



Western Wood Truss Association
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Information Sheet

Photovoltaic Panel (PV) Application on New and Existing Roof Trusses

The membership of the Western Wood Truss Association of Saskatchewan, Manitoba and N.W. Ontario (WWTAA-SK, MB, N.W.O) fully supports environmentally sustainable, alternative energy strategies and initiatives. The application of PV panels on new and existing roof structures adds additional load that the structural system may not be able to support. Roof trusses are designed based on what are called Uniformly Distributed Loads (UDL) unless specific information is available at the time of design to indicate otherwise. (See Fig.1). The design procedures for PV application assumes they are about 100-130 mm (4-5 inches) above and parallel to the roof surface. While the PV panels themselves may add approximately 0.12 to 0.14 kPa (2.5-3 psf) this load is transferred from the panels to the roof as concentrated point loads (See Fig.2). The location of the point loads is dependent upon the racking system with typical spacing at 1220 mm (48 inches) on centre. For trusses that are 600mm (2-feet) on centre this means that only every second truss is effectively carrying the load. This is further complicated when the snow load that was originally distributed over the roof surface is now transferred through the connections. If the spacing of the support brackets is on every second truss this means that the snow load is doubled on the trusses supporting the panels. This condition will significantly exceed the truss design load.

For new construction all of our members can provide trusses that are so-called Solar Ready in accordance with the Truss Plate Institute of Canada (TPIC) Bulletin #7. It is very important to ensure your truss supplier is made aware that solar panels will be used on the new building.

For existing roofs it is critical that a professional engineer familiar with the design of prefabricated wood truss design, in conjunction with a truss fabricator, and solar panel contractor be engaged to evaluate the structure prior to installation.

For more information please contact the WWTAA, SK, MB, N.W.O or any member of the association for more details. We are here to assist you with your truss needs.

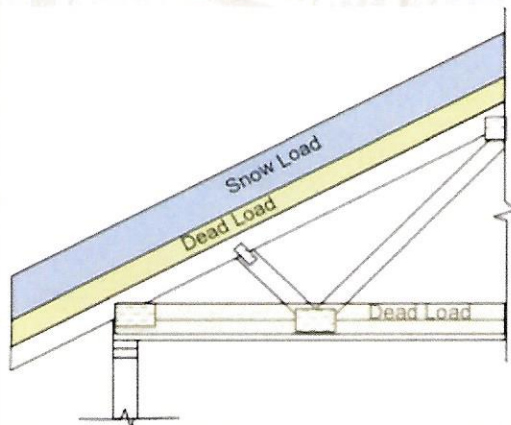


Fig. 1: Uniform Loading

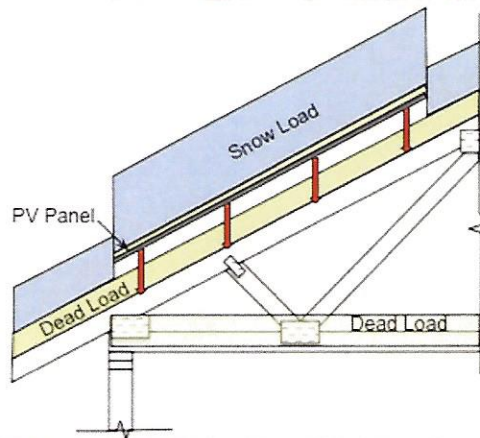


Fig. 2: Point Loads from PV Panel