

South Carolina Department of Labor, Licensing and Regulation
Division of Labor
Office of Occupational Safety and Health
Columbia, South Carolina 29211

OSH Program Directive Number 77-1910.104-1

Subject: Oxygen; Bulk Oxygen Systems; Distance Between Systems and Exposures; Fire Resistive Structures Under Article VI, Section 1910.104 (b) (3) (iii).

Standard: Article VI, Section 1910.104 (b) (3) (iii), Rules and Regulations, Commissioner of Labor, State of South Carolina.

Cross Reference to Federal Standards: 29 CFR 1910.104 (b) (5) (iii).

Background: Inquiries from various sources have been received by Federal OSHA regarding the enforcement of Article VI, Section 1910.104 (b) (3) (iii) which prescribes the following minimum distance between any bulk oxygen storage container and fire resistive structure:

Fire resistive structures. Twenty-five feet from any structure with fire resistive exterior walls or sprinklered buildings of other construction, but not less than one-half the height of adjacent side wall of the structure.

These inquiries have noted that the source standard for Section 1910.104 (b) (3) (iii) was National Fire Protection Association (NFPA) No. 566-1965, Standard for the Installation of Bulk Oxygen Systems. This was redesignated as NFPA No. 50, paragraph 5-1-2, within the 1971 Edition, which states:

Not less than one foot (or other distance to permit system maintenance) from buildings or other than wood frame construction, including fire resistive, heavy timber, noncombustible, and ordinary construction.

Section 19104 (b) (3) (xviii) states that the twenty-five foot requirement between structures with fire resistive exterior walls or sprinklered buildings of other construction and bulk oxygen storage containers:

(does) not apply where protective structures such as firewalls of adequate height to safeguard the oxygen storage systems are located between the bulk oxygen

storage installation and the exposure. In such cases, the bulk oxygen storage installation may be a minimum distance of 1 foot from the firewall.

A “firewall” has been defined by various sources, The National Building Code, 1967 Edition, Section 23.2. A states:

Firewalls shall be of a noncombustible material having a fire resistive rating of not less than 4 hours, and have sufficient standard stability under fire conditions to allow collapse of construction on either side without collapse of the wall.

The Fire Protection Handbook, 13th Edition, 1969, NFPA, at page 8-45-50, republished in 1976, states:

A firewall may be broadly defined as a wall erected to prevent the spread of fire. To be effective, firewalls must have sufficient fire resistance to withstand the effects of the most severe fire that might be expected to occur in the building and must provide a complete barrier to the spread of fire. Any openings in a firewall must be suitably protected.

Article VI, Section 1910.106 (c) (3) (III), Flammable and Combustible Liquid, Industrial Plants; Unit Physical Operations; Chemical Processes; establishes that a firewall may have a 2-hour fire resistance rating.

Interpretation:

Constructively, there is a distinction between structures or walls that are fire resistive [in which case Section 1910.104 (b) (3) (iii) requires a distance of 25 feet between the structure or wall and bulk oxygen storage containers] and those that are Firewalls [in which case the exception in Section 1910.104 (b) (3) (xviii) allows a minimum distance of one foot from the oxygen storage containers]. For the purposes of determining whether a citation is appropriate, a fire resistive wall shall be deemed to be one made of fire resistive materials. On the other hand, a Firewall within the exception provided must be:

- (1) At least a wall made of noncombustible material, self-supporting, and with a fire resistance rating of not less than 2 hours, and generally constructed in accordance with the definition provided by local Building Codes and the Fire Protection Handbook provisions cited herein. The wall may be the exterior wall of the

structure exposed to the bulk oxygen storage installation.

(2) Any openings in the wall are properly protected.

(3) The wall is of adequate height to safeguard the oxygen storage systems.

Before citations are issued under Article VI, Section 1910.104 (b) (3) (iii) for alleged violations of the 25 foot requirement, the safety specialist should assure himself that the wall or structure does not come within the exception provided in Article VI, Section 1910.104 (b) (3) (xviii), in which case only the one foot distance requirement is applicable.

Effective Date: This instruction is effective upon receipt and will remain in effect until cancelled or superseded by amendment to the Rules and Regulations.

William M. Lybrand, Director
March 25, 1977