



American National Standard: *For Sanitation*

*In Places of Employment:
Minimum Requirements*



Portable Sanitation Association International

Revision of
ANSI Z4.1-2005

ANSI®
American National Standard:
For Sanitation

In Places of Employment:
Minimum Requirements

Secretariat
Portable Sanitation Association International

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American National Standard

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Foreword

(This Foreword is not part of the American National Standard Z4.1-2016)

The provisions in this standard are the result of extended and careful consideration of available knowledge and experience on the subject of industrial sanitation and are intended to present minimum requirements recommended for use by the employers, building owners and others concerned with the design and construction of industrial and commercial buildings. These provisions are also suitable for adoption by governmental administrative authorities.

This standard supersedes the 1979, 1986, 1995 and 2005 editions of the American National Standard Minimum Requirements for Sanitation in Places of Employment.

Suggestions for improvement of this standard will be welcome. They should be sent to the Portable Sanitation Association International, 2626 E. 82nd Street, Suite 175, Bloomington, MN 55425 or to info@psai.org.

Consensus for approval of this standard as an American National Standard was achieved by use of the Canvass Method.

The following organizations recognized as having an interest in the standardization of procedures and facilities were contacted prior to the approval of this standard. Inclusion in this list does not necessarily imply that the organizations concurred with the submittal of the standard to ANSI.

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American National Standard: For Sanitation In Places of Employment: Minimum Requirements

1 Scope and Purpose

1.1 Scope

This standard applies to minimum requirements for sanitation in all places of employment except where domestic, mining or common carrier transportation work only is performed. It does not apply to temporary employment locations or places where non-sewered waste disposal systems are in use as those are covered in American National Standard: For Sanitation Non-Sewered Waste Disposal Systems: Minimum Requirements, ANSI/PSAI Z4.3-2016. It also does not apply to family housing provided by the employer in one- or two-family dwellings, or to temporary labor camps; these are covered by American National Standard: For Sanitation in Temporary Labor Camps: Minimum Requirements, ANSI/PSAI Z4.4-2016. Measures to control toxic materials are outside the scope of this standard.

1.2 Purpose

The purpose of this standard is to prescribe minimum sanitary requirements for the protection of health of all employees in places of employment as described in 1.1.

2 Definitions

Accessible design: An approach to designing buildings, homes and products that renders them easier to access and therefore use, by people with physical, sensory or cognitive disabilities.

ADA-Compliant: A device that is fully compliant, when properly installed, with the current requirements of the Americans with Disability Act Accessibility Guidelines (ADAAG) as legislated by the Americans with Disabilities Act of 1990.

Approved: Approved by the authority having jurisdiction.

Black water: Combined domestic effluent including liquid and solid human body waste and the water discharged from toilet usage.

Conservation: The preservation and protection of natural resources.

Fixture: A device for receiving water and/or waste matter that directs these substances into a sanitary drainage system. Can include bathtubs, lavatories, showers, sinks, toilets, urinals and water closet bowls.

Grey water: Water that has already been used for bathing, washing, laundry or dishwashing but does not contain human or food waste.

Industrial waste: Liquid or waterborne waste from industrial or commercial processes.

Lavatory: A washbowl or basin permanently installed with running water, for washing hands, arms, face or head.

Non-sewered waste disposal system: A sanitary waste-disposal system not connected to a sanitary sewer, septic tank or on-site sewage disposal system.

Number of employees: For the purpose of this standard, the maximum number of employees present on a regular 40-hour workweek shift.

Potable water: Water that is free of objectionable pollution, contamination, minerals or infection, is approved for drinking, culinary or domestic purposes by the authority having jurisdiction, and meeting requirements of the U.S. Environmental Protection Agency.

Putrescible: Something that is liable to decay.

Recycled (reclaimed) wastewater: Water that has passed through a treatment facility mainly for use in irrigation, dust control or fire suppression and is clearly marked "non potable and unsafe for consumption," therefore encouraging conservation of potable water.

Sanitary condition: Within the meaning of this standard, that physical condition of working quarters which will tend to prevent the incidence and spread of disease.

Sanitize: To make free from dirt, infection, disease, etc., by cleaning it: to make something sanitary.

