248 CMR 4.00: Massachusetts Fuel Gas Code

Section

4.01: Purpose

248 CMR 4.00 through 8.00, collectively the Massachusetts Fuel Gas Code, governs the installation of fuel gas piping systems, fuel gas utilization equipment, and related accessories throughout the Commonwealth.

4.02: Definitions

For the purpose of 248 CMR 4.00 through 8.00 the following terms shall have the meanings indicated in 248 CMR 4.02. No attempt is made to define ordinary words that are used in accordance with their established dictionary meaning except where it is necessary to define their meaning to avoid misunderstanding. Definitions in M.G.L. c. 142 are not repeated here unless further clarity is required. These definitions shall not be interpreted to conflict with or otherwise expand or reduce the scope of the provisions of M.G.L. c. 142.

Buildings under construction. Any structure being built including tents, which utilize gas on a temporary basis.

Fuel Gas. A natural gas, manufactured gas, or other mixture of gases typically combusted, consumed, or otherwise utilized as the source of energy ~~Any gas, including hydrogen, natural gas, oxygen, and others, which, by themselves or mixed with other gases (ex. hydrogen mixed with oxygen) is combusted~~ for power, refrigeration, heating or illuminating purposes. Hazardous industrial type gases or Category M liquids as defined in M.G.L. c. 146, §81 which are not used for power, refrigeration, heating or illuminating purposes, but are instead used for processes, biopharma or semi-conductor manufacturing, shall not be considered fuel gases.

NFPA 54. The 2012 Edition of the National Fuel Gas Code published by the National Fire Protection Association.

NFPA 58. The 2011 Edition of the National Liquefied Petroleum Gas Code published by the National Fire Protection Association including Errata Number 58-11-1 issued October 29, 2010 and Errata Number 58-11-2 issued November 30, 2011.

NFPA 85. The 2011 Edition of the Boiler and Combustion Systems Hazards Code published by the National Fire Protection Association including Errata Number 85-11-1 issued April 29, 2011.

NFPA 86. The 2011 Edition of the Standard for Ovens and Furnaces published by the National Fire Protection Association including Errata Number 86-11-1 issued February 13, 2014, Tentative Interim Amendment TIA 11-1 issued August 5, 2010, Tentative Interim Amendment TIA 11-2 issued August 5, 2010, Tentative Interim Amendment TIA 11-3 issued March 1, 2011, and Tentative Interim Amendment TIA 11-4 issued March 1, 2011.

Piping system beyond a gas meter outlet or regulator. All components of a piping system beyond a specialized flow meter installed by a serving gas supplier or initial specialized device which serves to reduce the pressure of a provided fuel gas installed by a serving gas supplier; such a system shall also include all piping for the intake of fuel gases such as oxygen which are not provided by a serving gas supplier.

Power, refrigeration, heating or illuminating purposes. Shall mean use for the production of energy, cooling, heat, or light, but shall not mean the conversion of a gas to another gas, liquid, or solid form, which is then used for a manufacturing or industrial purpose ~~which does not require combustion~~.

4.03: Scope of the Massachusetts Fuel Gas Code and Adoption of Relevant Codes

The Massachusetts Fuel Gas Code is comprised of the following:

(1) For most installations of gas piping systems in Massachusetts, the Board adopts NFPA 54 as modified by 248 CMR 5.00: *Amendments to NFPA 54*. The scope of this adoption shall be governed by NFPA 54 Chapter 1, Administration, subject to the following modifications:

(a) Replace NFPA 54 sub-section 1.1.1.1(A) with the following:

Jurisdiction of gases as defined in subsection 3.3.51 of NFPA 54 shall extend from the point of delivery to the provided connections with each gas utilization device as follows:

1. For natural and manufactured gas systems, the point of delivery shall be considered the outlet of the service meter assembly or the outlet of the service regulator or service shut off valve where no meter is provided.

2. For undiluted liquefied petroleum gas systems, the point of delivery shall be considered the supply source, or, if it exists, the outlet of the first regulator located at the cylinder/vessel.

3. This code shall regulate piping systems in permanent structures, buildings under construction, as well as exterior installations.

(b) Replace NFPA 54 sub-section 1.1.1.1(B) with the following:

All gas piping systems shall be low pressure, not in excess of 0.5 P.S.I.G. or 14 inch water column. Systems may exceed these requirements if designed and installed in accordance with 248 CMR 5.05(4)(B).

