

State of California, Department of Industrial Relations  
**Division of Occupational Safety and Health**  
**Memorandum**

**To:** Marley Hart, Executive Officer  
Occupational Safety and Health Standards Board  
2520 Venture Oaks Way, Suite 350  
Sacramento, CA 95833

**Date:** March 22, 2016

**From:** Juliann Sum, Chief  
Division of Occupational Safety and Health

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**OCCUPATIONAL SAFETY AND HEALTH  
STANDARDS BOARD**

**Subject:** Evaluation Report, Petition No. 554  
Miguel Bazan

**INTRODUCTION AND BACKGROUND**

This letter is written in response to Petition No. 554, which was received by the Division of Occupational Safety and Health (Cal/OSHA) on January 27, 2016. The petition was submitted by Mr. Miguel Bazan, who requested an amendment to the California Code of Regulations, Title 8, Construction Safety Orders.

The petitioner is a product developer with 35 years of experience in the construction industry and has developed solar-powered exhaust fans for portable toilets, which fit into existing four-inch vents on top of portable toilets.

**ACTIONS REQUESTED BY THE PETITIONER**

The petitioner proposes to add a new Title 8 regulation to require the use of a solar-powered exhaust fan that can be affixed to the ventilation pipe of portable toilets at construction sites. The petitioner states that the solar-powered exhaust fan will exhaust foul odors, harmful contaminants, and excessive heat from portable toilet units and introduce fresh air through the existing vents on the side of the units to provide a safer and more comfortable environment for users.

**APPLICABLE STANDARDS**

California Code of Regulations, Title 8 section 1526 specifies requirements for toilets at construction jobsites:

*1526. Toilets at Construction Jobsites*

*(a) A minimum of one separate toilet facility shall be provided for each 20 employees or fraction thereof of each sex. Such facilities may include both toilets and urinals provided that the number of toilets shall not be less than one half of the minimum required number of facilities.*

*EXCEPTION: Where there are less than 5 employees, separate toilet facilities for each sex are not required provided the toilet facilities can be locked from the inside and contain at least one toilet.*

*(b) Under temporary field conditions, not less than one toilet shall be available.*

*(c) Where the provision of water closets is not feasible due to the absence of a sanitary sewer or the lack of an adequate water supply, nonwater carriage disposal facilities shall be provided. Unless prohibited by applicable local regulations, these facilities may include privies (where their use will not contaminate either surface or underground waters), chemical toilets, recirculating toilets, or combustion toilets.*

*(d) Toilet facilities shall be kept clean, maintained in good working order, designed and maintained in a manner which will assure privacy and provided with an adequate supply of toilet paper.*

*(e) The requirements of this section shall not apply to mobile crews having readily available transportation to nearby toilet facilities.*

Federal OSHA regulation on toilets at construction jobsites is addressed in 29 CFR1926.51(c):

1926.51(c)

"Toilets at construction jobsites."

1926.51(c)(1)

Toilets shall be provided for employees according to the following table:

Table D-1

Number of Employees	Minimum Number of Facilities
20 or less	1
20 or more	1 toilet seat and 1 urinal per 40 workers
200 or more	1 toilet seat and 1 urinal per 50 workers

1926.51(c)(2)

*Under temporary field conditions, provisions shall be made to assure not less than one toilet facility is available.*

1926.51(c)(3)

*Job sites, not provided with a sanitary sewer, shall be provided with one of the following toilet facilities unless prohibited by local codes:*

1926.51(c)(3)(i)

*Privies (where their use will not contaminate ground or surface water);*

1926.51(c)(3)(ii)

*Chemical toilets;*

1926.51(c)(3)(iii)

*Recirculating toilets;*

1926.51(c)(3)(iv)

*Combustion toilets.*

1926.51(c)(4)

*The requirements of this paragraph (c) for sanitation facilities shall not apply to mobile crews having transportation readily available to nearby toilet facilities.*

ANSI Z4.3-2005 (American National Standard for Sanitation Non-Sewered Waste Disposal Systems) is the current consensus standard that addresses the minimum requirements for non-sewered waste-disposal systems to assure that employees are provided with healthful and adequate sanitary waste-disposal facilities at places of employment not having sewerred waste-disposal systems. Section 5 specifies requirements for portable toilet facilities and portable toilet rooms and includes the following ventilation requirements:

*5.5 If the structure 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 cm<sup>2</sup> (7 in<sup>2</sup>).*

*5.6 Portable toilet rooms that are not ventilated by mechanical means shall be provided with a screened ventilation opening having a cross-sectional area of at least 0.09 m<sup>2</sup> (1 ft<sup>2</sup>) per stool.*

## **DISCUSSION**

The petitioner states that workers are working longer hours because of construction schedules and that many workers seek refuge in portable toilets, where most of the time temperatures are 10-20 degrees higher than outside, increasing the risk of heat cramps, fatigue, dizziness, headaches, nausea, vomiting, and fainting. He also states that employees use the toilet facilities at least 3 times a day, breathing in polluted air from the raw sewage. He notes that OSHA regulations have permissible exposure limits for methane and ammonia in air.

