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Adapting Historic District Guidelines for Solar and Other Green Technologies

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Preservation Leadership Forum

Requests for green building modifications are being brought before many historic preservation commissions with increasing frequency. Owners are seeking approval to modify their historic properties with the addition of wind turbines, energy efficient windows, solar panels, energy-saving lighting, geothermal heating systems, and other modernizations. Among all the choices for an environmentally conscious homeowner, outfitting one's home with solar panels is increasingly one of the more accepted options. Historic preservation commissions that are not prepared to review this common energy-saving technology risk irritating a growing populist movement and casting preservation in a bad light.

Green Technology and Historic Preservation

Unfortunately, green technology and historic preservation are often still wrongly viewed as mutually exclusive. A proposed ordinance in Durango, Colo., for example, may soon alter the jurisdiction of the local preservation commission regarding energy efficient modifications on historic properties. In the proposed

ordinance, solar panels would be allowed in historic districts without any regard for aesthetic considerations. Opinions of local residents are echoed by City Councilor Doug Lyon: "If the Vatican can put up thousands of solar panels on St. Peter's Basilica…there should be no reason why we can't allow it on historic properties in Durango."[1]

The benefits of modern alternative energy systems cannot easily be dismissed, even by the most discerning preservationist. Nevertheless, maintaining the integrity of a historic resource should be the priority of any historic preservation commission. This priority, of course, is not always shared by a property owner who submits an application for a certificate of appropriateness. Environmental groups sometimes even blame this review process for discouraging people from making energy-saving changes to their homes. "It's a hurdle. If people know there's a delay, they say 'Forget about it,'" says Nils Peterman, a research associate with the Alliance to Save Energy.[2] Many preservationists are replying to this challenge with arguments like that of Frank Rathbun of the Community Associations Institute: "Renewable energy and aesthetics don't have to be mutually exclusive. But agreeing to projects without regard to the architectural guidelines of the community can create divisiveness and can affect property value."[3]

Accommodating Solar Access Laws

Currently 34 states have some kind of regulations governing solar access and solar rights, which contain a mixture of supportive and unenthusiastic views on the regulatory authority held by local commissions.[4] These laws were adopted to ensure that a property owner maintains the ability to install solar energy systems on residential or commercial properties that are subject to "private restrictions, i.e., covenants, conditions, restrictions, bylaws, condominium declarations, as well as local government ordinances and building codes."[5]

The following provisions can be found within solar access laws: provisions for the removal of protected trees that block direct sunlight, establishment of solar easements (which secure solar access by regulating actions of neighboring properties), the

nullification of any regulation that may prohibit the installation of solar energy systems, and declarations that deed restrictions limiting solar panels are unenforceable.[6] California, Hawaii, Massachusetts, New Jersey, and New Mexico are a few states in which solar access laws are particularly rigorous.[7]

In California, state law limits local government restrictions on solar installations and discourages local governments from adopting ordinances that would unreasonably restrict the use of solar energy systems.[8] California law also requires local governments to use an administrative application review, instead of a discretionary process, and only permits exceptions to protect public health and safety.[9] In response, the City of Santa Monica adopted an ordinance in July that amended the local zoning ordinance in order to "establish an administrative procedure for approval of solar panels systems that meet objective development standards and to allow solar energy systems to encroach into setback areas and extend above current height limits."[10]The new standards clarify that all solar energy systems proposed on designated landmarks and in historic districts will continue to require a certificate of appropriateness from the landmarks commission liaison. Authorizing a liaison to evaluate the compliance of the application in accordance with the Secretary of the Interior's Standards and to act on behalf of the landmarks commission is intended to expedite the process for applicants. The effectiveness of this system remains to be seen, but it may be informative for other municipalities facing similar mandates.

As stewards of our built and cultural heritage, preservation professionals must become familiar with these solar access laws within their respective states. A lack of understanding of such laws can lead to delays in processing applications for certificates of appropriateness and to lawsuits that are expensive to defend. The increase in solar access legislation also serves to highlight the importance of this technology, and the continuing innovations in its design.

