

OCCUPATIONAL SAFETY AND HEALTH  
STANDARD BOARD

PETITION FILE NO. 586

BOARD STAFF EVALUATION

Submitted by: Maryrose Chan, Senior Safety Engineer

March 29, 2021

### **INTRODUCTION**

On August 19, 2020, Rex and Judy Barton, representing LunarGlo LLC submitted Petition 586 via e-mail. The Petition seeks changes in existing regulations concerning the required illumination levels for portable restrooms used by agricultural employees.

### **REQUESTED ACTION**

The Petitioners are requesting to:

- Amend the required illumination level within title 8, section 3449, to 2.9 foot candles (ft-c) measured at 34 inches from the floor or 5 ft-c measured at 53 inches from the floor
- Add, within title 8, section 3449, that the hours of operation for solar light be defined as “consistently lit from dusk until dawn”

### **BACKGROUND/HISTORY**

The rulemaking, Outdoor Agricultural Operations During Hours of Darkness, which included required illumination levels for outdoor agricultural operations during hours of darkness, was heard on April 18, 2019 and became effective on July 1, 2020. During the rulemaking process, Standards Board staff responded to comments received during the 45-day comment period, 15-day comment period and 2<sup>nd</sup> 15-day comment period.

The Board did not receive comments to amend the proposal’s illumination requirement inside restrooms. The comments were centered on specifying that hands-free portable personal lighting or area lighting, or both, be provided by employers to meet the requirements of Table 1 – Illumination Levels.

### **PETITIONERS’ ASSERTIONS**

The Petitioners assert that the current illumination level emitted by LunarGlo Solar Lights are sufficient, even though the illumination level it provides is less than what is required in section 3449. LunarGlo solar lights are LED light fixtures designed to be installed on the ceilings of portable restrooms. (<https://www.lunarglo.com/products>)

In the e-mail, the Petitioners state that LunarGlo, LLC has been manufacturing the solar powered LED light fixture for the past seven years and has not received a complaint. According to the Petitioners, LunarGlo Solar lights and other solar fixtures manufactured by their competitors do not provide the required illumination level of 5 ft-c measured 30 inches from the floor. The lighting provided by their product was acceptable for the past seven years prior to the amendments in section 3449.

**DIVISION OF OCCUPATIONAL SAFETY AND HEALTH (DIVISION) REPORT**

The Petition Evaluation report dated March 23, 2021 recommended that the Petitioners’ request be DENIED for the following reasons:

- Product performance is not a valid basis to amend title 8 regulations
- The regulation does not preclude the use of the Petitioners’ product
- The proposed requirement for continuous lighting is not necessary and would create an unnecessary burden

**STAFF EVALUATION**

On July 1, 2020, the Occupational Safety and Health Standards Board rulemaking became effective to address hazards related to performing outdoor agricultural work during hours of darkness (sunset to sunrise), when illumination or visibility is limited. These regulations are found in title 8, sections 3441 and 3449.

The Petitioners are concerned with the required illumination level in title 8, section 3449(a)(1). Table 1 – Illumination Levels requires restroom facilities at the time of use to provide 5 ft-c measured at 30 inches above the floor. The prescribed illumination levels can be achieved by hands-free portable personal lighting or area lighting, or both.

As stated in the rulemaking records, the Board staff relied on:

- American National Standard, Illuminating Engineering Society, ANSI/IES RP-16-17, Nomenclature and Definitions for Illuminating Engineering.  
<https://www.ies.org/definitions/work-plane>

“Work plane” is defined as the plane on which a visual task is usually done, and on which the illuminance is specified and measured. Unless otherwise indicated, this is assumed to be a horizontal plane 0.76 meters (30 inches) above the floor.

- ANSI-IES RP-7-1991, Industrial Lighting, page 26, Table 9 (shown below). The activities/movement during agricultural operations is best categorized under the high activity and “high” hazards requiring visual detection.

Hazards requiring visual detection	Slight		High <sup>2</sup>	
	Low	High	Low	High
Normal activity level <sup>1</sup>				
Illuminance values				
Lux	5.4	11	22	54
Foot candles	0.5	1	2	5

\*Minimum illuminance for safety of people, absolute minimum at any time and at any location on any plane where safety is related to seeing conditions.

<sup>1</sup> Special conditions may require different illuminance values. In some cases higher levels may be required as for example where security is a factor, or where certain colors must be identified. In some other cases, greatly reduced levels, including total darkness, may be necessary, specifically in situations involving manufacturing, handling, use or processing of light-sensitive materials (notable in connection with photographic products). In these situations alternate methods of insuring safe operations must be relied upon.

*Note:* See specific application reports of the IES for guidelines to minimum illuminances for safety by area.

<sup>2</sup> An obstacle in the path of egress should be considered a high hazard.

