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INTERNATIONAL ASSOCIATION OF PLUMBING MECHANICAL OFFICIALS

IAPMO GUIDE CRITERIA FOR

BREATHING AIR REPLENISHMENT SYSTEMS (BARS)

IAPMO IGC 220-2006

1. PURPOSE

- 1.1** The purpose of this standard is to establish a generally acceptable standard for building/structure installed breathing air replenishment systems (BARS) to be used in conjunction with self-contained breathing apparatuses (SCBA). Its intent is to serve as a guide for producers, distributors, architects, engineers, contractors, installers, inspectors and users; to promote understanding regarding materials, manufacture and installation; and, to provide for identifying breathing air replenishment systems complying with this standard.
- 1.2** The provisions of this standard are not intended to prevent the use of any alternate material or method of construction, provided any such alternate meets the intent and requirements of this document and changes are amended to this standard.

2. SCOPE

- 2.1** This standard covers physical requirements and tests for types of material and other significant properties in addition to a general description of materials used. Certain features of construction and assembly of the final system are also given, together with methods of marking and identification.
- 2.2** This standard serves to supplement the provisions of Appendix F in the Uniform Plumbing Code (UPC).

3. REFERENCE STANDARDS

- 3.1** All standards referenced herein shall be the current edition of that standard.

ASME B31.1	Power Piping
ASTM A 269	Seamless and Welded Austenitic Stainless Steel Tubing for General Service
ASTM A 276	Stainless Steel Bars and Shapes

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ASTM A 479	Stainless Steel Bars and Shapes for Use in Boilers and other Pressure Vessels
ASTM A 789	Seamless and Welded Ferritic/Austenitic Stainless Steel Tubing for General Service
CGA S1.3	Pressure Relief Device Standards – Part 3 Stationary Storage Containers for Compressed Gases
CGA V1	Compressed Gas Cylinder Valve Outlet and Inlet Connections
NFPA 1989	Breathing Air Quality for Fire and Emergency Services Respiratory Protection
UL 508	Industrial Control Equipment
UPC	Uniform Plumbing Code

4. GENERAL REQUIREMENTS

- 4.1 Tubing and Fittings.** Tubing and compatible fittings shall be stainless steel complying with the requirements of ASTM A 269 and ASTM A 276 or ASTM A 789 and ASTM A 479.
- 4.2 Pressurized Components.** All pressurized components such as gauges, isolation valves, pressure relief valves, pressure regulating valves, check valves, tubing, fittings, connectors, adapters and other necessary parts, shall be listed to applicable approved standards and compatible for use with high pressure breathing air equipment and self contained breathing air apparatus and shall be rated for a minimum working pressure of 5000 psi having a safety ratio of 4:1.
- 4.3 Pressure Monitoring Switch.** The pressure monitoring switch shall comply with the requirements of UL 508.
- 4.4 Pressure Relief Valve.** The pressure relief valve shall comply with the requirements of CGA S1.3
- 4.4.1** Isolation valves shall be installed downstream of each air fill station and shall be located in the panel or within 3 feet of the station.
- 4.5 Exterior Connection Panel.** The exterior connection panel shall comply with the requirements of Section 4.2 of this standard and shall be installed in a metal cabinet constructed of a minimum 18 gauge carbon steel or equivalent and shall be corrosion resistant.
- 4.5.1** Each building or structure shall have a minimum of one exterior fire department connection (FDC) panel. FDC panel shall be compatible with the fire departments mobile air unit. The panel shall be weather resistant or secured inside of a weather resistant enclosure and shall contain a minimum of one inlet air connections.