is adjacent to a detection zone shall be a triggering condition for such detection zone. The presence of an adjacent garage or other motor-vehicle-related occupancy shall be a triggering condition even if there are no openings, penetrations, or air transfer openings between the detection zone and the adjacent garage or other motor-vehicle-related occupancy. However, in the case of a detection zone that is not a classroom:

(A) the presence of an adjacent garage or other motor-vehicle-related occupancy shall not be deemed to be a triggering condition for such detection zone if the garage or other motor-vehicle-related occupancy is attached to, but not located in, the commercial building in which such detection zone is located, and the attachment between the garage or other motor-vehicle-related occupancy and the commercial building is only through a covered walkway that is open (without sidewalls or drops) on 50 percent or more of its perimeter; and

(B) the presence of an adjacent garage shall not be deemed to be a triggering condition for such detection zone if the garage is attached to, but not located in, the commercial building in which the detection zone is located, and the garage is an open parking garage that complies with Section 406.3 of the 2010 BCNYS.

(2) Exceptions for detection zones that are not classrooms. Notwithstanding the existence of any one or more of the triggering conditions described in paragraph (1) of this subdivision in a detection zone that is not a classroom, carbon monoxide protection shall not be required to be provided in such detection zone if:

(i) such detection zone has ambient conditions that would, under normal conditions and with all required ventilation and exhaust systems installed and operating properly, activate the carbon monoxide detection devices that otherwise would be required in such detection zone under this section 1228.4, and an alternative safety plan for the commercial building in which such detection zone is located shall have been approved by the authority having jurisdiction and implemented; or

(ii) such detection zone is open (without sidewalls or drops) on 50 percent or more of its perimeter, and there is no occupiable area within such detection zone that is not open on 50 percent or more of its perimeter.



**(e) Placement of carbon monoxide detection.** Where a detection zone is required by subdivision (d) of this section 1228.4 to be provided with carbon monoxide detection, the carbon monoxide detection shall be placed as provided in this subdivision.

(1) Detection zones less than 10,000 square feet. Where carbon monoxide detection is required to be provided in a detection zone having an area less than 10,000 square feet, the carbon monoxide detection shall be placed in a central location within such detection zone.

(2) Detection zones 10,000 square feet or larger.

(i) General rule. Where carbon monoxide detection is required to be provided in a detection zone having an area 10,000 square feet or larger, carbon monoxide detection shall be placed in a central location within such detection zone and at such additional locations within such detection zone as may be necessary to assure that no point in the detection zone is more than 100 feet from carbon monoxide detection.

(ii) Exception. In the case of a detection zone having an area 10,000 square feet or larger that (A) contains one or more carbon monoxide sources, (B) is not served by a carbon monoxide-producing HVAC system, (C) is not adjacent to a garage or other motor-vehicle-related occupancy, and (D) is not a classroom, compliance with the following shall be an acceptable alternative to compliance with section 1228.4(e)(2)(i): one carbon monoxide detection device shall be placed in a central location within such detection zone and, for each carbon monoxide source located in such detection zone, one additional carbon monoxide detection device shall be placed at one of the following locations: (1) in an approved location between such carbon monoxide source and the remainder of the detection zone or (2) on the ceiling of, or at another approved location in, the room containing such carbon monoxide source.

**(f) Detection equipment.** Carbon monoxide detection required by this section 1228.4 shall be provided by carbon monoxide alarms complying with subdivision (g) of this section or carbon monoxide detection systems complying with subdivision (h) of this section.

**(g) Carbon monoxide alarms.** Carbon monoxide alarms shall comply with this subdivision.

(1) Power source.

(i) General rule. Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than that required for overcurrent protection.

(ii) Exceptions.

(A) Carbon monoxide alarms powered solely by a 10-year battery shall be permitted in (I) existing commercial buildings and (II) commercial buildings without commercial electric power.

