

PSAI Z4.4-2024

Standard for Sanitation

Nonsewered Waste Disposal Systems: Use by the General Public - Minimum Requirements



Portable Sanitation Association International

Revision of ANSI/PSAI Z4.4 – 2016

Standard for Sanitation

Nonsewered Waste Disposal Systems: Use by the General Public – Minimum Requirements

Standards Developing Organization:
Portable Sanitation Association International

Note: If and when this standard is approved by the American National Standards Institute (ANSI), content regarding the date and other ANSI information will go here.

DRAFT

Note: If and when this standard is approved by the American National Standards Institute (ANSI), content will be added here regarding the ANS designation.

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Foreword

(This foreword is not part of the PSAI Standard Z4.4-2024)

This standard originally prescribed minimum sanitation requirements for fields and temporary labor camps to protect the health and safety of persons working in fields, residing in the associated camps, or both. In 1966 a subcommittee of the U.S. Standards Committee on Safety for Industrial Sanitation known as Z4 began working on the original text, and on March 8, 1968, it was approved as an American National Standard. After OSHA was established and began issuing its own standards, Z4.4 was periodically updated to ensure it addressed critical topics raised by OSHA's standards and litigation surrounding their implementation. Most recently, the standard was revised in 2015 to reflect the advances in engineering, chemicals and procedures.

Over the years, clarity and applicability of the minimum requirements for non-sewered waste disposal systems have taken on much greater importance as the public has become more conscious of the need for clean portable restroom facilities as a means of preventing the spread of disease when sewer facilities are not available. Moreover, public behavior has demonstrated willingness to spurn non-sewered sanitation equipment that is viewed as unclean, leading to alternative behaviors that spread human waste.

Nonsewered waste systems, typically portable toilet and handwashing facilities, were once used primarily on construction projects. Over the past 50 years, this equipment has become commonplace throughout the American scene. They are now found at parks, playgrounds, athletic events and literally any gathering of people that does not have access to sewer toilet facilities. These units are both an amenity for users and an important infection control technique. However, the success of nonsewered systems in fulfilling these roles dependent on proper usage as well as on the frequency and manner of service. The limited capacity of these units dictates that standards address these issues.

In February, 2021, a review of ANSI Z4.3-2015 Non-Sewered Waste Disposal Systems: Minimum Requirements and ANSI Z4.4-2015 Sanitation in Fields and Temporary Labor Camps: Minimum Requirements resulted in the identified need for significant revision of both standards in order to more clearly differentiate the minimum requirements for nonsewered waste systems, especially portable ones, in places of employment vis-à-vis in areas of public use. This updated standard is the result of these revisions and addresses the minimum requirements for nonsewered sanitation systems in settings that will be used by the general public rather than by workers. Furthermore, this standard specifies the minimum requirements for nonsewered equipment and waste disposal systems in use over extended time periods, in use over time with periods of concentrated use, and it also addresses general requirements for shorter term needs in public use areas.

This revised standard reflects requirements in light of the most up-to-date materials engineering. It also assumes the use of state-of-the-art deodorizing products and employment of procedures using commonly available cleaning equipment. The provisions in this standard are the result of extended and careful consideration of available knowledge and experience on the subject of nonsewered waste disposal systems and are intended to present minimum requirements recommended for use by

property owners, event planners and others. The provisions are also suitable for adoption by governmental administrative authorities.

Consensus for this standard was achieved by use of a canvass process. Suggestions for improvement of this standard are welcome. They should be sent to the Portable Sanitation Association International, 1601 Utica Ave S, Suite 213, Saint Paul, Minnesota, 55416, or to info@psai.org.

The PSAI adheres to all requirements of the American National Standards Institute (ANSI) as well as its own standards development procedures for ensuring that all parties with a direct and material interest have the right to participate in its development process. The following organizations are recognized as having an interest in the standardization of requirements for nonsewered waste disposal systems in non-workplace environments and for their participation as voting members of the consensus body leading to the approval of this standard. Inclusion in this list does not necessarily imply that the organization concurred with the final version of the proposed standard.

Consensus body list is to be placed here

Organization Represented

Name of Representative

1.

2.

3.

4.

5.

6.

7.

8.

9.

etc.

Standard for Sanitation – Nonsewered Waste Disposal Systems: Use by the General Public – Minimum Requirements

1. Scope and Purpose

1.1 Scope

This standard applies to portable nonsewered waste disposal systems for use by the general public at all locations, wherever such systems are not connected to a sanitary sewer, septic tank, or on-site sewage-disposal treatment facility. These systems are typically subject to all statutes that apply to public facilities. Most often, these systems are used by different people or groups of people over a period of time. Portable nonsewered waste disposal systems used by workers at places of employment are outside the scope of this standard. Minimum standards for these systems in places of employment are found in PSAI Z4.3-2024: Nonsewered Waste Disposal Systems at Places of Employment: Minimum Requirements.

1.2 Purpose

The purpose of this standard is to promote the health and safety of users and to protect the environment from untreated human waste wherever portable nonsewered waste disposal systems are present on sites that are accessible to the public. It is intended to guide users, their advocates, event planners, emergency personnel, and relevant government agencies in the provision and maintenance of these systems.

2. Referenced American National Standards

The following publications are referenced in this standard:

PSAI Z4.3-2024: Nonsewered Waste Disposal Systems at Places of Employment: Minimum Requirements

3. Definitions

ADA: The Americans with Disabilities Act of 1990.

ADA-compliant: A device that is compliant, when properly installed, with the current requirements of the Americans with Disability Act Standards for Accessible Design as legislated by the Americans with Disabilities Act of 1990.

Adequate power: A supply of energy of a type specified by the equipment manufacturer, delivered and used in a manner that conforms to the manufacturer's specifications for safely operating the equipment and complies with all relevant regulations for use of that type of power.

Adequate ventilation: Provided with a sufficient means to permit circulation of air sufficient to remove an excess of heat, fumes, or vapors.

