Build & Design with Solar in Mind: What to Know

Why Build with Solar in Mind?

- Design in the most efficient way.
- Include solar in initial project designs to maximize cost savings.
- Ensure your buildings are solar-ready now and make the option available for present and future clients.

The Economics of Solar

- $0 capital investment financing opportunities.
- Federal & state incentives cover up to 70% of costs.
- Typical ROI of 10%+.
- Reduce operating costs and a reduced electric bill.
- Protect against electric rate hikes.

Roofing Materials

- Most major roofing material companies offer guidelines for solar PV arrays that use ballasted and other racking systems.
- Typically, a slip sheet is placed under the ballasts, or an approved roofing contractor is hired for any penetrations and flashing.
- Check the warranty of the roofing system for how to coordinate with solar.

NYS Goals

- 10 GWs of distributed solar **by 2030.**
- All new building construction to reach zero emissions **by 2027.**
- 70% renewable energy generation **by 2030**, zero emissions **by 2040.**

Roof Loads

- Ballasted photovoltaic (PV) arrays will typically add 3-6 lbs/sq ft.
- The larger & more connected the solar array, the lower the ballast weight required.
- Solar ballasts do not penetrate the roof.
- A solar array that is broken into smaller pieces (due to obstructions) will lead to higher ballasted weight (6-7 lbs/sq ft vs 3-4 lbs/sq ft).
- International Building Code: live loads can be removed from loading calculations where a PV array is located.

Electrical

- All solar arrays require at least one inverter.
- An inverter converts direct current (DC) electricity, which is what a solar panel generates, to alternating current (AC) electricity, which the electrical grid uses.
- Most inverters are rated to be installed outdoors. Clients may prefer to make space in electrical rooms for the inverters.
- It is possible to run spare conduits for power and communications.
- *Pro tip: leave extra breaker space specifically for the PV system.*

Layout

- Southern orientation will optimize PV performance.
- Low-tilt ballasted PV arrays will still be effective with Eastern & Western orientations.
- Centralize roof-mounted equipment such as HVAC units. This avoids shading of the solar panels and keeps the array more connected.
- Place HVAC lines or electrical conduits in crawl spaces or rafters, or route lines together in raceways. This allows PV arrays to have larger contiguous areas, which increases efficiency and allows more solar panels to be installed.
- Nearby trees can create a substantial amount of shade – it is recommended for smaller buildings to incorporate shorter vegetation into their landscaping plans.

Let's Chat!

GreenSpark's engineering and design team is happy to be a resource for you and your clients.

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About GREENSPARK

As a local, independent company of 20 years and Certified B Corp, GreenSpark is one of the most trusted installers in the region.

GreenSpark Solar's success results from our passionate and experienced team coupled with our commitment to using our business as a force for good for nearly two decades.

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NYSERDA Quality Solar Installer 2022

Member, Amicus Solar cooperative, providing industry-best pricing on quality equipment

Second Place on the Greater Rochester Chamber Top 100 List