(B) If a plug-in or cord-type carbon monoxide alarm, or a battery operated carbon monoxide alarm powered by a battery with a life of less than 10 years, was installed in a particular location in an existing commercial building at any time prior to June 27, 2015 for the purpose of complying with section 610 of the 2010 FCNYS (or with any other carbon monoxide alarm requirement applicable to at the time of such installation) and if this section 1228.4 requires installation of carbon monoxide detection at such location, such previously installed carbon monoxide alarm may remain at such location, and shall be deemed to satisfy the requirements of this section 1228.4 regarding carbon monoxide detection at such location, provided that at the end of the useful life of such previously installed carbon monoxide alarm it shall be replaced with an alarm powered by a 10-year battery or by another carbon monoxide alarm or detector that satisfies the requirements of this section 1228.4.

(2) Listing. Carbon monoxide alarms shall be listed in accordance with UL 2034.

(3) Combination alarms.

(i) General rule. A combination carbon monoxide / smoke alarm shall not be deemed to satisfy the requirements of this section 1228.4.

(ii) Exception. If a combination carbon monoxide / smoke alarm was installed in a particular location in an existing commercial building at any time prior to June 27, 2015 for the purpose of complying with section 610 of the 2010 FCNYS (or with any other carbon monoxide alarm requirement applicable to at the time of such installation) and if this section 1228.4 requires installation of carbon monoxide detection at such location, such previously installed combination carbon monoxide / smoke alarm may remain at such location, and shall be deemed to satisfy the requirements of this section 1228.4 regarding carbon monoxide detection at such location, provided that at the end of the useful life of such previously installed combination carbon monoxide / smoke alarm it shall be replaced with an carbon monoxide alarm or detector that satisfies the requirements of this section 1228.4 and a separate smoke alarm that satisfies all applicable smoke alarm requirements.

(4) Interconnection. In new commercial buildings, where a carbon monoxide alarm is installed in a normally unoccupied detection zone, such carbon monoxide alarm shall be interconnected with a carbon monoxide alarm that is placed in an adjacent and normally occupied detection zone. An approved sign shall be place in an approved location in the proximity of each carbon monoxide alarm installed in a normally occupied detection zone that is interconnected to one or more carbon monoxide alarms installed in one or more normally unoccupied detection zones. Such sign shall identify and describe the location of each normally unoccupied detection zone that contains any such interconnected carbon monoxide alarm.

(5) Locations. Carbon monoxide alarms shall be installed in the locations specified in subdivisions (d) and (e) of this section 1228.4.



(6) Manufacturer's instructions. Carbon monoxide alarms shall be installed, operated, and maintained in accordance with the manufacturer's instructions. However, in the event of a conflict between the manufacturer's instructions and the provisions of this section 1228.4, the provisions of this section 1228.4 shall control. In particular, but not by way of limitation, in the event of a conflict between location requirements specified in the manufacturer's installation instructions and the location requirements specified in subdivisions (d) and (e) of this section 1228.4, the location requirements specified in subdivisions (d) and (e) of this section 1228.4 shall control.

**(h) Carbon monoxide detection systems.** Carbon monoxide detection systems shall comply with this subdivision.

(1) General. Carbon monoxide detection systems shall comply with NFPA 720. Carbon monoxide detectors shall be listed in accordance with UL 2075.

(2) Locations. Carbon monoxide detectors (as that term is defined in NFPA 720) shall be installed in the locations specified in subdivisions (d) and (e) of this section 1228.4. In the event of a conflict between the carbon monoxide detector location requirements specified in subdivisions (d) and (e) of this section 1228.4 and the carbon monoxide detector location requirements specified in NFPA 720, the carbon monoxide detector location requirements specified in subdivisions (d) and (e) of this section 1228.4 shall control.

(3) Combination detectors. Combination carbon monoxide / smoke detectors installed in carbon monoxide detection systems shall be an acceptable alternative to carbon monoxide detectors, provided such combination detectors are listed in accordance with UL 2075 and UL 268.