Algae: As used in the standard, any simple, non-flowering aquatic plant that renders drinking water unsafe or unpleasant for human consumption.

Approved: Accepted or authorized by the authority having jurisdiction.

Bank: A grouping of portable toilets or hand wash stations set in physical proximity to one another but distant from other equipment.

Cabin: An enclosure either for a single user or subdivided for single user privacy, typically portable, that encloses one or more of the following: toilet(s), urinal(s), handwashing facility(ies), shower facility(ies), related facility(ies); wherein the user(s) may defecate, urinate, or maintain personal hygiene in a private manner.

Chlorine/bleach: A dilute solution of sodium hypochlorite useful for disinfecting or sterilizing equipment to prevent the growth of bacteria, algae, and viruses.

Cleanliness: The result of a process of cleaning to remove germs, dirt, and impurities from surfaces or objects by using soap or detergent and water; the process may or may not kill the germs but, at a minimum, reduces their numbers and the risk of spreading them through infection.

Communicable disease: Any illness spread directly or indirectly by an agent of infection through contact, airborne transmission, or droplets.

Concentrated use: Periods and/or locations of predictable peak demand. These can be seasonal, daily, or determined by event schedules.

Conservation: The preservation and protection of natural resources.

Consumable supplies: As used in the standard, the term refers to any products necessary for user hygiene including but not limited to toilet paper, soap, paper toweling, and the like.

Construction site: Any location where worker activities covered under the United States Department of Labor Occupational Safety and Health Administration (OSHA) standard 29 CFR 1926 occur.

Contracting party: A person or entity seeking the services of a provider of nonsewered waste disposal systems and who enters into a legal and binding agreement for those services.

Corrosion-resistant: The inherent ability of a metallic or non-metallic material to withstand corrosion damage caused by either oxidation or other chemical reactions.

Deodorizer/biological agent: Any substance, whether derived from chemical or organic sources, employed for the purpose of reducing or eliminating unpleasant odors.

Dignified and sanitary condition: The maintenance of the physical attributes of nonsewered sanitation equipment in a manner consistent with respect for user sensibilities and public health standards or requirements.

Dusk: The period of twilight after sunset but before complete darkness.

Fit for intended use: Capable of being deployed in a manner that is consistent with achieving the item's function or purpose.

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

Flushing portable toilet: A flushing toilet is one utilizing a water or non-water flushing fluid that may be deposited into a container or receptacle, or may be re-circulated by a closed system for flushing purposes housed in a portable structure.

Foot pump: A non-powered device typically using a spring, valve, hose, and suction to deliver fresh water to a tap by stepping on a pedal or similar object.

Freshwater: As used in the standard, water is considered fresh if it comes from a public source or private well, meets United States Geological Survey freshwater criteria by containing less than 1,000 milligrams per liter of dissolved solids, most often salt, and has not been used for any prior purpose that would add contaminants making it unsuitable for washing or bathing.

Gender: Either of the two sexes (male and female), considered with reference to social and cultural differences in addition to biological ones.

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

Handrails: A long, narrow bar of wood, metal, or other hard composite substance that people can hold on to for support, especially when going up or down stairs.

Hand sanitizer/hand sanitizing product: A liquid or gel, typically one containing alcohol, that is used to clean the hands and kill infection-causing microorganisms.

Hand wash facility: As used in the standard a piece of equipment, typically portable, with at least one spout providing water for the cleansing of human hands.

Impact resistant: A material's ability to withstand sudden or intense force or shock without being damaged or compromised.

Installed: To place or fix equipment in position and take all necessary action to ready it for use.

International Symbol of Accessibility (ISA): An internationally accepted symbol that denotes a place, facility, or piece of equipment is accessible for persons with special needs, especially wheelchair users. The symbol consists of a blue square with overlaid stick image of a person in a wheelchair.

Maintained: As used in the standard, to keep equipment in good working order and supplied with all necessities for dignified and sanitary conditions.

Nonabsorbent: A surface or coating that repels, resists or lacks the capacity to take in moisture.

Non-flushing toilet: A non-flush toilet is one wherein the waste is deposited directly into a container or receptacle without flushing, sometimes containing a solution of water and deodorizer. For purposes of this standard, non-flushing toilets are assumed to be portable.

Nonpotable water: Water that is not safe for drinking or cooking.

Nonsewered sanitation equipment: Any piece of equipment used for addressing the hygienic needs of human beings that is not connected to a sanitary sewer, septic tank, or on-site sewage disposal system.

Nonsewered waste disposal equipment/system: A piece of equipment used for collecting and disposing of human waste or a sanitary waste-disposal system for human waste that is not connected to a sanitary sewer, septic tank or on-site sewage disposal system.

On-site sewage disposal treatment facility: Any one of various multi-stage systems that collect, treat, and disperse wastewater generated by a home or business at its location rather than at a wastewater treatment plant located elsewhere.

Operated: Controlled the functioning of a piece of equipment to execute a task or achieve an objective.

Permanent: For the purpose of this standard, the term “permanent” means not readily or not easily re-locatable.

Place of employment: Any location where one or more workers are present as a condition of their employment.

Portable: For the purpose of this standard, the term “portable” means readily or easily re-locatable.

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

Ramp: A walking surface that has a running slope steeper than 1:20.

Readily accessible: Capable of being reached quickly for use, service, or inspections, without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, chairs, etc.

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 nonpotable and unsafe for consumption, therefore encouraging conservation of potable water.

Safety data sheet (SDS): Documentation required by Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), revised in 2012, and supplied by the chemical manufacturer, distributor, or importer, which covers the properties of each chemical; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical, in a 16-section format.

Sanitary condition: Within the meaning of this standard, a physical condition which will tend to lower the risk of spreading infection and disease.

Sanitary sewer: A system that collects and transports domestic, commercial, and industrial wastewater and limited amounts of stormwater and infiltrated groundwater to treatment facilities for appropriate treatment.