Tertiary standards: a final stage of water treatment before it can be discharged back into the environment.

Toilet facility: A series of fixtures (including showers) maintained within a room for the purpose of defecation, urination, or maintaining personal hygiene.

Urinal: A fixture maintained within a toilet facility for the sole purpose of urination.

Water closet: A toilet or fixture, which is designed to receive human waste directly from the user and discharge it to the drainage system.

3 General Requirements

3.1 Housekeeping

3.1.1 All places of employment shall be maintained in a sanitary condition.

3.1.2 The floor of every workroom shall be maintained in a clean and, so far as possible, dry condition. Where wet processes are used, positive floor drainage shall be achieved in accordance with the International Plumbing Code Chapter 4, Section 412 – Floor and Trench Drains. If dry standing and walking surfaces cannot be maintained with permanently installed materials in accordance with the most current adopted release of the International Building Code Chapter 8 – Interior Finishes, Section 804 - Interior Floor Finish, extra anti-slip surfaces shall be provided.

3.1.3 Cleaning and sweeping shall be done in such a manner as to minimize the amount of particulates in the air.

3.1.4 To facilitate cleaning, every floor, working place and passageway shall be kept free from any and all debris – hazardous and non-hazardous – or any item that could potentially cause personal injury.

3.2 Waste disposal

3.2.1 Any receptacle used for putrescible solids, liquid or solid refuse shall be constructed so that it does not leak and may be conveniently and thoroughly disinfected. It shall be maintained in a sanitary condition. Such a receptacle shall be equipped with a cover. Trashcans with removable liners are also acceptable, as long as they meet the above criteria.

3.2.2 All sweepings, solid or liquid wastes including industrial wastes, refuse and garbage shall be removed in such a manner as to avoid creating a nuisance or menace to health, and as often as necessary to maintain the place of employment in a sanitary condition.

3.3 Pest control

Every enclosed workplace and personal service room shall be constructed, equipped and maintained, so far as is reasonably practicable, in such a manner as to prevent the entrance or harborage of pests: rodents, insects or vermin of any kind for sanitary conditions, and in accordance with the International Building Code, Appendix F – Rodentproofing, and the International Plumbing Code, Chapter 3 – General Regulations, Section 304 – Rodent proofing.

4 Lighting and Ventilation

4.1 Lighting

Lighting shall be in accordance with the most current adopted release of the International Building Code, Chapter 12 – Interior Environment, Section 1205 – Lighting.

4.2 Ventilation

4.2.1 The minimum ventilation airflow rates shall be met as specified in the most current adopted release of the International Building Code, Chapter 12 – Interior Environment, Section 1203 – Ventilation, and the

International Mechanical Code, Chapter 4 - Ventilation and Chapter 5 - Exhaust Systems, with the occupancy classifications given to the space. Higher rates shall be provided if required by the authorities having jurisdiction.

4.2.2 Outside air shall be provided to all rooms occupied by workers, in accordance with American National Standard Fundamentals Governing Design and Operation of Local Exhaust Systems ANSI/AIHA/ASSE Z9.2-2012 or the latest revision thereof approved by the American National Standards Institute and by the most current adopted release of the International Building Code, Chapter 12 – Interior Environments, Section 1203 – Ventilation, and International Mechanical Code, Chapter 4 - Ventilation. Where mechanical ventilation systems are used, ventilation rates shall be in accordance with all applicable federal, state and local regulations.

4.2.3 Toilet facilities shall be provided with the minimum ventilation rate of the most current adopted release of the International Building Code, Chapter 12 – Interior Environment, Section 1203 – Ventilation, and International Mechanical Code, Chapter 4 – Ventilation, or by authorities having jurisdiction, whichever is greater. No recirculation of air through the room shall be permitted.

5 Water Supply

5.1 Potable water

5.1.1 An adequate supply of potable water shall be provided for drinking, washing and cooking purposes in all places of employment. Drinking water shall be made available within a minimum of 91.44 meters (300 feet) of any location where employees are regularly engaged in work in accordance with the most current adopted release of the International Plumbing Code, Chapter 4 – Fixtures, Faucets and Fixture Fittings, Section 410 – Drinking Fountains, and the International Building Code, Chapter 29 – Plumbing Systems. Under certain conditions where the work area is large and the number of employees relatively small, these requirements may be met by the use of approved portable containers.