(4) Notification appliances. Notification appliances (as that term is defined in NFPA 720) shall comply with NFPA 720. Notification appliances shall be provided in the locations specified in NFPA

720 or, in the alternative, in the locations specified in subdivisions (d) and (e) and paragraph (4) of subdivision (g) of this section 1228.4 as the required locations for carbon monoxide detection.

(5) **Power source.** The power source for carbon monoxide detection systems shall comply with NFPA 720.

**(i) Additional requirement in Group E occupancies.** In a new commercial building that (i) has an occupant load of 31 or more and (ii) is classified, in whole or in part, as Educational Group E under Chapter 3 of the 2010 BCNYS, carbon monoxide alarm signals shall be automatically transmitted to an approved on-site location that is normally staffed by school personnel during normal school hours.

**(j) Maintenance.** Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with NFPA 720. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced as soon as practicable.

**(k) Connection of carbon monoxide detection systems to control units and off-premises signal transmission.** Carbon monoxide detection systems shall be connected to control units and off-premises signal transmission in accordance with this subdivision.

(1) Carbon monoxide detection systems. All carbon monoxide detection systems installed in accordance with subdivision (h) of this Section 1228.4 shall have off-premises signal transmission in accordance with NFPA 720.

(2) New commercial buildings. All carbon monoxide detection systems in new commercial buildings that are required by section 903 or section 907 of the 2010 FCNYS to have a fire alarm control panel installed shall have off-premises signal transmission in accordance with NFPA 720.

(3) Arrangement of carbon monoxide detection system circuits. The following requirements apply to all carbon monoxide detection systems, including carbon monoxide detection systems installed

prior to the effective date of this section 1228.4 and carbon monoxide detection systems installed on or after the effective date of this section 1228.4.

(i) Signal. Carbon monoxide detection systems shall not activate a fire signal to a fire alarm control panel.

(ii) Fire alarm system notification. Carbon monoxide detection systems shall not activate any notification appliance that announces a fire alarm or any other alarm that is not distinctive from a fire notification as required by NFPA 72.

(iii) On-site notification. Where notification of carbon monoxide detection system is permitted to be transmitted to approved locations, at least one approved notification appliance shall be provided within every building that transmits a signal to an approved location.

**(l) Other Uniform Code provisions relating to carbon monoxide detection.**

(1) Section R313.4 of the 2010 RCNYS and section 610 of the 2010 FCNYS. References in this section 1228.4 to section R313.4 of the 2010 RCNYS shall be deemed to be references to that section as amended and restated in paragraph (2) of subdivision (c) of section 1220.1 of Part 1220 of this Title 19 NYCRR. References in this section 1228.4 to section 610 of the 2010 FCNYS shall be deemed to be references to that section as amended and restated in paragraph (1) of subdivision (c) of section 1225.1 of Part 1225 of this Title 19 NYCRR.

(2) Other provisions of the Uniform Code in effect prior to the effective date of this section 1228.4, including but not necessarily limited to section R313.4 of the 2010 RCNYS and section 610 of the 2010 FCNYS, require carbon monoxide detection in certain buildings and structures. Nothing in this section 1228.4 shall be deemed to repeal, override, modify or otherwise affect any such other provision. Any building that is or hereafter becomes subject to section R313.4 of the 2010 RCNYS or section 610



of the 2010 FCNYS must comply with section R313.4 of the 2010 RCNYS or section 610 of the 2010 FCNYS, as applicable.