Sanitize: A cleaning and/or disinfecting process that lowers the number of germs on surfaces or objects to a safe level, as judged by public health standards or requirements in order to lower the risk of spreading infection.

Septic tank: An underground tank to collect waste from homes that is not connected to a municipal sewer system.

Service—hand wash facility: For purposes of the standard, service of a hand wash facility includes greywater removal, trash and debris removal, cleaning and sanitizing interior and exterior surfaces, restocking supplies, inspecting and repairing equipment as needed, and updating on-site records.

Service—toilet: For purposes of the standard, service of a toilet includes wastewater removal, greywater removal, trash and debris removal, refilling any freshwater tank associated with the toilet, recharging the waste tank with water, deodorizer/biological agents, and seasonal additives if required to prevent freezing, cleaning and sanitizing interior and exterior surfaces, restocking supplies, inspecting and repairing equipment as needed, and updating on-site service records.

Service—trailer facility: For purposes of the standard, service of a trailer facility includes wastewater removal, grey water removal, trash and debris removal, refilling freshwater tanks, recharging waste tanks with additives including deodorizer/biological agents and seasonal additives if required to prevent freezing, cleaning and sanitizing the interior and exterior surfaces, restocking supplies, inspecting and repairing equipment as needed, and updating on-site records.

Stair: A series of steps or flights of steps for passing from one level to another.

Stair nosings: The edge of a step or stair tread that projects beyond the riser and usually adds a rounded edge to the stair.

Subcontractor: A person or entity that has been awarded the performance of part of the work or services of an existing contract between the general contractor and the (original) contracting party.

Sufficient access: Capable of being reached quickly and in a manner that allows inspection, operating, servicing, and/or repair by service vehicles and personnel without requiring those to whom sufficient access is requisite to climb over, remove obstacles, or experience delays while waiting for others to assist with accessibility.

Toilet: A series of fixtures maintained within a cabin for the purpose of defecation, urination, or maintaining personal hygiene.

Trailer facility (nonsewered): A prefabricated structure, built on a permanently attached chassis and intended for transport over public highways, which contains the necessary equipment for one or more hygienic services such as toilets, hand washing facilities, laundry facilities, showers, and the like; trailers used for transporting portable nonsewered equipment that is routinely removed from the trailer to stand alone is excluded from this definition.

Urinal: A fixture, either freestanding or maintained within a cabin, for the sole purpose of urination.

Waste container/tank: A container for storing grey water or wastewater.

Wastewater: Used water that includes substances such as human waste, food scraps, oils, soaps, and chemicals.

Watertight: So constructed that moisture will not enter or exit the enclosure.

Worker: Any person, including any regular employee, part-time employee, temporary laborer/day laborer, or volunteer present on a worksite and engaged in activities assigned by others.

4 Provision of Nonsewered Waste Disposal Systems for Use by the General Public: General Guidance

4.1 Overview

In places where nonsewered waste disposal systems are placed for use by the general public, a minimum of one toilet and one hand wash facility or one hand sanitizing product station is required, and service must occur no less than once per week. Additional toilets and hand wash facilities shall be provided according to Tables 1A, 2A, 1B, and 2B, whichever most closely applies to the circumstances.

Whenever a public use area is expected to see a higher concentration of use, additional equipment or service is required to maintain cleanliness and sanitary conditions as defined in this standard.

4.2 Servicing and Maintenance Requirements

The minimum established service interval for standard non-flushing portable nonsewered toilets is once every 200 uses or once per week, whichever interval is met first. Flushing or recirculating portable nonsewered toilets require a minimum service interval of no less than two times per week or every 160 uses. Under any circumstance, nonsewered toilet tanks are considered full when accumulated waste and prefill reach one third of total capacity, and the units must receive service to meet the requirements of safe and sanitary conditions for use at that time.

In public areas where concentrated use is expected, the provision of nonsewered sanitation equipment shall be determined by the maximum number of people estimated to be present within the duration of the event as stated in Section 4.5.1.

Wherever possible, units placed at special events attended by the public should be scheduled for service during hours when the event is not in progress to minimize potential safety risks that may exist if event attendees are present. If service must occur when the public is present, safety measures designed to protect attendees from dangers posed by service vehicle movement and hazards posed by the presence of service equipment must be put in place.

If for any reason the quantities of equipment required by Tables 1A, 2A, 1B, and 2B, are not present to accommodate the highest expected use, additional servicing of that equipment must occur to prevent waste accumulating above one-third of total tank capacity which will result in unsanitary conditions.

All nonsewered waste disposal equipment placed for use by the public must have a service plan.

4.3 Provision of Toilet and Hand Washing Facilities

Nonsewered toilet and hand washing equipment shall be installed, maintained, and operated in a manner that will protect the health and safety of any person using that equipment.

4.3.1 To maintain dignified and sanitary conditions while avoiding overuse in areas serving the general public, service must be consistent with the requirements set forth in Section 4.2 of this standard, and in no case should service occur less than one time per week.

4.3.2 Nonsewered toilet and hand washing facilities shall be located so as to be readily accessible to the public users for whom they are furnished.

4.3.3 Equipment in excess of the requirements described in Section 4.4 Tables 1A, 2A, 1B, and 2B. must be provided if necessary to ensure toilet and handwash facilities are readily accessible to people in public use areas.

4.3.4 Contracting parties who do not provide nonsewered equipment at the levels shown in Tables 1A, 2A, 1B, and 2B must be able to demonstrate how they will meet the minimum requirements for accessibility and cleanliness in a manner that complies with this standard.

4.3.5 ADA-compliant equipment must be supplied consistent with the requirements set forth by Section 4.3.3 of this standard and in numbers required by the Americans with Disabilities Act as explained in section 4.5.3 of this standard.

4.3.6 All nonsewered sanitation equipment shall be installed so that after dusk there is a form of light available to ensure safe user access and to deter vandalism. Lighting may be natural or artificial but must be sufficient for users to conduct toileting and washing activities in conditions that allow visual cues without carrying another form of light.

