DEPARTMENT OF INDUSTRIAL RELATIONS
Occupational Safety and Health Standards Board
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PROPOSED PETITION DECISION OF THE OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD (PETITION FILE NO. 599)

INTRODUCTION

The Occupational Safety and Health Standards Board (Board) received a petition on September 26, 2023, from Tanya Charlesworth, P.E., Director of Product Management for BrandSafway (Petitioner). The Petitioner requests that the Board amend title 8[1], Construction Safety Orders (CSO), section 1604.21, Capacity and Loading, which outlines the current requirements for square footage of the inside net platforms of construction personnel hoist (CPH) cars.[2] A CPH is a temporary elevator used for carrying personnel and materials at construction sites, and the "net platform area" or "car space" is the total floor space inside the CPH.

Specifically, the Petitioner requests that the Board modify section 1604.21(a) Table 4, "Relationship of Hoist Rated Capacity to Inside Net Platform Area" which limits the floor area of a CPH based on its rated load capacity. Petitioner would like section 1604.21(a) to mirror the ANSI A10.4-2016 standards and its exception in Part 2.1. This exception would allow the usage of CPH that have larger net platform areas with lower rated load capacities, so long as the CPH is equipped with an overload sensor and the CPH rated load ratio to inside net platform area is not less than 82psf (400 kg/m2).

Labor Code (LC) section 142.2 permits interested persons to propose new or revised regulations concerning occupational safety and health. It requires the Board to consider such proposals and render a decision no later than six months following receipt. Further, as required by LC section 147, any proposed occupational safety or health standard received by the Board from a source other than Cal/OSHA must be referred to the Cal/OSHA for evaluation. Cal/OSHA has 60 days after receipt to submit an evaluation regarding the proposal.

SUMMARY OF PETITION

Petitioner, BrandSafway, is a construction and civil engineering company that provides safety equipment used on construction sites. Petitioner requests that the Board amend section

[1] Unless otherwise stated, all references are to title 8, California Code of Regulations.

[2] "Hoist(s)", "car(s)", "personnel hoist(s)", "construction personnel hoists" (CPH) and "construction passenger elevators" (CPE) are used throughout this document synonymously.

1604.21 to adopt part 21.1 of "ANSI A10.4-2016 – Safety Requirements For Personnel Hoists and Employee Elevators On Construction and Demolition Sites", which allows CPH hoist car floor areas to be of any size provided the CPH is equipped with an overload sensor. An overload sensor is an electronic scale that determines the weight of materials and passengers in the hoist car and automatically disconnects power for the upward and downward movement of the hoist car when the load capacity of the CPH is exceeded. The Petitioner did not offer any regulatory text for this proposed change.

The Petitioner asserts that the current section 1604.21(a) is referencing an outdated 1973 edition of ANSI A10.4. Petitioner maintains that the CPH rated load by net platform area ratios required by section 1604.21(a) Table A prohibits the Petitioner from utilizing their large fleet of extendable hoist cars and that this limitation is unique to California.

As an example, the Petitioner argues that 16-foot curtain walls for building façades, though long, are relatively light. To transport long curtain walls, building contractors in California must rent CPHs with greater load capacities to attain floor areas large enough to accommodate such building components. As the rental price of CPHs is linked to the load capacity of the equipment, the need to obtain larger platform areas based on load capacity results in higher rental costs.

Petitioner maintains that ANSI A10.4 2016, Part 21.1 allows the overload detection device as an offset for increasing the CPH net platform area without increasing its rated load capacity, so long as the rated load ratio to inside net platform area is not less than 82psf (400 kg/m2). A10.4 2016 does not mandate overload detection devices on all CPEs, and the Petitioner similarly does not request that overload detection devices be mandated for all CPEs.

The Petitioner states that having an overload detection device increases safety by preventing movement of the hoist car whenever it is overloaded. The Petitioner characterized the overload detection device as an objective means of determining whether the load carried by the car is safe for the elevator to travel. By contrast, according to the Petitioner, despite an operator's best efforts to estimate the weight of the materials and personnel loaded into the car, the elevator could still travel while overloaded when not equipped with an overload detection device. The Petitioner argues that there is no existing California regulation that prevents the overloading of hoist cars and thus incorporation of an overload detection device provides a higher level of safety.

RELEVANT STANDARDS

California Regulations

Section 1604 "Personnel Hoists" reads in its entirety:

> Sections 1604.1 through 1604.30 are taken, with revisions necessary to conform to State codification numbering

requirements and existing laws, from ANSI 10.4-1973 American National Standard Safety Requirements for Personnel Hoists.

Section 1604.21 of the Construction Safety Orders includes requirements for rated capacity and related data plates for construction passenger hoists. Table 4 of section 1604.21(a) limits the inside net area of CPHs based on rated capacity. Section 1604.21(e) prohibits the use of overload devices.