(c) Delete NFPA 54 sub-section 1.1.1.2 and replace with the following:

The provisions of NFPA 54 shall not apply to applications utilizing acetylene, hydrogen, ammonia, carbon monoxide, oxygen, or nitrogen; such installations shall be governed by 248 CMR 4.03(6).

(d) Delete NFPA 54 section 1.4

(2) For installations of undiluted liquefied petroleum gas not explicitly covered by NFPA 54 as modified, the Board adopts NFPA 58 as modified by 248 CMR 8.00: *Amendments to NFPA 58*. The scope of this adoption shall be governed by NFPA 58 Chapter 1, Administration, subject to the following modifications:

(a) Delete NFPA 58 sub-section 1.1 and replace it with the following:

1.1 Scope

This code applies to the installation of undiluted liquefied petroleum gas systems and appliances.

(b) Delete NFPA 58 sub-section 1.3.1 and replace it with the following:

1.3.1 Application of the Code

This code shall apply to the installation of undiluted liquefied petroleum gas systems commencing upon the point of delivery. For purposes of this code, the point of delivery shall be considered the supply source, or, if it exists, the outlet of the first regulator located at the cylinder/vessel. This code shall regulate piping systems in permanent structures, buildings under construction, as well as exterior installations.

(c) Delete NFPA 58 subsections 1.3.2(3), (4), (5), (6) and (11)

(3) For installations of fuel gas boilers with an input of 12,500,000 BTU per hour or greater or fuel gas fired steam generators, the Board adopts NFPA 85 chapters 1 to 8. The scope of this adoption shall be governed by NFPA 85 Chapter 1, Administration, subject to the following modifications:

(a) Delete NFPA 85 sub-section 1.1 and replace it with the following:

1.1 Scope

This code applies to the installation of single burner boilers, multiple burner boilers, and atmospheric fluidized bed boilers with a fuel input rating 3.7 of MWt (12.5 million BTU/hr) or greater. This code also applies to fuel gas fired steam generators used to recover heat from combustion turbines and other combustion turbine exhaust systems at any heat input rate. However, this code shall not be deemed to apply to any equipment that does not utilize a fuel gas.

(b) Delete NFPA 85 sub-sections 1.1.8, 1.1.9, and 1.1.9.1.

(4) For installations of fuel gas fired ovens, dryers, furnaces, thermal oxidizers, and other heated enclosures used for the processing of materials and related equipment, the Board adopts NFPA 86. The scope of this adoption shall be governed by NFPA 86 Chapter 1, Administration, subject to the following modifications:

(a) Modify NFPA 86 sub-section 1.1.7 by adding sub-section 1.1.7(5) as follows:

Installations of equipment that utilize oil or any other non-gas liquid fuel.

(b) Delete NFPA 86 sub-section 1.3.5, 1.3.7, and 1.3.8.

(5) All installations of fuel gas utilization equipment not governed by NFPA 85 or 86 (as amended) having inputs over 400,000 BTU per hour per combustion chamber shall be governed by 248 CMR 7.00: *Large Gas Utilization Equipment*.

(6) For all other fuel gas installations not referred to, including, but not necessarily limited to, installations of piping systems conveying acetylene, hydrogen, ammonia, carbon monoxide, oxygen, nitrogen, or any other gas used as a fuel gas, from the supply source, or, if it exists, beyond a gas meter outlet or regulator, the system must be designed by a Massachusetts registered professional engineer. The design must assure that the piping installation, including pipe sizing, dimension, and other aspects, meet the requirements for proper functioning, safety, and this code. The installer must submit drawings to the Inspector stamped by the engineer reflecting this design prior to being issued a permit.

4.04: Order of Precedence

When a conflict is identified, the following order of precedence shall be adhered to (from highest priority first):

(1) 248 CMR 4.00;
(2) NFPA 85 as modified by 248 CMR 4.00;
(3) NFPA 86 as modified by 248 CMR 4.00;
(4) 248 CMR 7.00: *Large Gas Utilization Equipment*;
(5) NFPA 54 as modified by 248 CMR 5.00: *Amendments to NFPA 54*; and
(6) NFPA 58 as modified by 248 CMR 8.00: *Amendments to NFPA 58*.

4.05: Equivalency

The provisions of this code are not intended to prevent the use of any material, method of construction, or installation procedure not specifically prescribed by this code provided any such alternative is acceptable to the Board. The Board shall require that sufficient evidence be submitted to substantiate any claims made regarding the safety of such alternatives.