

INTERPRETIVE MEMORANDUM 2000-13

To: Fire Marshal Review Staff and Inspection Personnel
Certified Fire Prevention Bureaus. Architects, Engineers
and Contractors

From: Jerry W. Jones, Deputy Assistant Secretary/Chief Architect

Re: Modification of Requirement(s) for Protection of Residential-type Gas-fired Appliances
in Existing and New Occupancies whose size does not exceed 25,000 Cubic Feet in
Volume (3125 sq. ft. based upon 8 foot ceiling)

Date: June 28, 2000 (Revised)

The question has arisen regarding the requirement for the protection of residential-type gas fired HVAC, laundry dryers, and hot water heaters in small occupancies that compare in size and fireload with small Residential Board and Care occupancies. This question originally arose due to the proliferation of Day Care Centers in the state which are housed in residential-type/sized structures similar to many Board and Care facilities, which do not utilize high-pressure boilers, and are actually served by residential-type and sized hot water heaters and HVAC units.

This office has, for a number of years, required gas-fired devices to be protected by fire rated separation or sprinkler protection regardless of size (Exception: Lenox Pulse Fired units). There has, however, been no requirement to protect other types of heat-producing appliances which are not gas fired but which also present unique hazards. Electric hot water heaters obviously are heat-producing devices, as are simpler residential-type appliances, including halogen light fixtures which have been proven to be serious hazards and are currently in use in many facilities. It is further recognized that the primary threat posed by residential-sized boilers is that of explosion, in which case separation by fire rated construction or sprinkler protection is of limited practical value. Further, it has come to the attention of this office that there is a real potential for improper venting of these devices due to the efforts of owners/tenants to retrofit a rated enclosure around an existing appliance thereby creating a hazard where one may not have existed prior to the requirement for fire rating.

NFPA 101, 22-1.3 (Residential Board and Care) defines **Hazardous Areas** as follows:

Any space where there is storage or activity having fuel conditions exceeding that of a one-or two-family dwelling and that possesses the potential for a fully involved fire. Hazardous areas include, but are not limited to, areas for cartoned storage, food or household maintenance items in wholesale or institutional-type quantities and concentrations, or mass storage of residents' belongings. Areas containing approved, properly installed and maintained furnaces and heating equipment, furnace rooms, and cooking and laundry facilities shall not be classified as hazardous areas solely on the basis of such equipment.

Sections 22-3.2.1 and 22-3.3.2.2 (Large facilities) specify the requirement to separate "...Any room containing **high-pressure boilers, refrigerating machinery, transformers, or other service equipment subject to possible explosion...**" and "...**(a) Boiler and heater rooms, (b) Laundries, (c) Repair shops, and (d) Rooms or spaces used for storage of combustible supplies and equipment in quantities deemed hazardous by the authority having jurisdiction.**

Research of the NFPA Life Safety Code has revealed that, from 1967 through 1997, the requirements for protection of "**Boiler and Furnace (or Heater) rooms**" has been consistent in the occupancy chapters.

Direct contact with the NFPA has revealed that there is not now, nor has there ever been a definition for "Boiler and Furnace rooms", and that the NFPA would prefer to leave such determination(s) of hazard to the Authority Having Jurisdiction. Occupancy chapters directly address the protection of rooms containing "...**high-pressure boilers, refrigerating machinery, transformers, or other service equipment subject to possible explosion...**", requiring separation from "other parts of the building." NFPA 54 (1.7) however defines a hot water heater as a **low pressure boiler**.

Further research of the NFPA 101 Life Safety Code has revealed an evolution in the concept of hazard-determination with one consistent factor being the basic definition "...**Any operation or storage having a degree of hazard greater than normal to the general occupancy of the building or structure...**" From 1976 through 1988, the Code specifically identified certain hazardous areas (76, 6-5.1) "...**such as storage of combustibles or flammables, heat producing appliances, or maintenance purposes...**" Beginning in the 1991 edition however, the terminology referring to "heat producing appliances" was **removed** from the main body of this Code section. A significant modification was made in the wording to allow a degree of latitude, and it was placed in the Appendix to 6-4.1.1:

Appendix (1991, 6-4.1.1): Areas requiring special hazard protection may include but are not limited to areas such as those used for storage of combustibles or flammables, areas housing heat-producing appliances, or areas used for maintenance purposes.

As a result of this research it is the determination of this office that in both new and existing occupancies that do not exceed 25,000 Cu. ft. in volume(3125 sq. ft. w/8 ft. ceiling/based upon NFPA 90B), and which are served by a single residential-type/sized gas-fired HVAC unit, a single residential-type gas-fired hot water heater, and a single residential type/sized laundry dryer, there shall be no requirement for protection of these devices, as it is the view of this office that they represent **no more of a threat than one would expect in a one-or two-family dwelling, and represent a threat which is no greater than that normal to a(n)...occupancy.** For purposes of this interpretation, residential gas-fired appliances shall be defined as follows:

Hot water heater.....Under 50 Gallons
HVAC.....5 Tons or less
Dryer.....Single Unit

In facilities where there are multiples of gas-fired devices (example: 2 gas-fired hot water heaters, or a 2nd gas-fired HVAC unit, or multiple gas-fired dryers), the additional appliance(s) shall be required to be separated with 1-hour fire rated construction or protected by sprinkler, as the addition of these appliances would increase the hazard to a **greater than normal** level. As per inspection procedure, inspectors shall verify that combustibles are not stored in proximity to these appliances, and that they have been properly installed, maintained, and inspected.

This Interpretive Memorandum supersedes the memorandum issued by this office February 25, 1998.

JWJ/jtj