5.1.2 Drinking fountains shall be of a type and construction approved by the most current approved release of the International Building Code, Chapter 29 – Plumbing Systems, Section 2902 – Minimum Plumbing Facilities, and the International Plumbing Code, Chapter 4 – Fixtures, Faucets and Fixture Fittings, Section 410 – Drinking Fountains. New installations shall be constructed in accordance with the requirements of the above references and in accordance with American National Standard for Drinking Fountains and Self-Contained Mechanically Refrigerated Drinking Coolers, ANSI/ARI 1010-2002, or the latest revision thereof approved by the American National Standards Institute.

5.1.3 Where drinking water is cooled by ice, the construction of the container shall be such that the ice does not come in direct contact with any non-potable water sources. All manufactured ice shall be from a potable water source and protected from contamination between the point of manufacture and the point of use.

5.1.4 Containers such as barrels, pails or tanks from which drinking water must be dipped or poured, whether or not they are fitted with a cover, shall not be allowed.

5.1.5 Where single-serve cups (to be used only once) are supplied, both a sanitary container for the unused cups and a receptacle for disposing of the used cups shall be provided. Any reusable cups on the premises must have a sanitary method of disinfection (i.e. dishwasher) before another use can occur.

5.2 Non-potable water

5.2.1 Outlets for non-potable water, such as water for industrial or fire-fighting purposes only, shall be clearly identified in accordance with American National Standard Specification for Safety Color Code, ANSI/NEMA Z535-2011 or the latest revision approved by the American National Standards Institute, to indicate that the water is unsafe and not to be used for drinking, washing or cooking purposes.

5.2.2 There shall be no cross-connection, open or

potential, between a system furnishing potable water and non-potable water or carrying wastewater, in accordance with the most current adopted release of the International Plumbing Code, Chapter 6 – Water Supply and Distribution, Section 608 – Protection of Potable Water Supply.

5.2.3 Design and construction of non-potable water systems shall be such as to prevent backflow of contaminated water into a potable water system, in accordance with the most current adopted release of the International Plumbing Code, Chapter 6 – Water Supply and Distribution, Section 608 – Protections of Potable Water Supply.

5.2.4 Non-potable water shall not be used for drinking, bathing, for washing any portion of the person, or as a source of irrigation at farms with edible vegetation. For washing clothing or dishes using a reclaimed water system, water must be treated to tertiary standards before use, except where as specifically permitted by the health authority having jurisdiction. Grey water systems or recycled waste water systems are permitted for conservation purposes (flushing plumbing systems and irrigation), and shall follow all standards of the most current adopted release of the International Plumbing Code, Chapter 13 – Grey Water Recycling Systems and 5.2.1 above. The employer shall have a written copy of this authorization as documentation and have all non-potable water locations clearly identified with the appropriate signage.

6 Toilet Facilities

6.1 General

6.1.1 Every place of employment shall be provided with adequate toilet facilities. For permanent structures of employment, the number of facilities and fixtures will be based on occupancy classifications in the most current adopted release of the International Building Code, Chapter 3 – Use and Occupancy Classification, Chapter 29 – Plumbing Systems, and the International Plumbing Code, Table 403.1 – Minimum Number of Required Plumbing Fixtures. Where more than ten persons are

employed, separate facilities shall be provided for each gender and be properly labeled. The sewage disposal method shall comply with the requirements of the authority having jurisdiction.

6.1.2 Toilet facilities shall be provided so as to be readily accessible to all employees. Toilet facilities located so that employees must walk more than one floor-to-floor flight of stairs, through kitchens, storage rooms or closets are not considered readily accessible. As far as is practicable, in accordance with the most current adopted release of the International Building Code, Chapter 29 – Plumbing Systems, toilet facilities shall be located within 152 meters (500 feet) of all locations where workers are regularly employed.

