



CALIFORNIA SOLAR ENERGY INDUSTRIES ASSOCIATION

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Marley Hart
Executive Officer
Occupational Safety and Health Standards Board
2520 Ventura Oaks Way, Suite 350
Sacramento, CA 95833

OCCUPATIONAL SAFETY AND HEALTH
STANDARDS BOARD

RE: Petition to Amend General Industry Safety Order §3212

Dear Ms. Hart,

On behalf of the California Solar Energy Industries Association (“CALSEIA” or “Petitioner”), I am submitting this Petition to amend the General Industry Safety Order for Floor Openings, Floor Holes and Roofs, 8 CCR Section 3212, to allow installers of solar photovoltaic and solar heating systems (collectively referred herein as “Solar”) to utilize some innovative and effective fall protection solutions as means of compliance with Section 3212.

CALSEIA is a California not-for-profit trade association that represents approximately 175 member companies in the California solar industry. Since it was incorporated in 1977, CALSEIA has been working to ensure growth in the utilization of solar energy technologies in California. CALSEIA’s members include companies that install solar systems on rooftops of both residential and non-residential buildings.

Solar Installers often work within 6 feet of skylights on both residential and commercial projects. Therefore, the provisions of Section 3212 apply to Solar Installers even though the standard was not designed with the specific fall protection challenges of the solar industry in mind. The exposure of Solar Installers to skylights has driven certain innovations that satisfy the intent of Section 3212 while at the same time not meeting the letter of Section 3212. For reference, Section 3212 currently provides, in relevant parts, as follows:

(b) Floor and roof opening covers shall be designed by a qualified person and be capable of safely supporting the greater of 400 pounds or twice the weight of the employees, equipment and materials that may be imposed on any one square foot area of the cover at any time. Covers shall be secured in place to prevent accidental removal or displacement, and shall

bear a pressure sensitized, painted, or stenciled sign with legible letters not less than one inch high, stating: "Opening--Do Not Remove." Markings of chalk or keel shall not be used.

[...]

(e) Any employee approaching within 6 feet of any skylight shall be protected from falling through the skylight or skylight opening by any one of the following methods:

(1) Skylight screens. The design, construction, and installation of skylight screens shall meet the strength requirements equivalent to that of covers specified in subsection (b) above. They shall also be of such design, construction and mounting that under design loads or impacts, they will not deflect downward sufficiently to break the glass below them. The construction shall be of grillwork, with openings not more than 4 inches by 4 inches or of slatwork with openings not more than 2 inches wide with length unrestricted, or of other material of equal strength and similar configuration, or

(2) Guardrails meeting the requirements of Section 3209, or

(3) The use of a personal fall protection system meeting the requirements of Section 1670 of the Construction Safety Orders, or

(4) Covers meeting the requirements of subsection (b) installed over the skylights, or

(5) A fall protection plan as prescribed in Section 1671.1 of the Construction Safety Orders when it can be demonstrated that the use of fall protection methods as contained in subsections (e)(1-4) of this Section is impractical or creates a greater hazard.

Exception: When the work is of short duration and limited exposure such as measuring, roof inspection, electrical/mechanical equipment inspection, etc., and the time involved in rigging and installing the safety devices required in subsections (e)(1) through (e)(4) equal or exceed the performance of the designated tasks of measuring, roof inspection, electrical/mechanical equipment inspection, etc.; these provisions may be temporarily suspended provided that adequate risk control is recognized and maintained.

(f) Access shall not be permitted on glazed surfaces such as roofs, vaults, canopies, or skylights glazed with transparent or translucent materials unless an engineer currently registered in the State of California and experienced in the design of such glazed structures has certified that the surface will support all anticipated loads. Employees working on such surfaces shall be protected by a fall protection system meeting the requirements of Section 1670 of the Construction Safety Orders.

Section 3212 has been enforced to prohibit, as means of compliance, the following devices and systems engineered to improve fall protection for Solar Installers:

- 1) Skylights that meet the loading requirements for covers in Subsection 3212(b).
- 2) Internal skylight screens that meet the loading requirements of Subsection 3212(b).

- 3) Flexible skylight nets that meet the loading requirements of Subsection 3212(b) and provide a means of fall protection where other methods are impractical.

Section 3212 was adopted when the vast majority of skylights were glass. This is evident in Subsection 3212(e)(1) which specifies a skylight screen that prevents breaking glass (rigid, above the glass, small holes). On the other hand, Subsection 3212(e)(3) allows a personal fall protection system that does nothing to prevent breaking glass. Petitioner seeks amendments to resolve this inconsistency and account for innovations in the design and materials of skylights and their fall protection systems. Specifically, Petitioner proposes to **allow** internal screens or flexible nets when the skylight glazing is not glass and **disallow** the use of a personal fall protection system when the skylight glazing is glass.

Also, multiple manufacturers have designed skylights that exceed the criteria for “covers” specified in Subsection 3212(b). The Final Statement of Reasons for Section 3212 (adopted in 2004) clarifies that opening “covers” as used in section Subsection 3212(e)(4) includes skylights when they meet the requirements of Subsection 3212(b). Petitioner seeks to make this clear in the rule.

Therefore, we propose the following changes to the Section 3212:

- (e) Any employee approaching within 6 feet of any skylight shall be protected from falling through the skylight or skylight opening by any one of the following methods:
 - (1) Skylight screens and nets. The design, construction, and installation of skylight screens and nets shall meet the strength requirements equivalent to that of covers specified in subsection (b) above. The screen or net may be above, below or within the waterproof covering of the skylight opening. The screen or net material shall be resistant to the momentary abrasion of sharp edges. The screen or net shall also be of such design, construction and mounting that under design loads or impacts, they will not displace so as to expose the skylight opening and will not deflect so as to create an opening in the screen of more than 12 inches in any direction. When the skylights are glass, flexible nets are not sufficient. The screensThey shall also be of such design, construction and mounting that under design loads or impacts, they will not deflect downward sufficiently to break the glass below them and t- The construction shall be of grillwork, with openings not more than 4 inches by 4 inches or of slatwork with openings not more than 2 inches wide with

length unrestricted, or of other material of equal strength and similar configuration, or

- (2) Guardrails meeting the requirements of Section 3209, or
- (3) The use of a personal fall protection system meeting the requirements of Section 1670 of the Construction Safety Orders when the skylight is not constructed of glass.
- (4) Covers, including skylights, meeting the requirements of subsection (b) installed over the skylight opening, or
- (5) A fall protection plan as prescribed in Section 1671.1 of the Construction Safety Orders when it can be demonstrated that the use of fall protection methods as contained in subsections (e)(1-4) of this Section is impractical or creates a greater hazard.

Exception: When the work is of short duration and limited exposure such as measuring, roof inspection, electrical/mechanical equipment inspection, etc., and the time involved in rigging and installing the safety devices required in subsections (e)(1) through (e)(4) equal or exceed the performance of the designated tasks of measuring, roof inspection, electrical/mechanical equipment inspection, etc.; these provisions may be temporarily suspended provided that adequate risk control is recognized and maintained.

These proposed changes to Section 3212 will allow the solar industry, skylight manufacturers, and end-use customers to develop and utilize innovative products to solve the most complex fall protection challenges. In an industry with many small business installers, the proposed changes to Section 3212 will greatly reduce any temptation to shortcut safety for efficiency.

We appreciate your timely consideration of this matter. Please do not hesitate to contact us if you have any questions.

Sincerely,



Bryan Crabb
Executive Director
California Solar Energy Industries Association

cc: Daniel Leacox, Greenberg Traurig, LLP
Jesse Elliott, Chair, CALSEIA Safety Committee