APPENDIX E

FIREFIGHTER BREATHING AIR REPLENISHMENT SYSTEMS

E 1.0 Scope.

This chapter covers minimum requirements for installation of firefighter breathing air replenishment systems.

E 2.0 System Components.

Firefighter breathing air replenishment systems shall contain, as a minimum, the following components:

(A) Exterior fire department connection panel

(B) Interior fire department air fill panel or station

(C) Interconnected piping distribution system

(D) Pressure monitoring switch

E 3.0 Required Installations.

A firefighter air system shall be installed in the following buildings:

(1) High-rise buildings.

(2) Underground structures that are 3 or more floors below grade with an area exceeding 1,800m^2 (20,000 ft.^{2}).

(3) Large area structures with an area exceeding 18,000m^2 (200,000 ft.^{2}) and where the travel distance from the building centerline to the closest exit exceeds 150m (500 ft.), such as warehouses, manufacturing complexes, malls, or convention centers.

(4) Underground transportation or pedestrian tunnels exceeding 150m (500 ft.) length.

E 4.0 Exterior Fire Department Connection Panel and Enclosure.

E 4.1 Purpose. The exterior fire department connection panel shall provide the fire department's mobile air operator access to the system and shall be compatible with the fire department's mobile air unit.

E 4.2 Number of Panels. Each building or structure shall have not less than 2 panels.

E 4.3 Location. Each panel shall be attached to the building or on a remote monument at the exterior of the building with not less than a 1.8m (6 ft.) radius and a clear, unobstructed radius equal to 3.1 radian (180 degrees) to the front of the panel. The panel shall be weather-resistant or secured inside of a weather-resistant enclosure. The panel shall be located on opposite sides of the building within 15m (50 ft.) of an approved roadway or driveway, or other locations approved by the Authority Having Jurisdiction.

E 4.4 Construction. The fire department connection panel shall be installed in a metal cabinet constructed of not less than 18 gauge carbon steel or equivalent. The cabinet shall be provided with a coating or other means to protect the cabinet from corrosion.

E 4.5 Vehicle Protection. Where the panel is located in an area subject to vehicle traffic, impact protection shall be provided.

E 4.6 Enclosure Marking. The front of the enclosure shall be marked: "FIREFIGHTER AIR SYSTEM". The lettering shall be in a color that contrasts with the enclosure front and in letters that are not less than 50mm (2 in.) high with a brush stroke equal to 10mm (3/8 in.).

E 4.7 Enclosure Components. The exterior fire department connection panel shall contain all of the necessary gauges, isolation valves, pressure-relief valves, pressure-regulating valves, check valves, tubing, fittings, supports, connectors, adapters, and other necessary components as required to allow the fire department's mobile air unit to connect and augment the system with a constant source of breathing air. Each fire department connection panel shall contain not less than two inlet air connections.

E 4.8 Pressure-Relief Valve. Pressure-relief valves shall be installed downstream of the pressure regulator inlet. The relief valve shall meet the requirements of the CGA S-1.3 or equivalent International Standard(s) approved by the Authority Having Jurisdiction and shall not be field adjustable. The relief valve shall have a set-to-open pressure not exceeding 1.1 times the design pressure of the system. Pressure-relief valve discharge shall terminate so that the exhaust air stream cannot impinge upon personnel in the area. Valves, plugs or caps shall not be installed in the discharge of a pressure-relief valve. Where discharge piping is used, the end shall not be threaded.

E 4.9 Security. The fire department connection panel enclosure shall be locked by an approved means.

E 5.0 Interior Cylinder Fill Panels.

E 5.1 Cabinet Requirements. Each cylinder fill panel shall be installed in a metal cabinet constructed of not less than 18 gauge carbon steel or equivalent. The depth of the cabinet shall not create an exit obstruction when installed in building stairwells. With the exception of the shutoff valve, pressure gauges, fill hoses, and ancillary components; no system components shall be visible and shall be contained behind not less than an 18 gauge interior panel.