

**OCCUPATIONAL SAFETY
AND HEALTH STANDARDS BOARD**

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**PROPOSED PETITION DECISION OF THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
(PETITION FILE NO. 605)****I. INTRODUCTION**

The Occupational Safety and Health Standards Board (Board or OSHSB) received a petition on May 15, 2024, from Joseph Alioto Jr., public representative and Chairperson (Petitioner), of the Occupational Safety and Health Standards Board (OSHSB). The Petitioner requests the Board to amend title 8, California Code of Regulations¹, section 3324, horizontal sliding gates, and to consider a new regulation to govern swinging gates.

Labor Code (LC) section 142.2 permits interested persons to propose new or revised regulations concerning occupational safety and health and 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 the Division of Occupational Safety and Health (Cal/OSHA) must be referred to Cal/OSHA for evaluation, and Cal/OSHA has 60 days after receipt to submit an evaluation regarding the proposal.

II. SUMMARY

The Petitioner proposes two title 8 changes. First, to amend section 3324 relating to the installation, operation, inspection and maintenance of horizontal sliding gates. Second, to consider adopting a new regulation concerning swinging gates.

The Petitioner became aware of the dangers associated with failing horizontal sliding gates by Eric and Dayna Quanbeck whose seven-year-old son, Alex, was killed on his school playground when a gate weighing approximately 300 pounds fell on him as he tried to close it. Since then, the Petitioner has learned that sliding gates pose an occupational hazard as well. The Petitioner submits his petition on behalf of the Quanbecks in memory of their son Alex and for families of California workers killed or injured by falling gates.

¹ Unless otherwise noted, references are to the California code of Regulations, title 8.

According to the Petitioner, typically, when a sliding gate fails it comes off its track and falls away from the fence plane. The Petitioner states current regulations should be amended because there is no safety feature required that would prevent a derailed sliding gate from falling away from the vertical plane of the fence line. Furthermore, an added safety feature, a post-stop, is an easy and cost-effective tool to prevent injuries and death.

The Petitioner requests that OSHSB amend section 3324 as follows:

1. Require the installation of a post stop or similar device to prevent a derailed sliding gate from falling more than 45 degrees from the vertical plane of the fence;
2. Require that a gate be properly balanced so as not to move under its own weight;
3. Require that wheels be covered; and
4. Provide a mechanism to ensure the proper functioning of positive stops already provided for in the current regulation.

The Petitioner also requests the following consensus standards be incorporated by reference: American Society for Testing and Materials (ASTM) F1184-16: specifying standards for horizontal sliding gates; ASTM F2200-20: specifying standards for automated gates controlled by a motor; and Underwriters Laboratory (UL) 325: requiring entrapment protection devices.

More specifically, the Petitioner urges requiring that “all gates must be installed, operated, inspected, and maintained according to the ASTM standard and manufacturer recommendations where they exist,” and that “all operators must be trained following the ASTM standard and manufacturer recommendations where they exist.”

Lastly, the Petitioner requests OSHSB consider adopting a new regulation concerning swinging gates.

III. RELEVANT STANDARDS

California

General Industry Safety Orders

Group 2. Safe Practices and Personal Protection

Article 7. Miscellaneous Safe Practices

Section 3324. Horizontal Sliding Gates

(a) All horizontal sliding gates shall be equipped with positive stops or devices that limit the gate travel to the designed fully open and closed positions.

(b) Positive stops or devices shall be constructed, installed and maintained by a qualified person to resist impact loads in order to safely contain sliding gate components within the designed stop limits.

(c) Employees responsible for operating or inspecting horizontal sliding gates shall be instructed in the safe operation of such gates.

(d) Repairs to gate hardware shall only be performed by a qualified person.

Local Government- Marin County

The Marin County Municipal Code contains the following requirements for gates in addition to the requirements in the California Building Code:

Ordinance No. 3787

19.13.030 - Amendment of the California Building Code.

Section 3110.4 All Other Gates. Any gate more than 48 inches (1219 mm) in width or more than 84 inches (2134 mm) in height shall meet the requirements of ASTM F1184, shall be installed per the manufacturer's recommendations, and shall be designed, constructed, and installed to meet all of the following:

1. Gate shall not fall over more than 45 degrees from a vertical plane when the gate is detached from supporting hardware.
2. Gate shall be balanced and not move under the gate's own weight or by gravity.
3. Rolling wheels shall be covered.
4. Gate shall have positive stops.

