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Design Guidelines for Solar Installations

In many cases, historic buildings, structures, and sites can be preserved while also accommodating solar energy installations. Indeed, as the need for renewable energy systems increases, technology evolves, political pressure to remove regulatory barriers mounts, and logistical problems are resolved, precluding the installation of solar energy systems may become indefensible. Moreover, with incentives in place, applications to install solar and other alternative energy systems within historic districts are likely to increase dramatically. Just as state agencies and local preservation boards developed policies and guidelines to address the needs of persons with disabilities, they should also develop policies that encourage compatible and appropriate installations of solar energy systems.



Solar panels on the Spring Lake Inn in New Jersey.

Credit: Adrian Scott Fine

The following considerations can facilitate preservation boards and commissions in their review of solar panel requests and provide a foundation for the adoption of local guidelines related to solar energy installations. The primary objective of preservation ordinances is to preserve historic properties, so a preservation board should encourage project outcomes that meet solar access requirements while maintaining the integrity of historic resources. Consideration should always be given to solutions that protect historic features, materials, and spatial relationships with the visibility of all solar energy installations – including solar panels – minimized to the greatest extent possible.

Locate solar panels on the site of a historic resource. If possible, use a ground-mounted solar panel array. Consider solutions that respect the building's historic setting by locating arrays in an inconspicuous location, such as a rear or side yard, low to the ground, and sensitively screened to further limit visibility. Care should be taken to respect the historic landscape, including both its natural (i.e. topography) and designed (i.e. materials) features.

Locate solar panels on new construction. In cases where new buildings or new additions to historic buildings are proposed and approvable, encourage the placement of solar panels on the new construction. To achieve overall compatibility with the historic building and its setting, consider solutions that integrate the solar panel system in less visible areas of the new design.

Locate solar panels on non-historic buildings and additions. If the site cannot accommodate solar panels and the project does not include new construction, consider placing solar panels on an existing, non-historic addition or accessory structure. This will minimize the impact of solar installation on the significant features of the historic resource and protect the historic fabric against alteration.

Place solar panels in areas that minimize their visibility from a public thoroughfare. The primary façade of a historic building is often the most architecturally distinctive and publicly visible, and thus the most significant and character defining. To the greatest extent possible, avoid placing solar panels on street-facing walls or roofs, including those facing side streets. Installations below and behind parapet walls and dormers or on rear-facing roofs are often good choices.

Avoid installations that would result in the permanent loss of significant, character-defining features of historic resources. Solar panels should not require alterations to significant or character-defining features of a historic resource, such as altering existing roof lines or dormers. Avoid installations that obstruct views of significant architectural features (such as overlaying windows or decorative detailing) or intrude on views of neighboring historic properties in an historic district.

Avoid solutions that would require or result in the removal or permanent alteration of historic fabric. Solar panel installations should be reversible. The use of solar roof tiles, laminates, glazing, and other technologies that require the removal of intact historic fabric or that permanently alter or damage such fabric must be avoided. Consider the type and condition of the existing building fabric for which solar panels installation is proposed, as well as the method of attachment and future removal. Minimizing the number of points of attachment, including the use of brackets, will avoid damaging historic fabric.

Require low profiles. Solar panels should be flush with – or mounted no higher than a few inches above – the existing roof surface. They should not be visible above the roofline of a primary façade.

On flat roofs, set solar panels back from the edge. Because they are generally hidden from view, flat roofs can provide an ideal surface for solar panel arrays. To ensure that a solar installation is minimally visible, set the solar panels back from the roof's edge and adjust the angle and height of the panels as necessary.

Avoid disjointed and multi-roof solutions. Solar panels should be set at angles consistent with the slope or pitch of the supporting roof. For example, avoid solutions that would set panels at a 70 degree angle when the roof pitch is 45 degrees. In addition, solar panels should be located on one roof plane (as opposed to scattered among several roofs) and arranged in a pattern that matches the general shape and configuration of the roof upon which they are mounted.

Ensure that solar panels, support structures, and conduits blend into the surrounding features of the historic resource. The overall visibility and reflectivity of solar panels and their support structures can be substantially reduced if elements of the solar installation match the surrounding building fabric in color.



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