Guide to NJ Carbon Monoxide Regulations

Presented by Richard Silvia
Fire Sub Code/Fire Marshal
Construction Official
What is Carbon Monoxide

- Carbon Monoxide is a poisonous/flammable gas that is a product of incomplete combustion.
- It’s colorless, tasteless and odorless.
- It’s vapor density is 97, Air is 1.
- Carbon Monoxide is the same as air.
- It’s flammable Range is 12.5% LEL to 74% UEL.
Sources of Carbon Monoxide

• Generators in Residential/Commercial Property:
• Stove/Oven
• Furnace
• Space Heaters
• Water Heater
• Boiler
• Chimney
• Fire places
How Does Carbon Monoxide Work

• It enters the body through the lungs and is delivered to the blood.

• Red blood cells pick up CO instead of oxygen 250 times more than oxygen to form Oxyhemoglobin which prevents the tissues to absorb the oxygen they need.

• Carbon Monoxide a poison, is often confused with Carbon Dioxide which we exhale when breathing.
Korman and Parks Law

• In 2015 the State of New Jersey enacted the Korman and Parks Law, named for Noel Korman and his friend Alice Park who were victims of carbon monoxide poisoning in a Passaic Building that contained multiple art studios and rehearsal spaces.

• The law requires that carbon monoxide alarms be installed in all types of occupancies throughout NJ that contain fuel burning appliances. There are specific regulations for new construction, rehabilitation and retrofit/existing buildings.

ADOPTED ON JUNE 5, 2017
New Construction: UCC

- Effective Date: December 5, 2017
- Section 915 pages 238-239.
- Minimum Requirements: Hard wired 110V with battery Back up CO alarms.
- Exceptions: when no commercial power is available, battery operated alarms are permitted.
Rehab Code: UCC Subchapter 6

• Applies to existing buildings under rehabilitation: Effective date December 5, 2017
• Minimum requirements: Battery operated or plug-in type CO alarms.
• Exceptions: Change of use to I-1, I-2, I-4 or any Group R or classroom in Group E use the UCC must be followed! Battery operated or plug-ins are PROHIBITED!
This applies to existing buildings
Effective date: September 3, 2017
Minimum requirements: Battery Operated or plug-in CO Alarms.
• Important Notes That Apply To All Above
• In all cases CO Detection Systems installed in accordance with NFPA 720 are acceptable.
• CO Detection Systems shall be listed with UL 2075.
• CO Alarms shall be manufactured in accordance with UL 2034
• CO Alarms shall be installed and maintained in accordance with NFPA 720, soon to be NFPA 72.
Carbon Monoxide Alarms vs. Carbon Monoxide Detector

- A Carbon Monoxide Alarm is a stand-alone unit that has its own built-in power supply and audible signal. These are battery-operated and can be combination smoke/co alarms.

- A Carbon Monoxide Detector is part of a fire alarm system and gets its power from the fire alarm. There are also combination fire and co detector systems.
2015 IBC

- Where required: CO detection shall be provided in Group I-1, I-2, I-4 and R occupancies.

- CO detection is only required when the following sources of CO exist:
  - Fuel burning appliance in the space or building
  - Fuel burning fireplace in the space or building
  - Fuel burning forced air furnace
  - Attached private garage
CO Detection 915.1.1

- Where required: CO detection shall be provided in Group I-1, I-2, I-4 and R occupancies and in classrooms in Group E occupancies.
- CO detection is only required when the following sources of CO exist:
  - Fuel burning appliance in space or building
  - Fuel burning fireplace in space or building
  - Fuel burning forced air furnace
  - Attached private garage with door entering building.
NFPA 720 calls for carbon monoxide detectors to produce distinctive signals from all other types alarm signals.

Industry Practices:

- Carbon Monoxide: Temporal 4 pattern
- Fire Alarm: Temporal 3 pattern
CO Detection required in Occupancy Groups:

• I-1 Institutional group I-1 occupancy shall include buildings, structures, or portions thereof for more than 16 persons, excluding staff, who reside on 24 hour basis in a supervised environment, receive custodial care and are capable of slow evacuation.