Section 3110.5 Exceptions. For gates more than 48 inches (1219 mm) in width or more than 84 inches (2134 mm) in height serving rural agricultural properties, as determined by the director, or her/his assign, the requirements of Section 3110.4 items 1 through 4 are recommendations only and shall not be required.

IV. CAL/OSHA'S EVALUATION

Cal/OSHA's evaluation dated July 15, 2024, supports amending section 3324 and considering rulemaking with respect to swing gates.

Cal/OSHA provided a general description of the type of horizontal sliding gate that is the subject of this petition. According to the evaluation, horizontal sliding gates, which can weigh between 500 to 3000 pounds, can be manually or mechanically powered and open and close along a track equipped with stops at defined closed and open positions. The end-stop/positive-stop device and guide rollers work in unison to keep the gate on its tracks and prevent it from falling. Cal/OSHA states other than the end-stops/positive

stops, fall-over prevention posts or brackets and retention cables to secure horizontal sliding gates and swing gates to prevent them from falling, the gate industry does not use any other devices or technologies currently available to prevent gates from disengaging from their supports and falling.

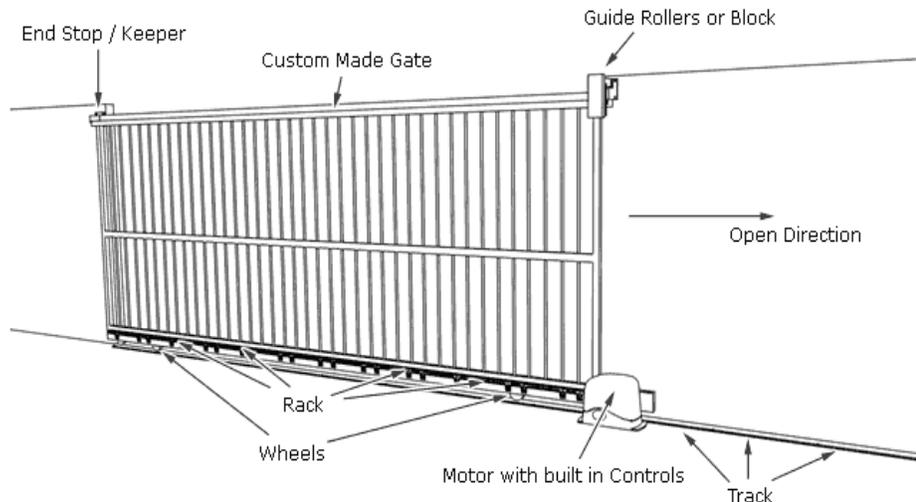


Photo courtesy of <https://grantsautomation.com.au/index.php?page=20>

The Cal/OSHA evaluation analyzed available data of incidents involving workers injured by falling gates from 1990 to 2005 and from 2014 to 2024. Based on the information gathered, the average number of serious injuries and fatal incidents per year from 1990 to 2005 was 1.94 incidents per year. From 2014 to 2024 there was a decrease to 1.78 incidents per year. However, Cal/OSHA surmised the number of incidents for both time periods were likely the same. This discrepancy can be explained because section 3324 containing the regulatory language, “end-stops/positive-stops,” was adopted in 2007 and enforcement staff often utilize terminology included in the regulation when authoring citation language.

Cal/OSHA concluded the relatively low decrease in serious injuries and fatalities per year of only 8.2 percent after the enactment of section 3324 demonstrates the need to amend and improve section 3324 to better protect workers.

With respect to the Petitioner’s specific requests, Cal/OSHA made the following recommendations:

1. Ensure proper functioning of end-stops. – GRANT
2. Include a safety feature to prevent a derailed and separated gate from falling over more than 45 degrees from the vertical plane. – GRANT
3. Requirement for gate wheels to be guarded with covers. – GRANT
4. Requirement to properly balance gates to prevent movement under its own weight. – GRANT

5. Incorporate the ASTM F1184-2016, ASTM F2200-20, and UL-325 standards by reference. – NOT RECOMMENDED
6. Include language requiring installation, operation, inspection, and maintenance according to ASTM standards and manufacturer recommendations. – NOT RECOMMENDED
7. Swing Gate Safety - GRANT

V. STAFF'S EVALUATION

Board staff prepared an evaluation dated July 3, 2024, which concurs with Cal/OSHA that amendments to section 3324 should be considered for horizontal sliding gates. Board staff also agrees that a new section to address unmitigated hazards presented by swinging gates should also be considered.

