SECTION 915
CARBON MONOXIDE DETECTION

915.1 Carbon monoxide alarms.

Carbon monoxide alarms shall comply with this section.

915.2 Group I or R.

Group I or R occupancies located in a building containing a fuel-burning appliance or in a building that has an attached garage shall be equipped with singlestation carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance withNFPA 720 and the manufacturer's instructions. An open parking garage, as defined in Chapter 2, or an enclosed parking garage ventilated in accordance with *Section 404* of the *International Mechanical Code* (IMC) shall not be considered an attached garage.

Exception: Sleeping units or dwelling units that do not themselves contain a fuel-burning appliance or have an attached garage but that are located in a building with a fuel-burning appliance or an attached garage, need not be equipped with single-station carbon monoxide alarms provided that:

1. The sleeping unit or dwelling unit is located more than one story above or below any story that contains a fuel-burning appliance or an attached garage;
2. The sleeping unit or dwelling unit is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance or to an attached garage; and
3. The building is equipped with a common area carbon monoxide alarm system.

915.3 Group E.

Classrooms in Group E occupancies located in a building containing a fuel-burning appliance or in a building that has an attached garage or small engine or vehicle shop shall be equipped with single-station carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. An open parking garage, as defined in Chapter 2, or an enclosed parking garage ventilated in accordance with Section 404 of the IMC shall not be considered an attached garage.

Exception: Classrooms that do not themselves contain a fuel-burning appliance or have an attached garage but are located in a building with a fuel-burning appliance or an attached garage, need not be equipped with single-station carbon monoxide alarms provided that:

1. The classroom is located more than 100 feet (30 480 mm) from the fuel burning appliance or attached garage or located more than one story above or below any story which contains a fuelburning appliance or attached garage; and
2. The classroom is not connected by duct work or ventilation shafts to any room containing a fuelburning appliance.

915.4 Carbon monoxide detection systems.

Carbon monoxide detection systems, which include carbon monoxide detectors and audible notification appliances, installed and maintained in accordance with this section for carbon monoxide alarms and NFPA 720 shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075.

SECTION 916
GAS DETECTION SYSTEMS

[F] 916.1 Gas detection systems.

Gas detection systems required by this code shall comply withSections 916.2 through 916.11.

[F] 916.2 Permits.

Permits shall be required as set forth inSection 105.6.10 of the *International Fire Code*.

[F] 916.2.1 Construction documents.

Documentation of the gas detection system design and equipment to be used that demonstrates compliance with the requirements of this code and the *International Fire Code* shall be provided with the application for permit.

[F] 916.3 Equipment.

Gas detection system equipment shall be designed for use with the gases being detected and shall be installed in accordance with manufacturer's instructions.

[F] 916.4 Power connections.

Gas detection systems shall be permanently connected to the building electrical power supply or shall be permitted to be

cord connected to an unswitched receptacle using an *approved* restraining means that secures the plug to the receptacle.

[F] 916.5 Emergency and standby power.

Standby or emergency power shall be provided or the gas detection system shall initiate a trouble signal at an *approved* location if the power supply is interrupted.

[F] 916.6 Sensor locations.

Sensors shall be installed in *approved* locations where leaking gases are expected to accumulate.

[F] 916.7 Gas sampling.

Gas sampling shall be performed continuously. Sample analysis shall be processed immediately after sampling, except as follows:

1. For HPM gases, sample analysis shall be performed at intervals not exceeding 30 minutes.
2. For toxic gases that are not HPM, sample analysis shall be performed at intervals not exceeding 5 minutes in accordance with Section 6004.2.2.7 of the *International Fire Code*.
3. Where a less frequent or delayed sampling interval is *approved*.

[F] 916.8 System activation.

A gas detection alarm shall be initiated where any sensor detects a concentration of gas exceeding the following thresholds:

1. For flammable gases, a gas concentration exceeding 25 percent of the lower flammability limit (LFL).
2. For nonflammable gases, a gas concentration exceeding one-half of the IDLH, unless a different threshold is specified by the section of this code requiring a gas detection system.

Upon activation of a gas detection alarm, alarm signals or other required responses shall be as specified by the section of this code requiring a gas detection system. Audible and visible alarm signals associated with a gas detection alarm shall be distinct from fire alarm and carbon monoxide alarm signals.

[F] 916.9 Signage.

Signs shall be provided adjacent to gas detection system alarm signaling devices that advise occupants of the nature of the signals and actions to take in response to the signal.

[F] 916.10 Fire alarm system connections.

Gas sensors and gas detection systems shall not be connected to fire alarm systems unless approved and connected in accordance with the fire alarm equipment manufacturer's instructions.

[F] 916.11 Inspection, testing and sensor calibration.

Gas detection systems and sensors shall be inspected, tested and calibrated in accordance with the *International Fire Code*.

SECTION 917
MASS NOTIFICATION SYSTEMS

[F] 917.1 College and university campuses.

Prior to construction of a new building requiring a fire alarm system on a multiple-building college or university campus having a cumulative building *occupant load* of 1,000 or more, a mass notification risk analysis shall be conducted in accordance with NFPA 72. Where the risk analysis determines a need for mass notification, an *approved* mass notification system shall be provided in accordance with the findings of the risk analysis.

SECTION 918
IN-BUILDING EMERGENCY COMMUNICATIONS COVERAGE

918.1 General.

For localities utilizing public safety wireless communications, dedicated infrastructure to accommodate and perpetuate continuous in-building *emergency communication equipment* to allow *emergency public safety personnel* to send and receive emergency communications shall be provided in new *buildings* and structures in accordance with this section.

Exceptions:

1. *Buildings* of Use Groups A-5, I-4, within dwelling units of R-2, R-3, R-4, R-5, and U.
2. *Buildings* of Types IV and V construction without basements, that are not considered unlimited area buildings in accordance with Section 507.
3. Above grade single story *buildings* of less than 20,000 square feet (1858 m^2).
4. *Buildings* or leased spaces occupied by federal, state, or local governments, or the contractors thereof, with security requirements where the building official has approved an alternative method to provide *emergency communication equipment* for *emergency public safety personnel*.

5. Where the *owner* provides technological documentation from a qualified individual that the structure or portion thereof does not impede emergency communication signals.
6. *Buildings* in localities that do not provide the additional communication *equipment* required for the operation of the system.

918.1.1 Installation.

In-building two-way emergency responder communication coverage systems shall comply with Sections 510.4 and 510.5 of the *International Fire Code*, except that the acceptance testing procedure required by Section 510.5.4 of the *International Fire Code* shall be the responsibility of the *locality*. The building *owner* shall install cabling. The cable shall be installed in dedicated conduits, raceways, plenums, attics, or roofs, compatible for these specific installations as well as other applicable provisions of this code. The *locality* shall be responsible for the installation of any additional communication *equipment* required for the operation of the system.

918.1.2 Operations.

The *locality* will assume all responsibilities for the operation and maintenance of the *emergency communication equipment*. The building *owner* shall provide sufficient operational space within the *building* to allow the *locality* access to and the ability to operate in-building *emergency communication equipment*.

918.1.3 Inspection.

In accordance with Section 113.3, all installations shall be inspected prior to concealment.

918.2 Acceptance test.

Upon completion of installation, after providing reasonable notice to the *owner* or their representative, *emergency public safety personnel* shall have the right during normal business hours, or other mutually agreed upon time, to enter onto the property to conduct field tests to verify that the required level of radio coverage is present at no cost to the *owner*. Any noted deficiencies in the installation of the radiating cable or operational space shall be provided in an inspection report to the *owner* or the *owner's* representative.