

SOLAR – PHOTOVOLTAIC (PV) SYSTEMS

- A building permit is required for solar panel systems (also known as photovoltaic systems).
- Check with the municipality office to determine if there are local ordinances regarding solar panels.
- A separate electrical permit is required.
- Along with the completed Building Permit Application submit **TWO** copies of documents showing:
 - ❑ Location and roof plans (if roof-mounted), including a letter from the truss manufacturer or an engineer stating that the roof structure will bear the additional loads imposed.
 - ❑ Site plan with septic system location, all buried utilities, and official property address with street names (if ground-mounted).
 - ❑ Detailed system diagram of all the system components, highlighting system grounding and bonding.
 - ❑ Basic line drawing that shows all the devices on the system including the solar module, DC disconnect, inverter, sub-panels, AC disconnect, main service meter, and wire sizes and connections. Specify manufacturer, model numbers, and ratings.
 - ❑ Specific locations and labels used for compliance with NEC 690 and UL 969.
 - ❑ Rack mounting details and calculations.
 - ❑ Battery storage location and venting (if applicable).
 - ❑ Label and listing specifications for the PV module, inverter, and rack.
- All materials and the installation of all materials must comply with the Minnesota State Building Code and the manufacturers' installation specifications for each product.

PERMIT CARD AND APPROVED PLANS (throughout the project) shall be:

POSTED prior to start of work - **VISIBLE** from street or driveway - **ACCESSIBLE** to the inspector

INSPECTION REQUIREMENTS:

- **MUST** schedule during office hours **AT LEAST** one business day prior to required inspection. If a specific date and/or time will be required, more notice may be needed – please plan ahead. A re-inspection fee may be charged for failure to cancel an inspection for which you are not ready, or for failure to pass an inspection.
- Office Hours: Monday - Friday • 8:00 a.m. - 4:30 p.m.
- Phone: (952) 442-7520 or (888) 446-1801

Inspections: See your permit card to determine which of the following inspections are required for your particular project.

- **Footings:** After holes are dug, but **PRIOR TO POURING CONCRETE**; or during pile driving process (for pile-mounted systems).
- **Attachment:** After all hardware has been installed.
- **Final:** After project is complete and final electrical inspection has been approved.

Warning: The inspector may issue an order to remove materials to verify compliance with the MN State Building Code and manufacturer's installation requirements.

If a re-inspection is required, a re-inspection fee will apply. The permit holder (the signing applicant) or the permit holder's representative must meet the inspector at the site to provide access. The re-inspection will not be conducted if the re-inspection fee is not paid.

Note: The State of Minnesota requires that all residential building contractors, remodelers, roofers, plumbers, and electricians obtain a state license unless they qualify for a specific exemption from the licensing requirements. Any person claiming an exemption must provide a copy of a Certificate of Exemption from the Department of Labor & Industry to the Municipality before a permit can be issued. To determine whether a particular contractor is required to be licensed or to check on the licensing status of individual contractors, please call the Minnesota Department of Labor & Industry at 651-284-5065 or toll free 1-800-342-5354.

Note: For specific code requirements, please contact the Building Inspection Department at 952-442-7520 or 888-446-1801 or e-mail: info@mnspect.com.

PROJECT CHECKLIST:

The following is a guideline to assist in compliance with the requirements of the MN State Building Code.

ROOFTOP APPLICATION – RESIDENTIAL:

- The solar photovoltaic panel system shall be designed for a wind speed of 90 mph, and shall be installed per the manufacturer's specifications.
- The system must support a ground snow load of at least 50 pounds per square foot.
- The total dead load of modules, supports, mountings, raceways, and all other appurtenances must be accounted for in the proposed design.
- Photovoltaic modules are not mounted higher than 18" above the surface of the roofing to which they are affixed.
- Supports for solar modules are to be installed to spread the dead load across as many roof-framing members as needed, so that no point load exceeds 50 pounds.
- Roof and wall penetrations shall be flashed and sealed to prevent entry of water, rodents, and insects.
- Where mounted on or above the roof coverings, the photovoltaic panels and modules and supporting structure shall be constructed of noncombustible materials or fire-retardant treated wood equivalent to that required for the roof construction (if applicable).
- Rooftop installed photovoltaic systems that are adhered or attached to the roof covering or photovoltaic modules/shingles installed as roof coverings shall identify their fire classification.
- Photovoltaic modules/shingles shall be attached in accordance with the manufacturer's installation instructions.
- All interior and exterior raceways, enclosures, and cable assemblies shall be marked at the following locations with labels indicating "WARNING: PHOTOVOLTAIC POWER SOURCE" in all-white, capital letters, a minimum of 3/8" tall, on a red background, and must be reflective and weather-resistant.
 - ✓ Every 10'
 - ✓ Within 1' of turns or bends
 - ✓ Within 1' of penetrations through roofs/ceilings, walls, or other barriers.
- Circuit raceways shall be installed as close as possible to the roof's ridge, hip, or valley.
- Modules must be installed at least 3' below a roof's ridge.
- Hip roofs require a single 3' wide, clear pathway from ridge to eave on each slope where modules are located. Panels/modules are to be placed no closer than 18" to a hip or valley, if installed on both sides of a hip or valley.
- Gable roofs require two 3' wide, clear pathways from ridge to eave on each slope where modules are installed.

ROOFTOP APPLICATION – NON-RESIDENTIAL:

- There shall be a minimum 6' wide clear perimeter around the edges of the roof.
- The pathway shall be over an area capable of supporting the live load of firefighters accessing the roof.
- The pathway shall be a straight line not less than 4' clear to skylights, ventilation hatches, or standpipes.
- The pathway shall provide not less than 4' clear around roof access hatch with at least one not less than 4' clear pathway to parapet or roof edge.
- Arrays shall be no greater than 150' by 150' in distance in either axis in order to create opportunities for fire department smoke ventilation operations.
- Smoke ventilation options between array sections shall be one of the following:
 - ✓ A pathway 8' or greater in width
 - ✓ A 4' or greater in width pathway and bordering roof skylights or smoke and heat vents.
 - ✓ A 4' or greater in width pathway and bordering 4' by 8' "venting cutouts" every 20' on alternating sides of the pathway.

GROUND-MOUNTED PANELS AND MODULES

- Check with local planning and ordinances prior to installing a ground-mounted system.
- Photovoltaic panels and modules shall be listed and labeled in accordance with UL 1703.
- Photovoltaic panels and modules shall be installed in accordance with the manufacturer's installation instructions.
- A clear, brush-free area of 10' shall be required.