According to Board staff, the goal of section 3324 to mitigate injuries and deaths due to sliding horizontal gates has not been fully achieved. While preparing the petition evaluation, Board staff learned an employee at a lumber yard was killed when an iron gate became unhinged and fell on top of the employee. The gate was reportedly so heavy that a forklift was needed to remove it.

The fencing industry, American Society Testing and Materials (ASTM) and Underwriters Laboratory (UL) have recognized these hazards and established standards to provide engineered devices that will prevent gates from falling when they fail. Board staff believes these newly updated standards should be evaluated and considered to amend section 3342 and adopt a similar standard for swinging gates. This will further mitigate the hazards that horizontal and swinging gates currently present that are not being addressed.

In conclusion, Board staff supports Petition 605 and the Petitioner's assertions. Board staff further recommends that instead of just referencing the consensus standards, plain language should clearly state what employers must do to protect workers. Board staff recommends the Board direct staff to convene a representative advisory committee to consider both revising section 3324 for horizontal sliding gates and adopting a new standard for swinging gates.

VI. DISCUSSION

The Petitioner is correct that section 3324 was adopted in 2007 and has not been amended since. A review of the rulemaking record reveals that section 3324 was initiated by Cal/OSHA following investigations into a number of accidents, including fatalities involving horizontal sliding gates that fell on employees. Most of the accidents occurred when a worker manually slid the gate into the fully open or closed position beyond its support or designed stop point. This resulted in leaving the gate's bottom

wheels or track as the only support. Without vertical support, the gate became unstable and fell onto the employee.²

The regulated text requiring positive stops that would limit the travel of horizontal sliding gates to the designed, fully open or closed position was developed without an advisory committee. Instead, Cal/OSHA staff and representatives from the gate industry assisted Board staff with review and development of the regulation.³

A. The Section 3324 Rulemaking Record Shows that Inspections of Horizontal Sliding Gates was Contemplated to Check for Signs of Wear and Tear.

The original text of section 3324(c) read, “Horizontal sliding gates shall be inspected by a qualified person to ensure that gates are maintained in safe operating condition.”⁴

According to Board staff, the “effect of this subsection is to ensure that positive stops and devices are inspected and checked for signs of wear or deterioration that would compromise their ability to stop the travel of the gate at its designated limit.”⁵

In the Final Statement of Reasons⁶, the original regulatory language in subsection (c) was deleted and the requirements to maintain positive stops and devices by a qualified person were moved to subsection (b). Section 3324(b) which previously read: “Positive stops or devices shall be constructed, and installed to resist impact loads in order to safely contain sliding gate components within the designated stop limits.” was adopted as, “Positive stops or devices shall be constructed, installed and maintained by a qualified person to resist impact loads in order to safely contain sliding gate components within the designated stop limits.” Unfortunately, the deletion of the word “inspection” contained in the original regulatory text of subsection (c) in favor of “maintained” effectively eliminated the only means of actively checking for signs of wear and tear or deterioration of positive stops. Bringing back the word inspection in conjunction with the current maintained language will alert gate owners to dangers preemptively before the maintenance is required due to occupational injury or death.

B. Recommended Amendments Will Correct Section 3324 Shortcomings and Increase Occupational Safety.

1. Adding a Redundant Secondary Back-Up Device and Annual Inspection Requirement Will Bolster Gate Safety.

While end-stops are required, there is no process to ensure their proper functioning. As Cal/OSHA stated in their evaluation, the required end-stop/positive-stops can resist gate

² Page 1 of the Initial Statement of Reasons from the May 17, 2007 rulemaking package.

³ Page 1 of the Initial Statement of Reasons from the May 17, 2007 rulemaking package.

⁴ Attachment 1 to the Board Memo dated January 22, 2007 from the May 17, 2007 rulemaking package.

⁵ Page 2 of the Board Memo dated January 22, 2007 from the May 17, 2007 rulemaking package.