4.3.7 During cold weather hand washing facilities must be made available. This may be done by providing hand wash facilities in which water is prevented from freezing or with an alcohol-based hand sanitizing product and dispenser. Contracting parties must ensure the hand washing solution they provide conforms with federal, state, and local requirements.

4.3.8 Toilets, with separate fixtures for each gender, shall be provided in public use areas, whether indoors, outdoors, or underground, except when cabins will be occupied by no more than one person at a time, can be latched from the inside, and contain at least one toilet. When these conditions are all met, separate toilet cabins for each gender need not be provided.

4.3.9 Nonsewered sanitation equipment containing waste shall never be moved on a public roadway. When units containing waste are moved within a private site, care must be taken to prevent spills and leakage. If spills or leakage occur, actions must be taken to restore the site of the discharge to a condition that is equal to or better than the conditions that existed before the discharge occurred.

4.3.10 In any situation where additional or more stringent sanitation requirements apply than those found within this standard, the additional and/or more stringent requirements shall be met.

4.4 Minimum Number of Toilets and Handwash Stations

Table 1A: Minimum number of toilets (No Alcohol Being Served)

Estimated Number of Attendees	Duration of the Event (hours)									
	1	2	3	4	5	6	7	8	9	10
10 or fewer	1	1	1	1	1	1	1	1	1	1
50	2	2	2	2	2	2	2	2	3	3
100	3	3	3	3	3	3	3	3	4	4
250	4	4	4	4	4	4	4	4	5	5
500	7	7	7	7	7	8	8	8	9	9
1,000	11	11	11	12	12	12	12	12	15	15
2,000	17	17	17	18	18	20	20	20	24	24
3,000	28	28	28	30	30	32	32	32	39	39
4,000	36	36	36	39	39	41	41	41	51	51
5,000	45	45	45	48	48	51	51	51	63	63
10,000	89	89	89	95	95	101	101	101	126	126
15,000	133	133	133	142	142	152	152	152	189	189
20,000	177	177	177	189	189	202	202	202	252	252
25,000	221	221	221	237	237	252	252	252	315	315
30,000	265	265	265	284	284	303	303	303	378	378
35,000	309	309	309	331	331	353	353	353	441	441
40,000	353	353	353	378	378	404	404	404	504	504
45,000	397	397	397	426	426	454	454	454	567	567
50,000	441	441	441	473	473	504	504	504	630	630
55,000	486	486	486	520	520	555	555	555	693	693
60,000	530	530	530	567	567	605	605	605	756	756
65,000	574	574	574	615	615	656	656	656	819	819
70,000	618	618	618	662	662	706	706	706	882	882
75,000	662	662	662	709	709	756	756	756	945	945
80,000	706	706	706	756	756	807	807	807	1008	1008
85,000	750	750	750	804	804	857	857	857	1071	1071
90,000	794	794	794	851	851	908	908	908	1134	1134
95,000	838	838	838	898	898	958	958	958	1197	1197
100,000	882	882	882	945	945	1008	1008	1008	1260	1260

Table 1B: Minimum number of toilets (Alcohol Being Served)

Estimated Number of Attendees	Duration of Event (hours)									
	1	2	3	4	5	6	7	8	9	10
10 or fewer	1	1	1	1	1	1	1	1	1	1
50	3	3	3	3	3	3	3	3	4	4
100	4	4	4	5	5	5	5	6	6	6
250	8	8	8	9	9	10	10	10	12	12
500	17	17	17	18	18	20	20	20	24	24
1,000	22	22	22	24	24	25	25	25	31	31
2,000	30	30	30	32	32	34	34	34	42	42
3,000	37	37	37	39	39	42	42	42	52	52
4,000	47	47	47	51	51	54	54	54	67	67
5,000	58	58	58	62	62	66	66	66	82	82
10,000	115	115	115	123	123	132	132	132	164	164
15,000	173	173	173	185	185	197	197	197	246	246
20,000	230	230	230	246	246	263	263	263	328	328
25,000	287	287	287	308	308	328	328	328	410	410
30,000	345	345	345	369	369	394	394	394	492	492
35,000	402	402	402	431	431	460	460	460	574	574
40,000	460	460	460	492	492	525	525	525	656	656
45,000	517	517	517	554	554	591	591	591	738	738
50,000	574	574	574	615	615	656	656	656	820	820
55,000	632	632	632	677	677	722	722	722	902	902
60,000	689	689	689	738	738	788	788	788	984	984
65,000	747	747	747	800	800	853	853	853	1066	1066
70,000	804	804	804	861	861	919	919	919	1148	1148
75,000	861	861	861	923	923	984	984	984	1230	1230
80,000	919	919	919	984	984	1050	1050	1050	1312	1312
85,000	976	976	976	1046	1046	1116	1116	1116	1394	1394
90,000	1034	1034	1034	1107	1107	1181	1181	1181	1476	1476
95,000	1091	1091	1091	1169	1169	1247	1247	1247	1558	1558
100,000	1148	1148	1148	1230	1230	1312	1312	1312	1640	1640

Table 2A: Minimum number of Hand Wash facilities (No Alcohol Being Served)

