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June 7, 2019

Debra Hilmerson
Hilmerson Safety Services, Inc.
8678 Eagle Creek Circle
Savage, MN 55378

**DHG Job No.:** **2018-301, MS 7.01**

**Subject:** **Cal/OSHA Compliance Review of Safety Rail System**

**References:**

**1. "2018-301 Safety Rail System Calculations Review Report Revised 08-28-2018" by DH Glabe & Associates, by Michael Klein, Colorado PE License #47417, prepared for Hilmerson Safety Services, dated August 28, 2018.**

2. **PDF Drawings "HLM-GR5G through HLM-GRBXG" provided by Hilmerson Safety**

Dear Ms. Hilmerson:

As requested, DH Glabe & Associates has performed an engineering compliance review for the Hilmerson Safety Rail Systems. The following presents DH Glabe & Associates' scope of work, discussion, and conclusion:

## SCOPE OF WORK

The review was limited to a Cal/OSHA compliance review of the Hilmerson Safety Guardrail System, which consists of the anchored railing system and railing accessories. DH Glabe & Associates has not assessed the structural capacity of any structure where the safety rail system may be implemented. The purpose of this report is to review the referenced safety systems for general compliance with the required Cal/OSHA Title 8 General Industry and Construction Regulations for Guardrail Rails. DH Glabe & Associates has not approved nor sealed the railing design by others; this shall be the responsibility of the railing designer.

## DISCUSSION

Based upon our review of the engineering drawings of the safety systems, we have identified the following items:

1. The top rails meet the requirements of Cal/OSHA 3209(a)/1620(a)(1) – "*A top rail not less than 42 inches or more than 45 inches in height measured from the upper surface of the top rail to the floor, platform, runway or ramp.*"
2. The midrail meet the requirements of Cal/OSHA 3209(a)/1620(a)(2) – "*A mid-rail shall be halfway between the top rail and the floor, platform, runway or ramp when there is no wall or parapet wall at least 21 inches (53 cm) high.*"
3. The toeboards meet the requirements of Cal/OSHA 3209(d) – "*The top of the toeboard shall be not less than 3 1/2 inches above the platform, walkway, or other working level and the bottom clearance shall not exceed 1/4-inch.*"
4. The screens or mesh meet the requirements of Cal/OSHA 1620(A)(1) – "*Screens and mesh, when used, shall extend from the top rail to the floor, platform, runway or ramp and along the entire opening between top rail supports*."
5. Based on the previous review of the structural calculations as referenced above, the guardrail system meets the following Cal/OSHA Requirements for strength:
    a. 3209(b)/1620(c) - *All railings, including their connections and anchorage, shall be capable of withstanding without failure, a force of at least 200 pounds applied to the top rail within 2 inches of the top edge, in any outward or downward direction, at any point along the top edge.*"
    b. 1620(c)(1) – *"When the 200-pound test load is applied in a downward direction, the top edge of the guardrail shall not deflect to a height less than 39 inches above the walking/working level."*
    c. 1620(d) – *"Mid-rails, screens, mesh, intermediate vertical members, solid panels, and equivalent members shall be capable of withstanding, without failure, a force of at least 150 pounds (666 N) applied in any downward or outward direction at any point along the mid-rail, screen, mesh, or other intermediate member.*"

## CONCLUSION

**Based upon our engineering review of the referenced drawings, DH Glabe & Associates has determined that the Hilmerson Safety Rail System design is acceptable for use in its current configuration and is compliant with all applicable Cal/OSHA Fall Protection Standards. Please note DH Glabe & Associates has not assessed the structural capacity of any structure where the safety rail system may be implemented. The client/contractor is responsible for confirming adequacy of applicable structures when implementing safety railing products on a project-by-project basis.**

**Limitations**: This report should not be considered a guarantee or warranty of the proposed structure or system. The structure or system is dependent upon the recommendations provided by others. DH Glabe & Associates was limited to the scope of work provided herein. DH Glabe & Associates cannot assume liability from any damage associated with unknown conditions or inaccurate documentation. Please call with any questions or concerns.

Thank you for this opportunity to provide our engineering services.

Respectfully Submitted,

DH GLABE & ASSOCIATES

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Engineer I

Reviewed by:


Megan Cameron, PE
Engineer II