City of Phoenix
PLANNING & DEVELOPMENT DEPARTMENT

New Solar PV Live Loads on Existing Building Roof Structures

Citywide Interpretation

Issue Date:	July, 2019
Code/Section:	2018 IEBC 303, 502.4, 503.3, 806.2
Approved:	Technical Review Team
Developed By:	Rost Sapon

Adding a new solar Photovoltaic (PV) panel system to an existing building's roof structure where the existing building is not undergoing a change of occupancy.

a. The loads imposed by the new PV system on the existing roof framing shall include all appropriate loads and load combinations of IBC Section 1605 except that roof live loads need not be applied to the existing roof area covered by a new PV panel when the clear vertical dimension between the panel and the existing roof surface is 24 inches (610mm) or less and new or existing equipment that may require access for maintenance is not be located under the PV panel. When available, the design roof live load of the existing roof structure may be utilized, in part, to support the new PV system dead, earthquake, and wind loads. Concentrated loads applied to existing roof framing shall be considered. For existing wood framed roof structures, up to 80% of the existing roof live load may be utilized to support the loads imposed by the new PV system, if the design professional responsible for verifying the structural design of the existing roof framing determines this to be appropriate.

b. The panels shall be affixed to the existing roof framing to resist wind and earthquake loads unless the Alternate Design Approach of TRT/DOC/00702 is utilized.

c. New open grid PV structures installed on existing roof structures, with a clear vertical dimension between the panel and the existing roof surface of more than 24 inches (610mm), shall be designed for load combinations of IBC Section 1605, except the live load applied to the new open grid PV structure may be reduced to 12psf on the horizontally projected areas and shall be considered a roof live load. The existing roof live load shall be per IBC Section 1607.13, 1607.13.1, 1607.13.2, 1607.13.3, and 1607.13.4.

d. Dimensioned drawings shall be submitted under the seal of the design professional responsible for verifying the structural design of the existing roof framing. The drawings shall show the PV panel layout, panel support framing layout, ballast layout, existing roof framing layout, existing roof slopes, and existing roof drainage facilities. The drawings shall identify the existing roof framing, existing roof dead, roof live loads, design wind loads, and PV system design loads.