• This group includes: Alcohol and drug treatment centers, Boarding Homes, Group homes, Halfway home’s, Residential Health Care Facilities, Residential Board and Care Facilities and Social Rehab Facilities
CO Detection Required in Occupancy Groups:

- I-2 Institutional Group I-2 occupancy shall include buildings and structures for medical care on a 24-hr basis for more than five persons where evacuation is impractical.
- These groups include: Assisted Living Facilities, Hospitals, Detox Facilities, Nursing Homes and Psychiatric Hospitals.
CO Detection Required in Occupancy Groups

- I-4 Institutional Group I-4 occupancy shall include buildings occupied by more than five persons of any age who receive custodial care for fewer than 24-hrs per day by other than parents or guardians and in a place other than the home of the person cared for:
  - Adult Day Care
  - Child Day Care
CO Detection Required in Occupancy Groups:

- R- Residential Group R includes, the use of a building or structure or potion thereof for sleeping purposes when classified as a One and Two Family Dwellings Up to Three Stories in Height.

- E- Classrooms, Educational Group E includes the use of a building or structure or portion thereof by 6 or more persons at any one time for educational purposes through 12 grade.
New Construction- UCC
Minimum Requirement Hard Wired
110V with battery backup CO Alarm

- Effective Date: September 3, 2017
- Use Groups: All Occupancies
- CO Alarm Locations:
  - In every room adjacent to the rooms containing FBA and every corridor, hall and lobby adjacent to the room.
  - In the immediate vicinity of any ventilated shaft including but not limited to stair shafts, elevated shafts or ventilation shafts on the story of the FBA and in the first area serviced by each main duct leaving an area where the FBA is located and on any story within 2 stories above or below the story containing the FBA.
New Construction: UCC
Minimum Requirement: 110V with battery backup CO alarm

- Effective Date: December 5, 2017
- Use Groups: Dwelling Units: Co Locations:
  - Immediate vicinity of each sleeping room.

- Use Groups: Sleeping Units: CO Locations:
  - Inside sleeping unit(s) when FBA is located in unit or attached bathroom.
  - Inside sleeping unit(s) when serviced by Forced Air Furnace.
New Construction: UCC
Minimum Requirement hard wired 110v with battery backup CO Alarm

- Effective Date: December 5, 2017
- For occupancy Groups containing a FBA or an attached Garage with a door entering into the building.
- Use Groups: E Occupancies: Locations:
  - Inside each classroom

Use Groups: Other Occupancies: Locations
Carbon Monoxide Detection shall be installed in other occupancies. Systems using detectors shall have distinct visual and audible notification and approved locations. When alarms are installed in lieu of detectors they shall be located such that the audible signals is not less than 15db above the average ambient sound level.
New Construction: UCC
Minimum Requirements: 110V hard wired with battery backup CO Alarm

- Effective Date: Dec. 5, 2017
- Exceptions: Repair Garages where CO may be expected. Large-Drop Battery Charging Areas. Unconditioned Spaces which could affect the operation of the Detectors or Alarms. In other spaces that are not connected by duct work or ventilation shafts to any room with a FBA or an attached garage provided that the building has an area CO detection system connected to an approved supervisory station or other approved local visual and audible supervisory signal and individual CO alarms are located:
(A) In every room adjacent to the room(s) with a FBA, and in every corridor, hall or lobby adjacent to such rooms.

(B) In the immediate vicinity of any ventilated shaft, including but not limited to, stair shafts, elevator shafts, or ventilation shafts on the story containing the FBA.