Construction Safety Orders
Article 14. Construction Hoists
1604.21. Capacity and Loading.

(a) Inside Net Platform Area.

The inside net platform area (see Figure 4) of the hoist car is determined by the rated capacity of the hoist and shall be no greater than that given in Table 4.

* * * * *

Table 4
Relationship of Hoist Rated Capacity to Inside Net Platform Area

Rated Load (pounds)	Inside Net Platform Area (square feet)
2,000	24.2
2,500	29.1
3,000	33.7
3,500	38.0
4,000	42.2
4,500	46.2
5,000	50.0
10,000	88.0

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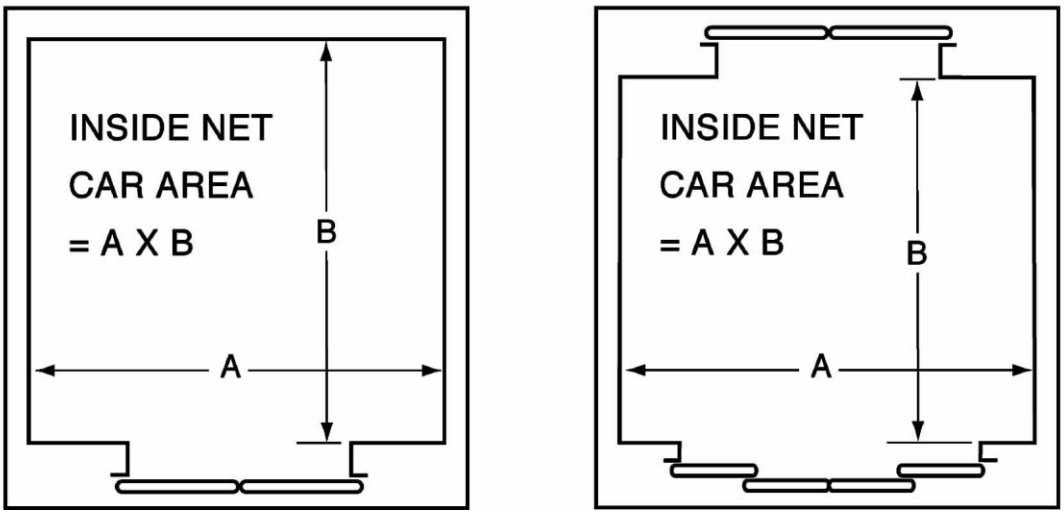

Figure 4 - Inside Net Platform Areas For Personnel-Hoist Cars

* * * *

(e) Overload Devices.

Overload devices shall not be permitted.

Federal Regulations

Federal OSHA regulations concerning hoists and elevators are found in 29 CFR 1926.552 "Material hoists, personnel hoists, and elevators." Of particular relevance to the present subject is 1926.552(c)(16):

> All personnel hoists used by employees shall be constructed of materials and components which meet the specifications for materials, construction, safety devices, assembly, and structural integrity as stated in the American National Standard A10.4-1963, Safety Requirements for Workmen's Hoists. The requirements of this paragraph (c)(16) do not apply to cantilever type personnel hoists.

Federal OSHA does not have regulations equivalent to section 1604.21(a) limiting a hoist car's net platform area based on the hoist's rated capacity. Additionally, there are no Federal OSHA regulations on the use or the prohibition of overload devices for CPHs.

Applicable Consensus Standards

The 2016 edition of ANSI A10.4 Safety Requirements for Personnel Hoists and Employee Elevators on Construction and Demolition Sites contains requirements for the design, inspection, maintenance, and use of personnel hoists in construction and demolition

operations. Part 21.1 of ANSI 10.4 includes maximum net platform areas for CPH hoist cars based on the rated capacity of the equipment.

> ANSI/ASSE A10.4-2016 Safety Requirements for Personnel Hoists and Employee Elevators on Construction and Demolition Sites.
>
> *****
>
> 21 Capacity and Loading.
>
> *****
>
> 21.1 Inside Net Platform Area.
> The inside net platform area (see Figure 21.1) of the hoist car shall be determined by the rated capacity of the hoist and shall be no greater than that given in Table 6 unless an overload detection device as described in Section 21.5 is provided. With the use of an overload detection device, the rated load ratio to inside net platform area shall not be less than 82psf (400 kg/m2). The rated capacity shall not be increased without written approval of the manufacturer or a registered professional engineer, if the manufacturer is no longer in business. The authorized person assigned to the hoist is responsible for ensuring that the material carried in the hoist is appropriately secured to prevent it from shifting and the maximum load rating is not exceeded when transporting material or personnel.