Estimated Number of Attendees	Duration of Event (hours)									
	1	2	3	4	5	6	7	8	9	10
10 or fewer	1	1	1	1	1	1	1	1	1	1
50	1	1	1	1	1	1	1	1	1	1
100	2	2	2	2	2	2	2	2	2	2
250	2	2	2	2	3	3	3	3	3	3
500	3	3	3	3	3	4	4	4	4	4
1,000	6	6	6	6	6	7	7	7	8	8
2,000	9	9	9	9	9	10	10	10	12	12
3,000	14	14	14	15	15	16	16	16	20	20
4,000	19	19	19	21	21	22	22	22	27	27
5,000	24	24	24	26	26	28	28	28	34	34
10,000	48	48	48	51	51	55	55	55	68	68
15,000	72	72	72	77	77	82	82	82	102	102
20,000	96	96	96	102	102	109	109	109	136	136
25,000	119	119	119	128	128	136	136	136	170	170
30,000	143	143	143	153	153	164	164	164	204	204
35,000	167	167	167	179	179	191	191	191	238	238
40,000	191	191	191	204	204	218	218	218	272	272
45,000	215	215	215	230	230	245	245	245	306	306
50,000	238	238	238	255	255	272	272	272	340	340
55,000	262	262	262	281	281	300	300	300	374	374
60,000	286	286	286	306	306	327	327	327	408	408
65,000	310	310	310	332	332	354	354	354	442	442
70,000	334	334	334	357	357	381	381	381	476	476
75,000	357	357	357	383	383	408	408	408	510	510
80,000	381	381	381	408	408	436	436	436	544	544
85,000	405	405	405	434	434	463	463	463	578	578
90,000	429	429	429	459	459	490	490	490	612	612
95,000	453	453	453	485	485	517	517	517	646	646
100,000	476	476	476	510	510	544	544	544	680	680

Table 2B: Minimum number of Hand Wash facilities (Alcohol Being Served)

Estimated Number of Attendees	Duration of Event (hours)									
	1	2	3	4	5	6	7	8	9	10
10 or fewer	1	1	1	1	1	1	1	1	1	1
50	1	1	1	1	1	1	1	1	1	1
100	2	2	2	2	2	2	2	2	2	2
250	2	2	2	2	3	3	3	3	3	3
500	3	3	3	3	3	4	4	4	4	4
1,000	6	6	6	6	6	7	7	7	8	8
2,000	10	10	10	11	11	12	12	12	14	14
3,000	20	20	20	21	21	23	23	23	28	28
4,000	24	24	24	26	26	28	28	28	34	34
5,000	28	28	28	30	30	32	32	32	40	40
10,000	56	56	56	60	60	64	64	64	80	80
15,000	84	84	84	90	90	96	96	96	120	120
20,000	112	112	112	120	120	128	128	128	160	160
25,000	140	140	140	150	150	160	160	160	200	200
30,000	168	168	168	180	180	192	192	192	240	240
35,000	196	196	196	210	210	224	224	224	280	280
40,000	224	224	224	240	240	256	256	256	320	320
45,000	252	252	252	270	270	288	288	288	360	360
50,000	280	280	280	300	300	320	320	320	400	400
55,000	308	308	308	330	330	352	352	352	440	440
60,000	336	336	336	360	360	384	384	384	480	480
65,000	364	364	364	390	390	416	416	416	520	520
70,000	392	392	392	420	420	448	448	448	560	560
75,000	420	420	420	450	450	480	480	480	600	600
80,000	448	448	448	480	480	512	512	512	640	640
85,000	476	476	476	510	510	544	544	544	680	680
90,000	504	504	504	540	540	576	576	576	720	720
95,000	532	532	532	570	570	608	608	608	760	760
100,000	560	560	560	600	600	640	640	640	800	800

4.5 Conditions for Reasonable Use

4.5.1 Circumstances with concentrated use periods

Some areas serving the general public experience irregular rates of use, with concentrated or peak usage that can be anticipated. Examples include boat ramps, public parks, and beaches

where higher use can be predicted during weekends and in the summer. A surge in demand by event participants can be anticipated in instances such as the start of a race or the completion of a music act or fireworks display. At large outdoor events, concentrated use may occur at the entryways and exits of the event, by the parking facilities, and near the sale of consumables.

In public use areas where concentrated use is expected, the provision and maintenance of nonsewered toilet and handwash facilities should be determined by the maximum number of people estimated to be present during those concentrated use periods.

If there are multiple areas for use by the general public, each area should be provided with sufficient nonsewered toilet and handwash facilities to accommodate the peak attendance in that area. This is likely to increase the overall minimum number of units recommended in Section 4.4 Tables 1A, 1B, 2A, and 2B.

Scenarios:

The following scenarios have been developed to illustrate various cases regarding the provision of toilet and handwashing facilities for circumstances of concentrated use. Each scenario addresses unique circumstances that may arise, offering guidance on how to ensure adequate sanitation in diverse settings. By reviewing these scenarios, stakeholders can better understand the practical application of the standards outlined in this section, fostering a comprehensive approach to portable sanitation that prioritizes hygiene and accessibility for all individuals. The scenarios are provided for demonstration purposes only; they are not part of PSAl Z4.4-2024. Note that readily accessible ADA-compliant equipment must be provided in the ratios described in section 4.5.3 in all scenarios.

Scenario A — Beach Parking Area

Scenario A—Beach Parking Area: A beach parking area is likely to see high demand during months of warmer weather, on weekends, and especially during seasonal peaks and holiday weekends. Assuming sewered restrooms are also available, nonsewered portable sanitation equipment might be required to support the predictable demand surges during summer and weekend peaks.

If daily surge use in August is typically 300 to 400 people for about four hours Monday through Friday, Saturday and Sunday surge uses may top 1200 per day. Under these conditions, nonsewered facilities to accommodate 4400 visitors for four hours, between services, should be planned for.

Twice per week service would cut the required number of nonsewered toilets and hand wash facilities in half in this scenario, and such an arrangement may be advisable in areas of high heat. However, using fewer units and adding service is only an acceptable solution if one of the services took place Saturday evening or Sunday morning since the highest period of use is 2400 people over 48 hours and tank capacity will be reached quickly during those days.

Scenario B — Day Hiking Trail Head / Boat Ramp

Typically these areas are designed for a particular number of vehicles and provided with an adequate trash disposal schedule. Necessary quantities of non sewerer sanitation equipment should be calculated to meet the needs of the maximum number of people anticipated to park at these locations between scheduled services for non sewerer sanitation equipment even though the facilities typically only receive concentrated use at the start and end of each day.

