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Loss Control Considerations for Solar Panel Installations

Solar panels are a popular option for property owners to earn credits toward green building certification and to reduce energy costs. This technology is gaining popularity and there are some issues that are important to consider when installing a photovoltaic system.

Are the solar panels tested to meet the UL 1703 standard for flat plate photovoltaic modules and panels? This standard has specific fire safety and electrical safety provisions as well as hail resistance testing.

The inverter used to convert the DC electricity from the solar panels to AC electricity for use in the building or sale to the utility should be tested in accordance with UL 1741. This standard requires specific testing and labeling of electrical data that are used in selecting wiring, over current devices and other system components. The UL listing also means that electrical safety and fire safety features of the device have been tested.

All components of the solar system should have appropriate testing to conform to UL standards for electrical equipment and be used in conformance to those standards. Be aware that some installers use untested devices for combining arrays and making field connections before the inverter.

The installation of a solar panel system must be consistent with the fire rating on the existing roof covering. There are different fire ratings for the same solar panel depending on the angle of the installation. Verify that your system when installed at the desired angle meets the fire rating of the existing roof.



The panels introduce a load onto the building surface to which they are attached. The building structure must be able to bear the load. This includes the additional wind load that the panels may create. Drawings prepared and approved by a structural engineer should be part of the design process.

Systems that have moving mounts to track the sun's travel add additional expense and control equipment to the project. This is also an additional load on the building structure.

Systems that use batteries as back-up power during night or cloudy periods may have a hydrogen gas exposure from the battery charging process. Be sure that proper ventilation of the battery charging area is part of the system design.

The new panel arrays may be the high point on the structure. Has lightning been considered? Is there a direct to ground path available to dissipate lightning energy? The National Electrical Code (NEC) does not require this, but prudent design should include this feature.

How are the panels to be maintained and cleaned? If they need to be walked on for future service and maintenance, be sure the panel is designed for this application.

The electrical system for the photovoltaic system should be installed in accordance with NEC chapter 690 that contains specific requirements for this equipment.

The various panels and disconnects for the solar system may be energized whenever the sun is shining. There are specific requirements for safety warnings on these panels and disconnects. Be sure your installation plan includes these warnings.

The presence of a photovoltaic system adds complexity and equipment to your electrical distribution system. Consider the need for mechanical breakdown insurance to protect these assets. Your Hanover agent can help you with this insurance need.

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