The main function of portable toilets is to provide sanitary waste disposal facilities where sewerred toilet facilities are not available, not to provide a resting area. Title 8 section 3395 requires employers with outdoor places of employment to establish, implement, and maintain an effective heat illness prevention plan. Subsection (d) requires employers to provide access to shade to accommodate employees on recovery or rest breaks. It also requires employers to allow and encourage employees to take a preventive cool-down rest in the shade when they feel the need to do so to protect themselves from overheating. If employees need to take a rest break, they should utilize the shade area provided by the employer instead of seeking refuge inside the portable toilet where temperatures may be higher than outside.

According to the *Guide to Clean Portable Restrooms*, published by the Portable Sanitation Association International,<sup>1</sup> the mean toilet use times for men and women are 54 seconds and 75 seconds, respectively. Based on the short duration of use time, it is unlikely for employees to develop heat illnesses from using portable toilets. In addition, Cal/OSHA is not aware of any heat illness cases attributed to or exacerbated by portable toilet use at construction jobsites.

Cal/OSHA is not aware of any air monitoring or studies done in portable toilets to determine levels of ammonia and methane. However, employee exposure to methane and ammonia are already

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<sup>1</sup> Available at <http://www.copotities.com/wp-content/uploads/2013/03/GuideToCleanRestrooms.pdf>

regulated by Title 8 section 5141 (Control of Harmful Exposure to Employees) and 5155 (Airborne Contaminants).

Title 8 section 1526 contains no ventilation requirements or other specifications for portable toilets at construction sites. However, Title 8 section 3457 in the General Industry Safety Orders for agricultural operations contains specific requirement for portable toilets including ventilation:

§3457. Field Sanitation.

\* \* \* \* \*

(c)(2)(B) Toilet and hand-washing facilities shall at all times meet the following standards:

1. Toilet facilities shall be appropriately screened to keep flies and other vermin away from the excreta.
2. Units housing toilet and handwashing facilities shall be ventilated and provided with self-closing doors, lockable from the inside, and shall be otherwise constructed to ensure privacy.
3. Toilet facilities shall provide a minimum area of eight (8) square feet, with a minimum width of two and one-half (2 1/2) feet for each toilet seat. A minimum area of ten (10) square feet, with a minimum width of two and one-half (2 1/2) feet, shall be required when a urinal is included. Sufficient additional space shall be included if handwashing facilities are within the facility.
4. The wastewater tank on chemical toilets shall be constructed of durable, easily cleanable material and have a minimum tank capacity of forty (40) gallons. Construction shall be such as to prevent splashing on the occupant, field, or road.
5. The handwashing water tank shall provide a minimum capacity of fifteen (15) gallons.
6. Units housing toilet and handwashing facilities shall be rigidly constructed and their inside surfaces shall be of nonabsorbent material, smooth, readily cleanable, and finished in a light color.
7. Water flush toilets and handwashing facilities shall conform to Title 24, California Code of Regulations, Part 5, California Plumbing Code.

ANALYSIS

Current Title 8 Construction Safety Orders, federal OSHA regulations, and consensus standards do not require mechanical ventilation systems on portable toilet facilities. However, Title 8 section 3457 for agricultural operations and ANSI Z4.3-2005 require ventilation openings on portable toilets. Section 3457 does not provide any specifications for the ventilation openings. ANSI Z4.3-2005 requires portable toilets to have a screened ventilation opening having a cross-sectional area of at least one square foot per toilet when it is not ventilated by mechanical means. In addition, the waste storage tank must be vented to the outside with a minimum nominal vent area of seven square inches.

Installation of solar-powered exhaust fans may make portable toilet usage more comfortable by reducing foul odors and may also reduce the temperature inside portable toilets that are located in direct sunlight.

On hot days, it may be beneficial for the prevention of heat illness to equip portable toilets with solar-powered exhaust fans. The employer should consider the use of the exhaust fans during their evaluation of workplace hazards as required by the Injury and Illness Prevention Program (Title 8 section 3203) and Heat Illness Prevention Plan (Title 8 section 3395). If employers determine that portable toilets with solar-powered exhaust fans are needed, they have the option to install the exhaust fans. However, it is not necessary to require solar-powered exhaust fans on all portable toilets at construction jobsites.

## **CONCLUSION**

After review of the petition and examination of the existing standards, Cal/OSHA recommends that the petition to require mechanical ventilation of portable toilets be denied. However, Cal/OSHA recognizes that the portable toilet regulations in the Construction Safety Orders are out of date and should contain similar requirements for portable toilets found in Title 8 section 3457. Cal/OSHA will submit recommendations on changes to section 1526 in a separate request to the Standards Board.

cc: Keummi Park  
Eric Berg