SOLAR PHOTOVOLTAIC SYSTEMS AND THE STATE BUILDING CODE
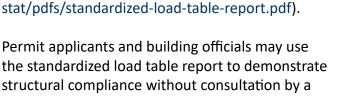## Minnesota Department of Labor and Industry

Are building permits required to install solar PV systems?

Solar photovoltaic (PV) installations must comply with the Minnesota State Building Code. A building permit is required for all solar PV installations where the Minnesota State Building Code is enforced by a local municipality.

Is a structural engineer required to design the roof support of roof-mounted solar PV systems?

Roof-mounted solar PV systems add weight and snow-drift loads to the roof. In addition, access pathways must be capable of supporting the live-load of firefighters. The Minnesota Department of Labor and Industry (DLI) and Minnesota Department of Commerce developed a standardized load table to help determine if the roof structure of wood-framed buildings is sufficient to handle the additional weight of solar PV systems (see http://mn.gov/commerce-stat/pdfs/standardized-load-table-report.pdf).

Permit applicants and building officials may use the standardized load table report to demonstrate structural compliance without consultation by a structural engineer. In other buildings, a structural engineer is required to certify that the structural system will provide enough support for the added weight, snow-drift loads and live-load of firefighters.

Which solar PV system installations need to comply with Section 3111 of the 2020 Minnesota Building Code (Minnesota Rule 1305)?

Buildings classified as IRC-1, IRC-2, IRC-3, and IRC-4 are regulated by the 2020 Minnesota Residential Code (Minnesota Rule 1309). Other buildings (not classified as IRC-1, IRC-2, IRC-3, or IRC-4), structures and appurtenances connected or attached to them (the "other buildings") must comply with the 2020 Minnesota Building Code (Minnesota Rule 1305), including section 3111. The Minnesota Residential Code and the Minnesota Building Code do not cross-reference one another for the purposes of scoping.

What are some of the more common provisions contained in Section 3111 of the Minnesota Building Code?

Solar PV arrays are limited to 150 feet in any direction.

For non-residential buildings, access pathways around the perimeter of the roof and along the center lines of the roof must be provided. This section also requires clear areas to ventilate smoke through the roof in the event of fire. The requirements do not differentiate between flat and pitched roofs.

Residential buildings, such as apartments, are not required to have an access pathway around the perimeter of the building but must have 3-foot-wide pathways from the eave to ridge or peak if the roof slope exceeds a 2:12 pitch. Review this section for specific access pathway requirements. There are no access requirements for residential buildings with roofs having slopes less than a 2:12 pitch.

Are there other considerations?

Yes. Section 3111 of the 2020 Minnesota Building Code contains references to required consultation with the (local) fire department. Also, panels must be tested and listed in accordance with UL 1703 or UL 61730.

How are ground-mounted solar PV systems regulated?

Ground-mounted installations accessory to IRC-1, IRC-2, or IRC-3 buildings are classified as IRC-4 and are regulated by the 2020 Minnesota Residential Code. All other ground-mounted solar PV system installations must comply with the 2020 Minnesota Building Code (Minnesota Rule 1305).

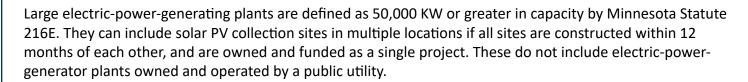## Are other permits required?

Electrical permits are required for solar PV systems.

Are setbacks from property lines regulated by the Minnesota State Building Code?

No. The Minnesota State Building Code does not address minimum setback requirements. Solar PV system installations may be regulated by local zoning ordinances for property line setbacks and locations on the building.

Are large electric-power-generating plants exempt from the Minnesota State Building Code?

No. Work on large plants must comply with the Minnesota State Building Code.

Large electric-power-generating plants are defined as 50,000 KW or greater in capacity by Minnesota Statute 216E. They can include solar PV collection sites in multiple locations if all sites are constructed within 12 months of each other, and are owned and funded as a single project. These do not include electric-power-generator plants owned and operated by a public utility.

More information

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