The Petitioners are seeking to lower the standard to 2.9 ft-c measured at 34 inches above the floor or 5 ft-c measure at 53 inches above the floor, but did not provide justification for lowering the standard other than stating that the lighting provided by LunarGlo was acceptable in the past. One LunarGlo solar light by itself falls short of the required illumination of 5 ft-c measured at 30 inches above the floor. Thus, the request to lower the illumination level would, in effect, dim the amount of light required below the current regulatory requirements, without demonstrable evidence that such a decrease would provide a work environment that is at least as effective at insuring worker safety as the current standard.

The applicant is correct that prior to the rulemaking, 2.9 ft-c was acceptable. This is because there was no specific regulation to provide lighting inside portable toilets. As it stands, the current rule does not prohibit the use of LunarGlo, because the standard allows multiple sources of illumination to meet the illumination levels specified in section 3449, Table 1 – Illumination Levels. While a single LunarGlo solar light by itself does not provide sufficient lighting, a solar light can be supplemented by other sources of lighting such as hands-free portable lights commonly provided to agricultural workers or by installing multiple LunarGlo solar lights to reach the required illumination levels.

Furthermore, the regulation is performance based and does not prescribe the use of solar lights to achieve the required illumination level. The rule was not intended to address the advantages or disadvantages of specific lighting systems, leaving the determination to individual employers based on their specific work environments.

Board staff recommends rejecting the request to add language stating that the hours of operation for solar light be defined as “consistently lit from dusk to dawn”. This proposed change would interfere with the scope of the entire section, which prescribes required lighting and other protections between sunset and sunrise. Weather forecasts typically identify times for sunset and sunrise, not dusk and dawn. To clarify, the employer is required to provide illumination inside the restroom from sunset to sunrise when the restroom is occupied.

In spite of the absence of compelling rationale to amend existing regulations, Board staff, on October 8, 2020, reached out to the California Farm Bureau Federation and informed them of this Petition. Board staff requested site visits of farms to observe how the standard is being implemented. On October 29, 2020, the Farm Bureau representative stated that “Our members are just now finishing harvest. About all that’s left at this point will be winter citrus, and I don’t think they commonly engage in night harvesting, given that weather conditions on the fall/winter months would not demand it.” The Farm Bureau did not comment on the Petition.

### **Relevant Standards**

#### **Federal Standards**

None

#### **California Standards**

§3449. Outdoor Agricultural Operations During Hours of Darkness (Between Sunset and Sunrise).

(a) Illumination. Outdoor agricultural operations taking place between sunset and sunrise shall be illuminated at levels no less than the levels stated in Table 1. Illumination levels for task lighting shall be measured at the task/working surface, in the plane in which the task/work surface is present. Illumination levels for area lighting shall be measured at approximately 30 inches above the floor or other horizontal, vertical or sloped surface on or through which the employee walks, works or gains access to a work area.

NOTE: The illumination levels required in Table 1 may be provided by one or more light source (e.g. lamp mounted on equipment, vehicles, or personal hands free portable lighting) or a combination of methods.

(1) The employer shall provide and maintain hands-free portable personal lighting or area lighting or both to employees.

Table 1 - Illumination Levels

<i>Foot-candles</i>	<i>Lux</i>	<i>Operations, Areas or Tasks</i>
0.09-0.19	1-2	Poultry harvesting or catching operations.
3	32.29	Meeting area and meal/rest area.

5	53.82	<p>Outdoor agricultural operations except where otherwise specified in this table.</p> <p>Pathways leading to and around restrooms and drinking water.</p> <p>Inside restroom facilities.</p> <p>Storage areas accessed by employees.</p>
10	107.64	<p>Intermittently exposed or exposed point of operation equipment, covered under Group 8. Points of Operation and Other Hazardous Parts of Machinery.</p> <p>Operationally visible moving parts of machinery covered under Group 6. Power Transmission, Prime Movers, and Machine Parts of the General Industry Safety Orders.</p> <p>Task lighting for agricultural operations that involve the use of tools that can potentially cause cuts, lacerations, or punctures.</p>
20	215.30	<p>Task lighting for maintenance work on equipment.</p>

NOTES to Subsection (a):

NOTE 1: Area lighting should be set up in a manner that minimizes glare to the workers (selection of lamps, shielding, proper adjustment of the beam angle, glare avoidance screens).

NOTE 2: See Non-mandatory appendix for additional information regarding selecting light sources.

EXCEPTION to Subsection (a): In order to prevent glare while vehicles are traveling on farm roads, additional lighting installed to meet Table 1 does not need to be activated.

**Consensus Standards**

There is no specific standard for lighting inside portable toilets.

**Other Standards, Guidelines, Codes**

None

**STAFF RECOMMENDATION**

The Petitioners may be unaware that multiple light sources are permitted in order to achieve the required illumination levels. The regulation does not prohibit the installation of LunarGlo solar lights. The inability of a product to solely meet the illumination requirement is not sufficient reason to amend regulation, especially when the regulation does not mandate that one lighting methodology be required to meet the illumination levels; supplemental lighting is permitted to make up the difference. Therefore, Board staff recommends that the Petition be DENIED.