(3) Mixed use buildings. Certain buildings that are subject to section R313.4 of the 2010 RCNYS or section 610 of the 2010 FCNYS are also “commercial buildings” (as defined in subdivision (b) of this section 1228.4) and are also subject to this section 1228.4. Such buildings are referred to in this section 1228.4 as “mixed use buildings.” Such mixed used buildings include, but are not necessarily limited to:

(i) any new or existing building that contains townhouses and also contains any use or occupancy other than townhouses or other dwelling units;

(ii) any new or existing building owned as a condominium or cooperative that contains dwelling units and also contains any use or occupancy other than dwelling units; and

(iii) any new or existing building or structure that (A) is classified, in whole or in part, in Educational Group E, Institutional Group I, and/or Residential Group R under Chapter 3 of the 2010 BCNYS; (B) contains one or more dwelling units, sleeping units or sleeping areas; and (C) also contains any use or occupancy other than dwelling units, sleeping units or sleeping areas.

(4) Compliance in mixed use buildings. A mixed use building shall comply with the requirements of section R313.4 of the 2010 RCNYS or section 610 of the 2010 FCNYS, as applicable, and, in addition, shall comply with the requirements of this section 1228.4. However, this paragraph shall not be construed as requiring duplicative carbon monoxide detection, and if an area in a mixed use building is provided carbon monoxide detection in accordance with the requirements of section R313.4 of the 2010 RCNYS or section 610 of the 2010 FCNYS, as applicable, such area need not be provided with additional carbon monoxide protection under this section 1228.4.

**(m) Interconnection in “mixed used buildings.”** In the case of a new “mixed use building” (as defined in subdivision (l) of this section 1228.4), the carbon monoxide detection required by this section 1228.4 shall be interconnected with the carbon monoxide detection required by section R313.4 of the 2010 RCNYS or section 610 of the 2010 FCNYS, as applicable.

**(n) Incorporation by reference.** The publications described in this subdivision are hereby incorporated by reference in this section 1228.4.

(1) 2010 BCNYS. The publication entitled “Building Code of New York State” published by International Code Council, Inc. (publication date: August 2010) is hereby incorporated by reference in this section 1228.4. Copies of said publication (referred to in this Section 1228.4 as “2010 BCNYS”) may be obtained from the publisher at the following address: International Code Council, Inc., 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001. The 2010 BCNYS is available for public inspection and copying at New York State Department of State, 99 Washington Avenue, Albany, NY 12231-0001.

(2) 2010 FCNYS. The publication entitled “Fire Code of New York State” published by International Code Council, Inc. (publication date: August 2010) is hereby incorporated by reference in this section 1228.4. Copies of said publication (referred to in this Section 1228.4 as “2010 FCNYS”) may be obtained from the publisher at the following address: International Code Council, Inc., 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001. The 2010 FCNYS is available for public inspection and copying at New York State Department of State, 99 Washington Avenue, Albany, NY 12231-0001.

(3) NFPA 720. The publication entitled “Installation of Carbon Monoxide (CO) Detection and Warning Equipment” published by the National Fire Protection Association (publication date: 2015) is hereby incorporated by reference in this section 1228.4. Copies of said publication (referred to in this

Section 1228.4 as “NFPA 720”) may be obtained from the publisher at the following address: National Fire Protection Association, Batterymarch Park, Quincy, MA 02269. NFPA 720 is available for public inspection and copying at New York State Department of State, 99 Washington Avenue, Albany, NY 12231-0001.

**(o) Effective date.** This section shall take effect on June 27, 2015.

**(p) Transition period.** In this section 1228.4, the term “transition period” means the period between June 27, 2015 and June 27, 2016.

(1) Owners of existing commercial buildings are encouraged to install carbon monoxide detection that complies with the requirements of this section 1228.4 in their buildings as quickly as practicable.

(2) The owner of an existing commercial building shall not be deemed to be in violation of this section 1228.4 during the transition period if such owner provides to the authority having jurisdiction a written statement certifying that such owner is attempting in good faith to install carbon monoxide detection that complies with the requirements of this section 1228.4 in such owner’s existing commercial building as quickly as practicable.

(3) The owners of all existing commercial buildings shall be required to have carbon monoxide detection that complies with the requirements of this section 1228.4 fully installed and fully operational by the end of the transition period.