Table 6
Relationship of Hoist Rated Capacity to Inside net Platform Area

Rated Load (pounds)	Inside Net Platform Area (square feet)
2,000	24.2
2,500	29.1
3,000	33.7
3,500	38.0
4,000	42.2
4,500	46.2

5,000	50.0
6,000	57.7
7,000	65.3
8,000	72.9
9,000	80.5
10,000	88.0

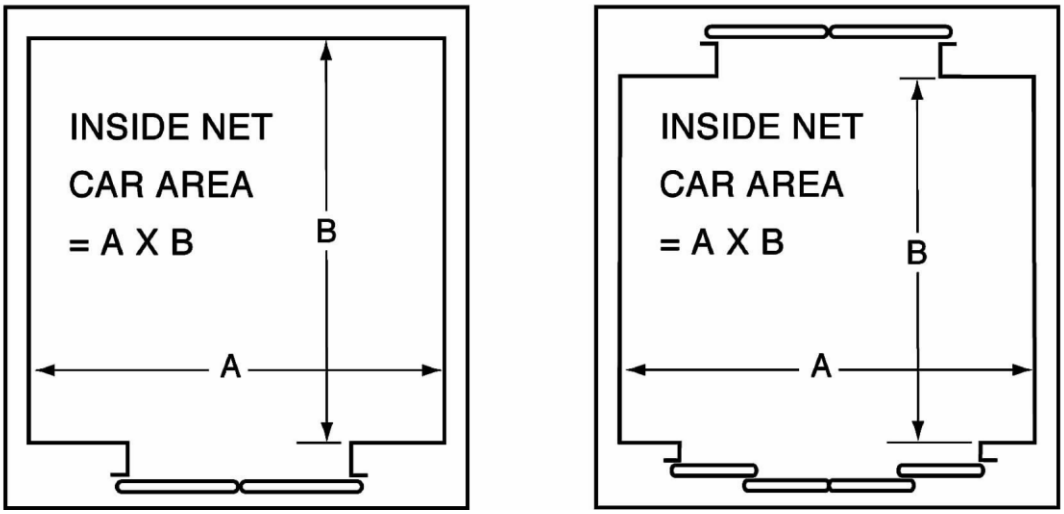

Figure 21.1 – Inside Net Platform Areas for Personnel Hoist Cars

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The exception to the requirements of limited floor space on a CPH hoist cars when a CPH is equipped with an overload detection device was not included until the 2016 edition of ANSI A10.4.

Cal/OSHA EVALUATION

Cal/OSHA's evaluation report dated January 17, 2024, does not support the Petitioner's proposed changes to section 1604.21.

According to Cal/OSHA, the purpose of limiting the CPHs platform dimension in relation to its rated capacity is to prevent overloading the platform. The limited platform area reduces the likelihood of overloading the CPH, but it does not preclude[3] overloading, depending on the

[3] Cal/OSHA acknowledges a typo on page 6 where the sentence reads, in part, "but it does not guarantee overloading" that should be changed to "but it does not preclude overloading".

density of material. But based on Cal/OSHA research, no citations, accidents, or injuries related to overloading of CPHs or the use of overload devices were identified.

As noted in the Cal/OSHA evaluation, the use of a device to detect an overload condition prevents the CPH from running after it has been overloaded. While the platform is stopped, brakes hold the platform at the floor level. Since the hoist brakes can only hold a certain amount of weight, it would not be difficult to quickly overload a platform and overcome the brakes causing the hoist car to fall. Therefore, an overload device as the only method to prevent overloading does not provide the same level of safety as limiting the ability to overload the hoist platform by its area.

Cal/OSHA agrees with Petitioner that ANSI A10.4-2016 allows the use of an overload device in lieu of Part 21.5 Table 6 "Relationship of Hoist Rated Capacity to Inside net Platform Area" if the ratio of the rated capacity to the net platform area does not exceed 82 pounds per square foot at any hoist capacity rating. However, as Cal/OSHA demonstrated in their report, the 82 pounds per square foot limitation results in a platform area that is larger than those in Table 4 of section 1604.21(a). Section 1604.21 is thus more protective than ANSI A10.4 because the smaller platform area limits the likelihood of overloading a CPH thereby providing a higher degree of safety.

Cal/OSHA notes that they supported the use of overload devices in Petition 589, which the Board granted on October 21, 2021, because no change was proposed to the allowable net platform area requirements in section 1604.21(a). Therefore, Cal/OSHA believed the protection provided by maximum allowable CPH platform areas would be augmented by and not replaced by overload devices.

However, Cal/OSHA maintains that Petition 599 is different in that the proposal would allow for the use of overload devices in lieu of compliance with the net platform areas permitted by section 1604.21(a), thereby permitting CPHs equipped with overload devices to have platforms of unlimited size. The hazards associated with overloading and the potential resultant failure of CPH components can lead to serious and fatal injuries to workers. The proposed use of overload devices in lieu of net platform limitations required by section 1604.21 would increase the risk of CPH failure and reduce worker safety.