Scenario C — Campground

Scenario C1—Holiday Weekends: Since families and groups are more likely to camp on holiday weekends and in locations where the campground has multiple facilities open to the general public (beaches, hiking trails, zip-lines, boat launching, playing fields, etc.), nonsewered sanitation equipment will need require increases in the equipment provided or in the service frequency during known holidays or special events.

Scenario C2—Seasonal Fluctuations: A campground open all year around will have seasonal changes in usage.

In the South, a campground might see concentrated use in the months of January through May, while a campground in the North might experience concentrated use in the weeks beginning with Memorial Day and ending around Labor Day. The availability of nonsewered facilities during these times will need to be calculated to meet numbers expected during concentrated use periods. This may require additional temporary nonsewered sanitary equipment or increased service. If weekend use is greater than weekday use during the peak season, then capacity should be determined based on weekend visitation and demand.

Scenario D — Multi-Weekend Fair

Fairs often happen annually and for a defined period. They may be weekend only-events or daily events with a variety of activities held each day. Plans for nonsewered sanitation equipment must be scaled to account for peak attendance at scheduled activities.

The number of nonsewered sanitation equipment units must be increased to accommodate large crowds for limited periods of time (the three hours of a headlining performer or a fireworks display) with sufficient equipment located so that it is readily accessible to the area of the major activity.

Scenario E—Multi-Day Music Festival with Multiple Stages

A common scenario is a three-day music festival with camping with anticipated attendance of 15,000 people. Usually, campers are allowed to arrive early and leave late from these events.

Planning for an event like this should include sufficient numbers of nonsewered sanitation equipment units and a schedule to provide service for 15,000 guests over five days beginning the day before the music starts and running through the morning after music ends.

Nonsewered sanitation equipment sufficient for 15,000 people must be planned in both the campground areas and at the music venue. The music venue will usually include a main stage and two smaller stages, an immersive arts area, food trucks, and other vendors.

While a campground can assume use will be spread evenly over the areas made available for the total number, this is not the same experience the music venue area will have. The large main stage may see limited use during the day with concentrated use during headliner performances each evening. Therefore, the main stage may accommodate 80 to 100% of the anticipated crowd for six to seven hours per day. The smaller stages may accommodate 50 to 60% of the anticipated crowd for an equal number of hours per day. Additionally, the immersive arts area, food and craft vendors, day parking and exits must support guest needs.

In total, to accommodate for concentrated use surges requires planning for nonsewered sanitation facilities to support closer to 28,000 in the venue. Failure to do so will lead to longer lines and unsanitary conditions for the final five to six hours of scheduled events in the venue.

4.5.2 Provision of consumable support products between services

It shall be the responsibility of the contracting party to ensure that adequate quantities of toilet and hand washing facilities are provided, and that all facilities and fixtures are maintained in a dignified and sanitary condition between services including periodic cleaning and wipe downs of surfaces inside toilet cabins and on the outside of hand wash facilities, as well as replenishment of consumable supplies required by users. When nonsewered equipment requires servicing, the responsibility lies with the contracting party to ensure servicing occurs in a timely manner to maintain dignified and sanitary conditions, thereby preventing the stated capacity of those facilities from being exceeded. The contracting party shall also ensure that anyone providing service to the nonsewered toilet and hand washing facilities has ready and sufficient access to the necessary supplies and equipment to provide proper servicing.

4.5.3 Compliance with the Americans with Disabilities Act

ADA equipment must be supplied in ratios consistent with the ADA if it will be used by the general public protected under the ADA. At a minimum, ADA-compliant equipment must be provided at every site or event as follows: (1) at least one ADA-compliant unit must be on any site or present at any event serving the general public, (2) no fewer than one ADA-compliant unit must be present in each group or bank of units, and (3) no less than a 1:20 ratio of ADA-compliant units to standard units overall must be present, and a lower ratio must be present if required by local or state requirements, and (4) ADA-compliant equipment shall always be at least as readily accessible as all other equipment.

4.5.4 Adjusting Ratios When Specialty Equipment Is Used

Specialty equipment may include all variants of flushing nonsewered toilets, including both freestanding units and those located within portable restroom trailers, as well as freestanding urinals.

Where single-occupancy nonsewered toilets are equipped with more than one type of fixture, only one toilet shall be counted. Where multiple-occupancy cabins are equipped with numerous fixtures (urinals/toilets), Each fixture within the cabin will be counted.

Minimum service requirements for some specialty equipment may differ from the requirements for standard nonsewered equipment. Refer to Section 4.2 of this standard for specific information.

For service requirements pertaining to nonsewered sanitation trailer facility requirements, refer to Section 5.4 of this standard.

4.5.5 Adjusting for the Presence of Workers

When workers will be present at a site used by the general public, provisions must be made to accommodate both populations. Reference PSAI Z4.3-2024 for the minimum requirements for nonsewered waste disposal systems at places of employment.

If the provision of nonsewered waste disposal systems for public use also meets the minimum requirements set forth by PSAI Z4.3-2024, then no further accommodations are needed except for select worker types as described below.

4.4.5.1 Food handlers and workers in medical stations on sites serving the general public must have access to toilet and handwash facilities that meet the requirements of PSAI Z4.3-2024. These facilities should be separate from the nonsewered facilities provided for public use.

Hand washing stations shall meet the requirements defined in Section 5.3 of this standard, and, where possible, hot water should be made available. Soap and disposable hand towels or air-drying units should be provided in the hand washing area. An appropriate detergent and sanitizer should be used to clean all sinks adequately.

5. Minimum Specifications for Equipment

5.1 General equipment requirements

5.1.1 Waste containers and tanks used in all nonsewered equipment shall be fabricated from nonabsorbent, watertight materials.

5.1.2 Deodorizers or biological agents, if used in the waste containers, must comply with all applicable federal, state, and local provisions. At the time of each service, the waste container

shall be completely drained, then recharged with clean water and one or more deodorizing agents before use. Safety data sheets for all such chemicals shall be made available to users upon request.

