CARLISLE SYNTEC SYSTEMS

# The Solar Ready Roof

**Empower Your Roof for Critical Solar Installations**

# Carlisle's **Solar Ready Roof**

**When investing in a rooftop solar energy system, it's important to make sure that your roof is ready to protect your building for years to come. Installing the appropriate PV system in conjunction with a well designed roof system is crucial to achieving the harmonious balance necessary for an optimized return on investment.**

## RECOMMENDATIONS FOR ALL ROOFS

When installing a rooftop solar array, it's easy to get lost in electrical considerations, structural calculations, and placement of panels. However, the roof system must also be considered. Some important roof considerations include:

**Expected service life of the roof vs. the solar array**

**Roof warranties and the ability to make repairs**

**Roof reflectivity and fire resistance**

**Roof access, foot traffic, and maintenance**

**Solar panel attachment or racking systems**

When a solar energy system is to be installed on a new or existing Carlisle roof, consider the design recommendations outlined in each of Carlisle's published roofing system specifications. It is the building owner's responsibility to ensure that the roofing membrane is adequately protected during construction. The last thing you want as a building owner is costly repairs including disconnecting/removing areas of the solar array.

## RECOMMENDATIONS FOR EXISTING ROOFS

1. Installing a new roof that will last for the expected service life of the solar array is almost always the most prudent decision. However, if panels will be installed over an existing Carlisle roof, always ensure a thorough inspection is performed by a licensed applicator and any necessary repairs or upgrades are made prior to solar installation.
2. Rack-supported PV arrays should provide proper clearance to access the roof membrane for maintenance or repairs, if necessary.
3. Areas of the roofing membrane which are heavily traveled during array installation and subsequent maintenance should be protected with walkway pads and/or pavers.
4. Photovoltaic laminates should not be adhered directly to the primary Carlisle roof membrane. See additional information in Carlisle's Photovoltaic Letter of Compliance.

NOTE: In such instances, Carlisle specifications and details should be followed and the flashing performed by a Carlisle authorized roofing applicator to ensure that the warranty will not be voided.

## RECOMMENDATIONS FOR NEW ROOFS

1. Ensure that the roofing contractor is able to install or flash the anchors or supports for the solar racking system. This may require considerable coordination between the roofer and a solar contractor.
2. Specify an adhered membrane system with a warranty term and/or expected service life equal to or greater than the solar array.
3. Ballasted solar racking systems should utilize a protection course between the ballast trays of the racking system and the roofing membrane to provide protection and facilitate drainage.
4. Non-penetrating attachment methods that rely solely on a heat-welded seam for anchoring solar panels to a thermoplastic membrane should not be adhered directly to the primary Carlisle roof membrane. See additional information in Carlisle's Photovoltaic Letter of Compliance.

## DESIGN RECOMMENDATIONS

- Specify thicker membrane such as 90 mil (2.286 mm) EPDM or 80 mil (2.032 mm) TPO or PVC or FleeceBACK® membranes for longer service life and increased puncture resistance.
- Specify a rigid cover board attached with urethane adhesive.
- Specify highly fire resistant systems such as PVC membranes and gypsum cover boards.
- Install a protection layer, such as Carlisle's Pressure-Sensitive Molded Walkway Pads, under any ballasted solar panel racks or support systems.
- If choosing a ballasted PV system, specify a ballast block that is roof appropriate and performs for the life of the system.
- Solar panel systems should allow sufficient clearance of all areas of the roof for maintenance or if repairs are needed.
- If bi-facial solar panels are to be installed, specify highly reflective white TPO or PVC membrane.
- Carlisle promotes the use of Anchor Products U2400 and U3400 anchors to ensure compatibility with EPDM, TPO, PVC, and KEE HP membranes when applicable Carlisle flashing material is used. The seam between the solar anchor flashing and the Carlisle roofing system qualifies for warranty inclusion when installed by a Carlisle Authorized Applicator.

## CAUTIONS & WARNINGS

- Consult an engineer to avoid overloading or point-loading the roof and ensure proper attachment of the solar array to resist wind uplift and other forces.
- Areas designated for staging of roofing or restoration materials and PV array components prior to construction should be protected to prevent damage.
- Coordination between Carlisle authorized roofing applicator and PV system installer/electrician is essential to minimize delays, avoid unnecessary rooftop traffic, and avert possible physical damage to the roofing membrane.
- On new or existing membrane installations, attachment of slip sheets, walkway pads, sacrificial sheets, and all necessary flashings/terminations or modifications to the roofing assembly must be performed by a Carlisle authorized roofing applicator. Failure to comply will result in a loss of the system warranty.
- Walkway pads, protection pads, slip sheets, and sacrificial sheets shall be of the same color as the roofing membrane.

NOTE: Review Carlisle specifications and Solar Installation Guide for specific installation guidelines.

## WARRANTIES AND QUALITY ASSURANCE

For new or existing projects, the Carlisle roof system warranty will cover deficiencies in Carlisle-supplied material or labor performed by the Carlisle authorized applicator within the limits in the warranty.

- Always contact Carlisle Warranty Administration prior to installing a solar array on a warranted Carlisle roof. Refer to Carlisle's PV Letter of Compliance and Solar Installation Guide for more information and inspection requirements prior to installing a PV array.
- Carlisle will perform a post-installation inspection to ensure the roof is still in warrantable condition.
- Damage to the roofing system resulting from PV operation or maintenance are beyond the coverage of a new or existing Carlisle warranty.
- Should the dismantling of panels and/or the removal of modules be required to complete repairs covered by the membrane system warranty, these costs shall be the owner's responsibility and are not covered by the Carlisle warranty.

*EXPERIENCE THE CARLISLE DIFFERENCE*

## BENEFITS OF ROOFTOP SOLAR ENERGY SYSTEMS

### Energy generation

As solar technology has become more efficient and cost effective rooftop arrays can be a great source of clean, renewable power for commercial buildings.

### Government incentives

The US Government provides an investment tax credit (ITC) to help lower the cost of solar installation. The solar ITC also allows for accelerated depreciation of project costs, further lowering the effective cost of installation.

### Commitment to sustainability and renewable resources

Solar energy is an excellent source of renewable electricity, and can contribute to lowering the carbon footprint of a building. Solar energy, along with many of Carlisle's materials can also help achieve sustainable building goals such as LEED certification.

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