Cal/OSHA inquired if the Petitioner had performed a risk assessment for using overload devices as a means of preventing overloading large platform areas. Risk assessment is an exhaustive method of determining various failure modes and their effects. The Petitioner informed Cal/OSHA staff that they had not performed a risk assessment for the use of overload devices.

BOARD STAFF EVALUATION
DISCUSSION

As stated in Cal/OSHA's evaluation, worker safety would not be enhanced by the Petitioner's proposed amendment of section 1604.21 to adopt the requirements of ANSI/ASSE A10.4-2016 Safety Requirements for Personnel Hoists and Employee Elevators on Construction and Demolition Sites (ANSI 10.4).

A. An Overload Detection Device Paired with Larger CPH Platform Sizes Under the Proposed Regulations Is Less Safe than the Current Regulations

The proposal would allow for the use of overload devices in lieu of compliance with the net platform areas permitted by section 1604.21(a), thereby permitting CPHs equipped with overload devices to have platforms of unlimited size. The hazards associated with overloading and the potential resultant failure of CPH components can lead to serious and fatal injuries to workers.

1. Overload Detection Devices May Be Ineffective at Preventing an Overloaded CPH from Falling and There is No Requirement to Inspect Them

The use of a device to detect an overload condition prevents the CPH from running after it has been overloaded. While the platform is stopped, brakes hold the platform at the floor level. Since the hoist brakes can only hold a certain amount of weight, it would not be difficult to quickly overload a platform and overcome the brakes causing the hoist car to fall. Therefore, an overload device as the only method to prevent overloading does not provide the same level of safety as limiting the ability to overload the hoist platform by its area in the first place.

Further, load weighing devices are often out of calibration or non-functional, and ANSI A10.4-2016 does not include a requirement to perform periodic or acceptance testing of overload detection devices. In contrast, other mechanical components such as ropes, bearings, gears, car safety, and governor parts have specific directives for inspection of wear and for testing to ensure the parts have not worn to unsafe levels. There are also no inspection and testing or maintenance protocols for overload detection devices within the ANSI A10.4-2016 standard.

Given the limitations of overload detection devices to prevent CPH falls and without proper inspection, testing, and maintenance protocols, such devices in lieu of compliance with the net platform areas permitted by section 1604.21(a) would make CPHs more dangerous for workers.

2. *Larger CPH Platform Size May Lead to Overloading Beyond CPH Braking Capacity*

The 82 pounds per square foot limitation under ANSI A10.4-2016 results in a platform area that is larger than those in Table 4 of section 1604.21(a). For example, at 6,000 lbs. rated load, under the A10.4-2016 code, the car can accommodate up to 30 riders (6,000 lbs. ÷ 200 lbs. per

rider). However, the additional 15.4 sq.-ft. of car space may accommodate eight additional riders, with an average of 1,000 pounds of resultant weight on the CPH.

Even with a functioning overload detection device, as per the overload limits outlined in A10.4-2016, there is only a 5% margin between the overload condition of the detection device and the maximum capacity of the brake "to hold the car at rest." In other words, under A10.4-2016 Part 21.5, an overload condition is considered to occur when the CPH is loaded to 120% of its rated capacity, which is when the overload detection device must prevent the car from moving. However, under A10.4-2016 Part 22.7, the brake is only required to be able to stop and hold the CPH at rest at 125% of its rated load.

With the extra platform space and only a 5% margin of safety, CPH can easily be in both an overload condition and loaded beyond the braking capacity of the elevator to hold the car. Therefore, section 1604.21 is more protective than ANSI A10.4 because the smaller platform area limits the likelihood of overloading a CPH with riders or cargo, thereby providing a higher degree of safety.

For these reasons, the proposed use of overload devices in lieu of net platform limitations required by section 1604.21 would increase the risk of CPH failure and reduce worker safety.

CONCLUSION AND ORDER

The Board has considered the petition of Tanya Charlesworth, P.E., Director of Product Management for BrandSafway to make recommended changes to subsection 1604.21, regulations associated with the load capacity of personnel hoists. The Petitioner requests that California's requirements be revised to allow the square feet/area related to the inside net platform to be increased when the hoist car is equipped with an overload detection device and the rated load to inside net platform area is 82psf or higher.

For reasons stated in the preceding discussion and considering testimony received today, Petition 599 is hereby denied. In the alternative, petitioner may consider (1) applying for a permanent variance from OSHSB or (2) using standard capacity hoist cars that are manufactured with long and narrow floor dimensions that can transport personnel and also accommodate 16-foot curtain walls.