6.1.3 Fixtures shall be provided for each gender. The number to be provided for each gender shall in every case be based on the maximum number of occupants on the premises for which the facilities are furnished as stated in references given in 6.1.2. For conditions of temporary employment locations, the number to be provided in every case will be based on the maximum number of persons employed at any one time, during a regular 40-hour workweek shift on site, for which the facilities are furnished, and should be referenced to ANSI/PSAI Z4.3-2016 For Sanitation: Non-Sewered Waste Disposal Systems - Minimum Requirements. When persons other than employees are permitted the use of toilet facilities on the premises, a reasonable allowance shall be made for such other persons in estimating the minimum number of fixtures required.

6.1.4 In all toilet facilities, an adequate supply of necessary items is to be maintained at all times. Toilet paper and a holder shall be provided for every toilet, hand soap and paper towels or electric hand dryers, sanitary napkin disposal, and waste receptacles must be present and shall be in accordance with the most current adopted release of the International Building Code, Chapter 12 – Interior Environment, Section 1210 – Toilet and Bathroom Requirements, Chapter 11 – Accessibility, Section 1109, and International Plumbing Code, Chapter

4 – Fixtures, Faucets and Fixture Fittings All items installed will meet all ADAAG and applicable codes, and shall be in accordance with all applicable regulations.

6.2 Construction of toilet rooms

6.2.1 Each toilet fixture shall occupy a separate compartment, which should be equipped with a door and latch and meet the minimum requirements for floor space and mounting height in the most current adopted release of the International Building Code, Chapter 12 – Interior Environment, Section 1210 – Toilet and Bathroom Requirements, Chapter 11 – Accessibility, Section 1109, and International Plumbing Code Chapter 4, and with Section 604.8.2 of ICC/ANSI A117.1 2009. Partitions and doors shall be of nonabsorbent materials for ease of disinfection.

6.2.2 At least one toilet facility shall have fixtures and all necessary required equipment to meet accessible design standards, and be ADA-compliant.

6.2.3 The door to every toilet facility shall be self-closing and the entrance to the toilet facility shall be so screened that the interior of the toilet room is not visible to maintain privacy and be in accordance with the most current adopted release of the International Building Code, Chapter 12 – Interior Environment, Section 1210 – Toilet and Bathroom Requirements, and Chapter 11 – Accessibility, Section 1109.

6.2.4 In all newly constructed toilet rooms, the floors and the wall base, including the angle formed by the floor and base, shall be of watertight construction and in accordance with the most current adopted release of the International Building Code, Chapter 12 – Interior Environment, Section 804 – Interior Floor Finish. Wall base will be at a minimum required height of 15 cm (6 inches) nominal.

6.2.5 The floor, wall base, partitions and doors of all toilet facilities shall be of a hard, impervious material that can be easily cleaned and disinfected. In new installations, cove wall bases shall be provided to facilitate cleaning.

6.3 Construction and installation of toilet facilities

6.3.1 The construction and installation of toilet facilities and fixtures shall meet or exceed the minimum requirements set forth in the most current adopted release of the International Building Code, Chapter 12 – Interior Environment, Section 1210 – Toilet and Bathroom Requirements, Chapter 11 – Accessibility, Section 1109, and International Plumbing Code Chapter 4, and be in conformance with all applicable state and local regulations.

6.3.2 Every fixture shall be installed so the space around the fixture can be easily cleaned.

6.3.3 Every toilet shall have a hinged seat made of substantial material having a nonabsorbent finish. Integral seats may be used when permitted by the health authorities having jurisdiction.

6.4 Non-sewered waste disposal

Where non-sewered waste disposal systems are permitted, they shall be of a type approved by the health authorities having jurisdiction and shall be maintained in a sanitary condition, as well as following specific regulations, construction and maintenance guidelines in accordance with ANSI/PSAI Z4.3-2016 For Sanitation: Non-Sewered Waste Disposal Systems - Minimum Requirements, or the latest revision thereof approved by the American National Standards Institute.

7 Washing Facilities

7.1 Adequate facilities for maintaining personal hygiene shall be convenient for the employees for whom they are provided and shall be maintained in a sanitary condition. Lavatories shall be provided at or adjacent to all toilet facilities, in addition to those, which may be provided at any other location and in accordance with the most current adopted release of the International Building Code, Chapter 12 – Interior Environment, Section 1210 – Toilet and Bathroom Requirements, Chapter 11 – Accessibility, Section 1109 and International Plumbing Code Chapter 4.