5.1.3 All materials used in the construction of nonsewered waste disposal systems that are in contact with waste, deodorizers, grey water, or that are routinely subjected to wet conditions, shall be nonabsorbent and corrosion-resistant.

5.1.4 All exterior materials used in the construction of nonsewered waste disposal systems which are intended to be portable shall be impact resistant.

5.1.5 All nonsewered portable equipment must be situated on clear and flat terrain allowing safe ingress/egress from the unit without proximity to traffic and other hazards that would pose a risk to users. Equipment should be secured according to the manufacturer's instructions when required.

5.1.5.1 At the time of equipment placement, the site should be evaluated and measures should be taken to prevent tripping by users when entering or exiting enclosed units.

5.1.5.2 Adequate measures should be taken to stabilize equipment and deter tip-over in high-wind situations. Suppliers of equipment shall provide information to customers regarding appropriate techniques for securing the equipment onsite.

5.1.6 All equipment intended to meet requirements for ADA-compliance must be manufactured and supplied in accordance with the most current requirements of the Americans with Disability Act Accessibility Guidelines (ADAAG). Every effort must be made to provide the same opportunity and user experience for any individual with a disability as that provided for an able-bodied person. Only equipment meeting the specifications of the ADA shall bear the International Symbol of Accessibility (ISA).

5.2 *Portable nonsewered toilet requirements*

5.2.1 Structures housing portable toilets may be mobile trailers or prefabricated, skid-mounted, or otherwise portable units. If the structure contains more than one toilet fixture, each fixture shall occupy a separate compartment with a door and walls or partitions between the fixtures to assure privacy. Toilet cabins intended for use by males may be equipped with urinals. Urinals do not need to occupy separate compartments.

5.2.2 The interior floors, walls, ceilings, partitions, and doors of all portable structures shall have a finished surface of solid material that can be easily sanitized. Toilet units shall be enclosed and not transparent from the outside to ensure privacy for the user.

5.2.3 Every portable toilet shall provide adequate space for the user with minimum inside dimensions of 91 cm (3 ft) front-to-back and side-to-side, inside clear height of 1.98 m (6 ft 6 in), and a toilet fixture riser height of 35 to 51 cm (14 to 20 in).

5.2.4 The door housing a single toilet shall be provided with an inside latch. Any door leading to the outside shall be self-closing.

5.2.5 If the toilet cabin contains a tank in which waste is stored, that tank shall be vented to the outside of the structure with a minimum nominal vent area of 45 cm² (7 in²).

5.2.6 Portable toilets shall be provided with a screened ventilation opening having a cross-sectional area of at least 0.09 m² (1 ft²) per fixture.

5.2.7 In flushing portable toilets, waste passages shall have smooth surfaces and shall be free of obstructions, recesses, or chambers that would allow fouling to occur. Flushing shall be accomplished by using clearly identifiable controls operable without special knowledge. The unit must have a sufficient flow to carry waste into the container.

5.2.8 Toilet units which do not use liquid must employ a mechanism to remove all waste from the bowl and isolate it from the user. Removal of waste from the bowl shall be accomplished by clearly identifiable controls operable without special knowledge. The removal mechanism must ensure the bowl is clean between uses. Waste passages shall have smooth surfaces and shall be free of obstructions, recesses or chambers that would allow fouling to occur.

5.2.9 Toilet paper with a holder fixture shall be provided for every toilet fixture. Toilet paper shall be available for users at all times. The contracting party shall ensure an adequate supply of toilet paper is available at all times including between scheduled services and shall see that it is replenished in the toilet cabins promptly.

5.2.10 Every toilet shall have a seat made of substantial material having a nonabsorbent finish; this does not preclude a seat molded into the fixture.

5.2.11 Every toilet seat that is not molded into the fixture shall be provided with a hinged lid.

5.3 Hand wash facility requirements

5.3.1 Each hand wash facility must have at least one spout, and it must provide access to soap for the cleaning of hands. If the unit has more than one spout, each spout constitutes a hand wash facility as required in Table 2A or Table 2B depending on the presence of alcohol.

5.3.2 Water supplied for hand wash facilities must be potable when transferred to the freshwater compartment of the service vehicle. At the moment of transfer, the water becomes nonpotable and unsafe for consumption.

5.3.3 All facilities supplying water intended for hand washing must be labeled and clearly identified as nonpotable and unsafe for consumption or with an equivalent warning not to drink the water.

5.3.4 Freshwater and wastewater passages shall have smooth surfaces and shall be free of obstructions, recesses, or chambers that would allow fouling or algae build up to occur.

5.3.5 At each time of service, the greywater container shall be completely drained. The equipment exterior including all fixtures shall be sanitized, and the freshwater container shall be recharged with water that was potable prior to being transferred to the service truck. All necessary items including hand soap and paper towels must be restocked in order for the unit to be considered fully functional.

5.3.6 At the time of service, freshwater and chlorine or bleach treatment should be added as necessary to the freshwater tank to prevent stagnation and algae buildup.

5.3.7 Hand wash facilities shall be equipped with their own grey water tank and a foot pump or hands-free system to deter the transmission of communicable diseases.

5.3.8 Hand wash facilities which supply alcohol-based sanitizer may only be used in lieu of hand wash units when applicable federal, state, or local regulations allow the substitution or when cold weather conditions render the use of water-based hand washing units impossible.

5.4 Nonsewered sanitation trailer facility requirements

5.4.1 Types of manufactured portable sanitation trailers covered by this standard include enclosed portable restrooms, decontamination units, locker compartments, shower facilities or combination units, and laundry equipment among others.

5.4.2 Nonsewered sanitation trailers must meet applicable Federal Motor Carrier Safety Administration regulations for transport on public highways. They must be prepared for transport according to manufacturer requirements and must never be entered onto a roadway if they fail to meet any condition for roadworthiness defined in applicable federal, state, and local statutes.

5.4.3 When trailers are not situated for use at ground level, stairs or ramps, as well as handrails, must be provided.

5.4.3.1 When stairs are provided, the rise of each step shall be no more than 20 cm (8 in), and the first step off the ground should be equivalent to the rise of the other steps.