(C) In the first area served by each main duct leaving the area where the appliance is located; and

(D) any story within two stories above or below a story containing a FBA.
Rehab Code: Subchapter 6 UCC
Minimum Requirements: Battery or plug-in type CO Alarms

- Effective Date Sept. 3, 2017
- Use Groups: All Occupancies
- CO alarm locations: in every room adjacent to the rooms containing a FBA and every corridor, hall and lobby adjacent to the room.
  - in the immediate vicinity of any ventilated shaft including but not limited to stair shafts, elevator shafts or ventilation shafts on the story of the FBA.
- In the first area served by each main duct leaving an area where the FBA is located and
- Any story within 2 stories above or below the story with the FBA.
• Effective Date Dec. 5, 2017
• Use Groups: Dwelling Units:
  • CO alarms required: immediate vicinity of each sleeping room.
• Use Groups: Sleeping Units: Inside sleeping unit(s) when FBA is located inside unit or attached bathroom.
• Inside sleeping unit(s) when served by a forced air furnace.
• Effective Date: Dec. 5, 2017
• Use Groups: E Occupancies: CO alarms are required in each classroom
• Use Group: Other Occupancies: CO detection shall be installed in other occupancies. Systems using detectors shall have a distinct visual and audible notification at an approved location. When alarms are installed in lieu of detectors, they shall be located such that the audible signal is not less than 15db above the average ambient sound level.
Rehab Code Exceptions

- These are the same as the UCC building code.
• Minimum requirements: Battery Operated or plug-in type: Effective Date Sept. 3, 2017
• Use Groups: I-1, R-I, R-2
• IMMEDIATE VICINITY OF EACH SLEEPING AREA.
• Every room adjacent to a room containing FBA.
• Every corridor, hall or lobby adjacent to a room containing a FBA. In the immediate vicinity of any ventilated shaft such as stair shaft, elevator, ventilation shafts on the story containing the FBA and on any story within 2 stories above or below story containing the FBA.
• EFFECTIVE DATE: September 3, 2017
• USE GROUPS: I-1, R-1, R-2
• EXCEPTIONS:
  • 1. Guest rooms located more than 1 story above or below floor with FBA or an attached garage.
  • 2. Guest room is not connected by duct or ventilation shaft to any room containing a FBA or attached garage, provide the building has a common area carbon monoxide alarm system with common gas detectors connected to an approved supervisory station or other approved local visual and audible supervisory signal.
  • 3. CO detection system require detection in every room containing FBA. All detectors shall be connected to an approved monitored system, and the alarms may be incorporated into a common monitored system.
• EFFECTIVE DATE: SEPTEMBER 3, 2017
• USE GROUPES: ALL OTHER OCCUPANCIES
• CARBON MONOXIDE ALARM LOCATIONS:
  • 1. In every room(s) adjacent to the room containing the FBA and every corridor, hall and lobby adjacent to such rooms.
  • 2. In the immediate vicinity of any shaft including but not limited to a stair shaft, elevator shaft, or ventilation shaft on the story of the FBA.
  • 3. In the first area serviced by each main duct leaving an area where the FBA is located.
  • 4. On any story within 2 stories above or below the story containing the FBA.
• USE GROUPS: ALL OTHER OCCUPANCIES
• EXCEPTIONS:
• Same as The UCC and the UCC Retrofit Code Subchapter 6
STANDARD FOR THE INSTALLATION OF CARBON MONOXIDE DETECTION AND WARNING EQUIPMENT. 2015 EDITION

TESTING; FOR ALL SYSTEMS INSTALLED AFTER JANUARY 1, 2012. CO TESTS SHALL BE PERFORMED AT THE INITIAL ACCEPTANCE AND ANNUALY BY THE INTRODUCTION OF CO INTO THE SENSING CHAMBER OR ELEMENT.

AN ELECTRONIC CHECK (magnets, analog values, etc.) is not sufficient to comply with this requirement. The functional test shall be performed in accordance with the manufacturer’s published instructions.

The results of each CO detector test shall be confirmed through indication at the detector and the control unit.

All tests and results shall be recorded.

As of January 1, 2019 all CO regulations will be in NFPA 72
QUESTIONS?

Thank You