7.2 Lavatories with adequate hot [43°C (110°F) to 49°C (120°F)] and cold water, preferably from a combination supply fixture, shall be provided. Twenty-four inches of sink rim shall be considered as equal to one lavatory. In all instances, a dispenser containing a suitable skin-cleaning agent shall be provided at each lavatory.

7.3 Where employees are potentially exposed to skin contamination with poisonous, infectious or irritating material, or where hot, wet or dirty conditions require bathing before leaving the job, showers in the ratio of at least one for each fifteen persons exposed on the largest work shift, shall be provided. Showers shall be supplied with ample hot [43°C (110°F) to 49°C (120°F)] and cold water and shall be in a separate shower room. A dispenser containing a suitable skin-cleansing agent shall be provided at each shower.

7.4 Individual hand towels, or sections thereof, of cloth or paper, shall be provided. Proper receptacles or other sanitary means shall be provided for the disposal of used towels. Other apparatus for drying the hands may be substituted for towels upon approval by the authority having jurisdiction. The provision of a towel, including a closed-loop cloth roller towel, for general or common use shall be prohibited.

8 Changing Rooms

8.1 Separate changing or dressing rooms equipped with individual clothing-storage facilities shall be provided for each gender wherever it is the practice or a requirement to change from street clothing to work clothing.

8.2 Where employees' work clothing is exposed to contamination by poisonous, infectious or irritating material, facilities shall be provided in changing rooms so that street and work clothing will not be stored in contact with each other.

8.3 Where the process in which the worker is engaged is such that his work clothing becomes wet or has to be washed by the employer or the employer's

agent between shifts, provisions shall be made to ensure that such clothing is dry before reuse.

8.4 Facilities shall be provided for the safe handling and storage prior to laundering of work clothing that has become contaminated with poisonous, infectious or irritating material.

9 Break Rooms

9.1 In all places of employment where employees are permitted to take breaks on the premises, an adequate space suitable for that purpose shall be provided for the maximum number of employees who may use such space at one time, and be in compliance for such spaces as stated in the most current adopted release of the International Building Code, Chapter 3 – Use and Occupancy Classification. Such space shall be physically separate from any location where there is exposure to toxic or infectious materials.

9.2 Home-prepared meals containing foods such as milk or milk products, eggs, meat, poultry, fish or combinations thereof, are a potential source of foodborne illness when stored at room temperature. Accordingly, there should be provided refrigeration facilities capable of maintaining a temperature of 7°C (45°F) or less, for the storage of meals containing such foods pending consumption.

9.3 An adequate number of covered receptacles constructed of a smooth, corrosion-resistant and easily disinfected or disposable material shall be provided by the employer and used by the employees for the disposal of all waste food. Such receptacles shall be emptied once daily and shall be maintained free of residues.

9.4 No food shall be stored or eaten where there are toxic materials or substances present which may contaminate the food in quantities or concentrations that may be injurious to health.

9.5 In every establishment where there is exposure to injurious dusts or other toxic materials, a separate

break room shall be maintained unless it is convenient for the employees to break away from the premises.

Number of Persons	(m ²)	(ft ²)
25 or less	1.2	13
26 - 74	1.1	12
75 - 149	1.0	11
150 and over	0.9	10

9.6 The area per person specified in Table 1, based on the maximum number of persons using the break room at one time, shall be provided, in addition to following 9.1.1 and the referenced section of the International Building Code for allowable occupant space designated, whichever is greater.

10 Food Service

10.1 All employee food service facilities and operations shall meet the applicable law, ordinances and regulations of the jurisdiction in which they are located. In the absence thereof, the requirements of "1976 Food Service Sanitation Ordinance," Part IV, Food Service Sanitation Manual, Department of Health, Education and Welfare (FDA) Publication No. 78-2081, 1976 or the latest revision thereof, shall be followed.

10.2 In places of employment where any of the food service is provided by vending machines, the food dispensed shall be prepared, and the machines operated, in accordance with applicable law, ordinances and regulations of the jurisdiction in which they are located. In the absence thereof, the requirements of the Food Service Sanitation Manual Including a Model Food Service Sanitation Ordinance, Department of Health, Education and Welfare (FDA) Publication No. 78-2081, or the latest revision shall be followed.