ANSI/ASSP Z9.9-2021

Portable Ventilation Systems

AMERICAN SOCIETY OF
SAFETY PROFESSIONALS

ANSI/ASSP Z9.9 – 2021

American National Standard

Portable Ventilation Systems

Secretariat

American Society of Safety Professionals
520 N. Northwest Highway
Park Ridge, Illinois 60068

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American National Standards Institute

American National Standard

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Foreword (This Foreword is not a part of American National Standard Z9.9 – 2021.)

This standard describes fundamental good practices related to the design, manufacture, labeling, use and application, as well as maintenance and testing of portable ventilation systems used for the control of airborne contaminants or environmental conditions. Intended users of this standard include owners of facilities, designers and manufacturers of portable ventilation equipment, employers, industrial hygienists and safety professionals, maintenance personnel, and end users. This standard is compatible with other recognized standards of good practice.

This standard intends to address a long-standing need in the ventilation arena. Portable ventilation is a broad and complex subject. Much of what applies to portable ventilation systems does not apply to fixed (installed) systems and vice versa. Use of portable ventilation equipment occurs in many applications: confined space entries; collection of welding plumes; maintaining negative pressure in structures during asbestos, lead, and mold remediation; and controlling emissions from spray painting and abrasive blasting, to name just a few.

This equipment is usually unobtrusive, often just another piece of clutter in surroundings crowded with other portable and mobile equipment and tools.

The environment in which much of this equipment is used is rough and tumble. These units can be used in any kind of condition and unpleasant weather. They can be thrown or kicked in frustration, dropped off trucks, and accidentally run over. These types of units require solid construction. Thus, design and fabrication may require incorporation of subtle features such as abuse-tolerant bonding from the electrical box to the frame to the ground connection through the electrical cord. Safety features must provide reliable protection in situations of high abuse.

Portable equipment comes in all shapes and sizes, ranging from the home-built to the shop-built to the factory-built, and the utilitarian to the elegant. Very little, if anything, exists in standard textbooks on ventilation about this subject. Yet, the subject is far more complicated than meets the eye of the casual observer.

This standard uses the single column format common to many international standards. The normative requirements appear aligned to the left margin. To meet the requirements of this standard, machinery, equipment and process suppliers and users must conform to these normative requirements. These requirements typically use the verb “shall.”

> *NOTE: The informative or explanatory notes in this standard appear indented, in italics, in a reduced font size, which is an effort to provide a visual signal to the reader that this is informative note, not normative text, and is not to be considered part of the requirements of this standard; this text is advisory in nature only. The suppliers and users are not required to conform to the informative note. The informative note is presented in this manner in an attempt to enhance readability and to provide explanation or guidance to the sections they follow.*

Appendices supplement information provided in the standard.

This standard presents minimum requirements adaptable to the needs of the user establishment. Demonstrably equal or better approaches are acceptable. When deviating from the standard, the responsible agent should provide documentation.

Suggestions for improvement of this standard are welcome. The Committee will carefully consider all comments and suggestions. Please send comments to: American Society of Safety Professionals, 520 N. Northwest Highway, Park Ridge, Illinois 60068.

This standard was developed and approved for submittal to ANSI by the Z9 Standards Committee on Health and Safety Standards for Ventilation Systems. Consensus was reached through a process involving the entire Z9 Committee in a series of reviews and in the final vote of approval. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the Z9 Committee had the following members:

Geoffrey Raifsnider, P.E., Chair
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Lauren Bauerschmidt, MS Engr, CSP, STS, Secretary
Timothy R. Fisher, CSP, CHMM, ARM, CPEA, Assistant Secretary
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	Brian Spears
American Foundry Society	Robert Scholz
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American Society of Safety Professionals	Paul Osley, P.E., CSP, CIH, CHMM
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Subgroup Z9.9 had the following members:

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Jeffery Camplin
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Peter Engelbert, CIH, CSP, CHST, CET
Laureano Esteller
Assed Haddad
James McIntosh
Robert Moats
John (Jack) Price
Roger Weinmeister
Stephen Williams

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AMERICAN NATIONAL STANDARD Z9.9
PORTABLE VENTILATION SYSTEMS

1. Associated Standards and Publications

1.1 Standards and Regulatory Requirements

The following codes, regulations, standards, and guidelines contain provisions that have potential impact on provisions of this standard. Where published requirements conflict, the more stringent shall apply. All regulations, standards, and guidelines are subject to revision. Users of the standard are encouraged to consult the most recent edition to determine continued applicability.

1.1.1 Air Movement and Control Association (Arlington Heights, IL)

Classifications for Spark Resistant Construction (AMCA Standard 99-0401).

Laboratory Methods of Testing Fans for Aerodynamic Performance Rating (ANSI/AMCA 210; ANSI/ASHRAE 51).

Laboratory Methods of Testing Air Circulator Fans for Rating (AMCA Standard 230).

Laboratory Method of Testing Positive Pressure Ventilators for Rating (ANSI/AMCA Standard 240).

Laboratory Methods of Testing Jet Tunnel Fans for Performance (ANSI/AMCA 250).

1.1.2 American Gas Association/Canadian Gas Association (Arlington, VA)

Gas Fired Appliances for Outdoor Installation (CAN/CGA-1-2.21.

Gas-Fired Central Furnaces (CAN/CGA-2.3-M93/ANSI Z21.47).

Automatic Safety Shut-Off Gas Valves (CAN/CGA-3.9).

Gas Appliance Pressure Regulators (CAN/CGA-6.3-M95/ANSI Z21.18).

Automatic Valves for Gas Appliances (CAN/CGA-6.5-M89/ANSI Z21.21).

Gas Hose Connectors for Portable Outdoor Gas-Fired Appliances (CAN/CGA-8.4/ANSI Z21.54).

Electrical Features of Fuel-Burning Equipment (CSA C22.2 No. 3).

1.1.3 American Society of Safety Professionals (Park Ridge, IL)

Open-Surfaced Tanks (ANSI/ASSP Z9.1).

Fundamentals Governing the Design and Operation of Local Exhaust Systems (ANSI/ASSP Z9.2).

Spray Finishing Operations (ANSI/ASSP Z9.3).

Abrasive Blasting Operations (ANSIASSP Z9.4).

Laboratory Ventilation (ANSI/ASSP Z9.5).

Grinding, Buffing and Polishing (ANSI/ASSP Z9.6).

Recirculation of Exhaust Air (ANSI/ASSP Z9.7).