⁶ Page 1 of the Final Statement of Reasons from the May 17, 2007 rulemaking package.

impact loads under normal use. However, wear and tear and other factors can limit their effectiveness. To remedy this, Cal/OSHA first suggests the design and installation of end-stops/positive stops be approved by a professional engineer due to deadly consequences of failed end-stops/positive-stops. As an alternative to an engineered end-stop/positive-stop, a fail-safe design or a redundant system in which failure of the primary end-stop/positive-stop deploys a secondary or back-up device to prevent the gate from falling could be utilized.

Secondly, Cal/OSHA recommends end-stops/positive-stops should require an annual inspection by the gate owner with a requirement to maintain inspection records. Given that the record reflects the inspection element of this section was originally deleted, adding this requirement back into the regulation is fitting. An annual inspection will remind gate owners that gate safety inspections and maintenance are ongoing requirements.

2. Amending Section 3324 to Add a Fall-Over Safety Device May Prevent Gates from Derailing and Falling Over.

There is currently no title 8 regulation that requires fall-over prevention devices. The Cal/OSHA evaluation noted that even if used on horizontal sliding or swing gates, the fall-over protection device is only as good as the functional end-stop/positive stop. To that end, a fall-over prevention device would serve more as a second line of defense should the end-stop/positive-stop fail.

The Board is in agreement that amending the present regulation to include a fall-over safety device would bolster employee safety. However, Cal/OSHA goes further to recommend that a professional engineer should make the selection of fall-over protection appropriate for the size of the gate.

It is not clear if a professional engineer is required at the design and installation stage or just the design stage. While manufacturers can afford to hire and consult with specialized experts such as professional engineers, gate installers and/or individual owners cannot. Additionally, Cal/OSHA did not provide any reasoning why a qualified person or other trained professional could perform this function. Given that the original rulemaking did not convene an advisory committee, the Board believes this type of requirement should be discussed among stakeholders to explore further.

3. Amending Section 3324 to Require that Wheels be Covered, Will Avoid Inadvertent Injuries.

There is no title 8 regulation that specifically requires wheels on horizontally sliding gates be covered. The Board is in agreement with Cal/OSHA's recommendation to amend section 3324 to add new regulatory language referencing section 4002⁷ for

⁷ Section 4002 of the General Industry Safety Orders requires guarding of hazardous parts of machines from inadvertent contact by workers.

guarding hazardous nip points of wheels and other parts of gates which create a hazard resulting in injuries.

4. Requiring Properly Balanced Gates to Prevent Movement Under its own Weight Can Prevent Hazards from Force of Gravity.

Title 8 regulations do not currently address the hazard of gates that may move due to the force of gravity. The Board supports Cal/OSHA's recommendation to amend section 3324 to require gates to be installed where forces due to gravity do not initiate sliding or swinging motion of gates.

C. Incorporation of the Consensus Standards by Reference May Result in The Inclusion of Too Many Irrelevant Requirements.

The Petitioner also requests the following consensus standards be incorporated by reference: ASTM F1 184-16: specifying standards for horizontal sliding gates; ASTM F2200-20: specifying standards for automated gates controlled by a motor; and UL 325: requiring entrapment protection devices.

According to Cal/OSHA, although these consensus standards have some requirements that allude to worker safety, most of the requirements within these standards are not directly relevant to worker safety. Cal/OSHA and Board staff are in agreement that extracting the specific elements and plain language of relevant consensus standard requirements is a better approach.

D. Adding Language Requiring Installation, Operation, Inspection, and Maintenance According to the ASTM Standard and Manufacturer Recommendations May Need Further Evaluation.

The Cal/OSHA evaluation stated that ASTM F1184 and ASTM F2200 do not contain any language related to inspection and maintenance which could mislead employers to believe that it is not required for gates. At the same time, Cal/OSHA points to current section 3328 which contains requirements for inspecting and maintaining machinery and equipment as recommended by the manufacturer as well as section 3203(a)(7) which requires training of employees for new equipment and process.

The Board is not convinced that this line of reasoning works. As discussed above, Cal/OSHA recommended, and the Board agrees that section 3324 should be amended to include inspection and maintenance. With this amendment, even if the consensus standards do not require inspection and maintenance, the regulation already covers it.

Further, much like the logic of the original drafters of the horizontal gate regulation, Cal/OSHA cites other relevant sections which would cover this area without any amendments to cite it in the referenced regulatory text itself. A simple reference that a section covers this area can serve as a reminder that other requirements relate to this regulation and must also be followed.