5.4.3.2 The surface of the steps and ramps should either be made of non-slip materials or non-slip materials should be added to the surface. The means for water drainage on the steps and ramps should not create a tripping hazard.

- 5.4.3.3 When trailers are not intended to be ADA-compliant, handrails are required on at least one side of stairs and ramps. The top of gripping surfaces of handrails shall be 34 inches (865 mm) minimum and 965 mm (38 in) maximum vertically above the walking surfaces, stair nosings, and ramp surfaces. Handrails shall be at a consistent height above walking surfaces, stair nosings, and ramp surfaces. Clearance between handrail gripping surfaces and adjacent surfaces shall be 38 mm (1½ in) minimum.
- 5.4.3.4 When trailer stalls are intended to be ADA-compliant, or when they display the international symbol of accessibility (ISA), ramps and handrails must conform to the specifications and requirements listed in the 2010 ADA Standards for Accessible Design that apply to Titles II and III Facilities and any later applicable federal standard(s).
- 5.4.5 The user cabins and wastewater holding tanks on trailers must be adequately ventilated. Additional ventilation is required when the activities occurring within the trailer produce heat or steam that could be hazardous to users or promote the growth of mold.
- 5.4.6 Adequate power is required for the operation of trailers. The power must be delivered from an approved source in a manner that is consistent with National Fire Protection Association (NFPA) Code 1192 and any additional manufacturer specifications.
- 5.4.7 Water supplied to trailers must be fit for its intended use or of better quality, regardless of the source.
- 5.4.7.1 Water for hand washing or bathing must either be potable at the source or have been potable before transfer to the freshwater tank on the trailer.
- 5.4.7.2 All facilities supplying water intended for hand washing must be labeled and clearly identified as nonpotable and not for consumption or with an equivalent pictorial warning not to drink the water.
- 5.4.7.3 Freshwater tanks should be emptied and flushed no less than once every 30 days when stationary on a site and any time the trailer is moved to a different site.
- 5.4.8 Wastewater must be handled in a manner that minimizes risk to public health and the natural environment.
- 5.4.8.1 Trailers must be placed in a manner that provides accessibility for service vehicles and personnel to safely remove wastewater.
- 5.4.8.2 All tanks must be fully drained prior to relocation of a trailer.
- 5.4.8.3 When water requirements during trailer use exceed freshwater capacity, ancillary freshwater and wastewater tanks may be supplied to supplement the onboard

tanks, provided this is allowed by local law and the manner of doing so minimizes any danger of leakage or spills.

6 Provision of Nonsewered Equipment and Waste Disposal Systems Over Extended Time Periods: Special Requirements

6.1 Overview

Some circumstances require unique service considerations. These include but are not limited to public parks, campgrounds, emergency relief areas, homeless encampments, and other public use areas accessible throughout extended time periods. These settings may be subject to inconsistent use patterns or use that peaks during special events or other short-term use circumstances.

In all circumstances, the ADA requirements outlined in Section 4.5.3 must be met. Handwash facilities or hand sanitizer must be provided in accordance with Section 5.3 unless deemed infeasible due to safety hazards or an inability to access the units for servicing and maintenance.

6.1.1 In instances where permanent sewer or nonsewered sanitation facilities are provided in a public use area, special consideration must be given to periods where usage may exceed the intended capacity of those systems. In such instances, refer to Section 4.3.1.

6.2 Parks and Other Settings with Extended but Limited Use

Use areas with extended but typically limited use include public parks and other community-owned spaces where the public accesses the facilities as part of their incidental presence at the site. This can create uneven use patterns which are relatively consistent most of the time with peaks under particular circumstances such as a sports tournament or concert on that site.

In these instances, the provision of toilet and handwash facilities must be sufficient to accommodate peak anticipated usage. Servicing and maintenance of toilet and handwash facilities in such areas must take place a minimum of once per week. In instances when the public use areas are used for short-term events where use of nonsewered equipment is anticipated to exceed typical use patterns, the provision of toilets and handwash facilities as well as servicing and maintenance must be adjusted to meet the requirements set forth by Sections 4 and 6.3 of this standard.

6.3 Multi-Day Time-Limited Use Settings

Special consideration must be given to public use areas that are available for continuous twenty-four-hour periods. Examples of such areas include campgrounds, arts or festival events that include camping, emergency relief areas, ongoing public protests, and celebrations where early arrivals can be anticipated. Additional nonsewered toilets, servicing, and maintenance may be required in such circumstances. See the requirements of Section 4.5.1 and review Scenario E on page 17. Use patterns and demographics of users should be evaluated on a regular basis to insure continued sanitary conditions, especially when an end date of the multi-day use setting is not certain.

6.3.1 Servicing and maintenance should be scheduled outside of peak usage and at times that do not interfere with sleep. Toilets should be at least 50 feet away from food preparation and vending areas but readily accessible in areas where people sleep with placement not to exceed 200 feet on average from any camping location.

7 Disposal of Wastewater

7.1 Persons or entities contracting for the placement and use of nonsewered waste disposal systems must ensure the collection and disposal of wastewater from nonsewered sanitation systems used on their sites conforms to all applicable federal, state, and local laws and occurs in accordance with procedures mandated by the authorities having jurisdiction.

7.2 Persons or entities contracting for the placement and use of nonsewered waste disposal systems must ensure vendors supplying nonsewered sanitation solutions for their sites meet all federal, state, and local standards, licensing, and permitting requirements for collecting, transporting, and disposing of liquid waste.

7.3 Every effort must be made to minimize any potential threat to the environment by following safety procedures and policies for accidental spills set forth by local authorities.

8 Revisions to Laws and Standards Referenced in this Document

When a law or standard referenced in this document is superseded by a revision approved by the American National Standards Institute, Inc., a similar standards body, or a government agency having jurisdiction, the most current approved revision shall apply.