However, because the County of Marin has successfully referenced the ASTM F1184, ASTM F2200 and UL 325 with respect to installation, operation, inspection and maintenance, it behooves Cal/OSHA and Board staff to explore this further. Additional consultation with Marin County on implementation is recommended.

E. Prior Injury Reports Warrant a Swing Gates Regulation Via Rulemaking.

Both Cal/OSHA and Board staff concur that swing gates present an occupational hazard that justifies the drafting of a new regulatory standard.

F. Additional Changes Not Requested by the Petitioner May Be Needed.

Although not requested by the Petitioner, Cal/OSHA provides additional suggestions for amending section 3324 to increase safety. Many of these recommendations mirror current proposed Assembly Bill 2149 (AB 2149)⁸ which seeks to amend the California Civil Code to require a regulated gate to meet certain requirements. While the proposed bill narrows the definition of a regulated gate to public spaces, the requirements of inspection, record keeping and prohibiting the continued use of an unsafe gate are similarly recommended by Cal/OSHA to prevent occupational hazards, which may be found in public and private spaces.

1. Adding Inspection Record Keeping Requirements

Cal/OSHA supports adding a requirement to title 8 section 3324 for certain gate owners to perform and keep records of inspections on a recurring basis. Additionally, Cal/OSHA suggests amending section 3324 to require deficiencies be abated in a timely manner including immediately prohibiting the use of gates without appropriate safety devices or gates in a damaged condition that could endanger persons.

At a minimum, Cal/OSHA has suggested an annual inspection. The Board believes additional inspections may be warranted based on industry, frequency of use and other factors such as manufacturer recommendations⁹. A meaningful conversation with stakeholders is necessary to understand the practicalities and importance of regular gate inspection and record keeping.

With respect to immediately prohibiting the use of gates without appropriate safety devices or gates in a damaged condition, the Board notes that section 3328(c) already states "Machinery and equipment with defective parts which create a hazard shall not be used." Section 3328(e) also states, "equipment components shall be designed and secured or covered (or both) to minimize hazards caused by breakage, release of mechanical energy (e.g., broken springs)." This language could be inserted into the

⁸ Proposed Sec. 2. Part 5.6. Regulated Gates commencing with section 7110 of the California Civil Code, also known as the Alex Quanbeck Gate Safety Act.

⁹ Section 3328(b) states. "Machinery and equipment in service shall be inspected and maintained as recommended by the manufacturer where such recommendations are available."

amended text and/or referenced as a starting point for an advisory committee discussion.

2. Requiring Control of Hazardous Energy of Machine and Equipment

Cal/OSHA additionally recommends new regulatory language in section 3324 requiring physical locks, tags, and a reference to section 3314 for controlling hazardous energy of machinery and equipment. For example, gates under construction, repair, and maintenance require control by being physically locked to prevent movement with an attached informational tag for communication between different contractors. Cal/OSHA identified five accidents, two of which were fatal, where locks and tags may have prevented these incidents.

Using the language of existing regulatory text or referencing the applicable section, if any, is recommended during the advisory committee.

3. Specifying the Scope of Section 3324

Lastly, Cal/OSHA recommends that new proposed safety regulations should be limited to apply only to large gates, with potential to cause serious injury or death when they fall. Cal/OSHA does not define what qualifies as a large gate. AB 2149 currently defines a regulated gate as “a rolling or swinging gate, that weights more than 50 pounds and is more than 48 inches wide or more than 84 inches high.” As this proposed bill intends to regulate public space, this definition may differ as applied to private spaces.

Again, an advisory committee would be beneficial in this situation.

VII. CONCLUSION AND ORDER

The Board has considered the petition of Joseph Alioto, Jr., public representative and Chairperson of OSHSB, to make recommended changes to section 3324, horizontal sliding gates, and to consider a new regulation to govern swinging gates. The Board has also considered the recommendations of Cal/OSHA and Board staff.

For reasons stated in the preceding discussion, the Petition is hereby **GRANTED** to the extent the Board directs staff to convene an advisory committee to undertake a review of section 3342 for horizontal sliding gates and consider a new section to address any unmitigated hazards presented by swinging gates. The committee's discussion and evaluation should include, but is not limited to, industry best practices, codes implemented by other regulatory agencies and related consensus standards (e.g. ASTM F1184-23e1, ASTM F2200-20, ASTM F900-11 and UL 325).