The Promise of Evolving Technology

The development of photovoltaic technology (producing a voltage when exposed to radiant energy, especially light) and the

installation of solar panels have been ongoing in the United States for decades, with a large surge coinciding with the energy crisis of the 1970s. With growing public interest in this technology, more and more local historic preservation commissions have chosen to incorporate parameters for solar collection systems within their design guidelines. By comparison, very few commissions have felt the need to include guidelines that specifically address other green retrofits and modifications such as wind turbines or geothermal wells.[11]

The technology of solar panels has evolved steadily over the last three decades, and new products are becoming available on the market quite regularly. As this technology advances, the aesthetic discord between green modifications and the integrity of historic districts may resolve itself in time. For example, photovoltaic shingles or tiles have been developed over the last 10 years by several national solar energy companies, and include products such as the Atlantis Energy Solutions, Inc.'s product "Sunslates." According to the manufacturer, these photovoltaic tiles provide an "all-slate roof from roof edge to roof edge." The modules have a polymer encapsulated back-sheet and hermetically sealed edges, providing a complete moisture barrier and ensuring a minimum 40-year life."[12]This warranty is good news to homeowners who may be concerned about the operational lifespan of solar panels, and it also serves to inform the local preservation commission about the projected longevity of the product.

While representatives from Atlantis Energy Solutions, Inc., maintain that their solar tiles can be installed, utilized, and removed from many historic rooftops with no damage to the original fabric, it is a good idea to first engage a structural engineer to measure their effects on historic properties, both positive and negative, before installing them. Given their difference in appearance from traditional roof slates, Sunslates and similar products may not be appropriate in all cases, but they do serve as an example of how technological advances should only make it easier to accommodate or even encourage energy efficient modifications within historic districts.

Crafting User-Friendly Regulations

Education does not stop with the local commission or preservationist. Education of the property owner is essential for success. Just as in any case of construction, rehabilitation, or remodeling within a historic district, the property owner needs to understand what work needs commission approval and what work does not. The communities of Breckenridge, Colo.; Salt Lake City, Utah; and Ypsilanti, Mich.; have worked to refine solar application standards while disseminating them in a user-friendly fashion.

Legislation at the local level can greatly influence the number of solar installations constructed within a historic district. Breckenridge, Colo., developed an ordinance to support sustainable development by streamlining approval of appropriate installation of solar panels within the town's conservation districts. The ordinance requires that panels not be placed on a character-defining roofline or on a primary elevation, so as to not be visible from the street.[13] Solar panels are required to be set back on flat rooftops, and so not alter the historic roofline or character-defining features such as dormers and chimneys.[14]The Breckenridge ordinance reflects the primary penchant in solar panel design parameters within a historic district—that photovoltaic panels may not be visible from the street—and several communities nationwide use the Breckenridge ordinance as a standard of review.

The historic landmarks commission in Salt Lake City has compiled a set of six design standards that measure the impact of solar panels upon the character of a structure or site. Like those of Breckenridge, Salt Lake City's standards address panel location and visibility from the public right-of-way, and the protection of character-defining features.[15] Furthermore, the standards expand on these basic principles to address the manner of installation (in an effort to reduce damage to the character of the house) and the actual design of the panels themselves (they should have a low profile).[16]

The historic district of Ypsilanti, Mich., has compiled a factsheet for property owners that explains the role of the local commission regarding the review of alternative energy systems. The local historic district commission maintains that a building should

remain in its original form whenever possible, since the character and historic value of a property change whenever alterations are made.[17] However, the City of Ypsilanti concurs with the Secretary of the Interior's Standards for the Treatment of Historic Places in that it recognizes that the long-term preservation of historic properties depends in part on the ability to adapt them to changing circumstances."[18]Interestingly, this philosophy has led the City to conclude that the only current alternative energy system compatible with historic buildings is solar panels.

The Ypsilanti factsheet goes into more detail about the role of local commissions and review of green modifications than do the standards of Salt Lake City and the guidelines of Breckenridge. The factsheet addresses how the Secretary of the Interior's Standards help to guide the City's decision to approve or deny proposed solar panels. For example, the factsheet quotes Standard 2 in its directive that "the historic character of a property will be retained and preserved. The removal of historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided."[19] As an example, this section cites a business owner whose building faces south and who would like to install an array of solar panels. Because any addition to the south-facing facade would alter the character of the property, the commission would not approve panels in this position, and would require the business owner to propose an alternative location for the panels.[20]

Although the Ypsilanti commission appears to be willing to work with property owners on the introduction of solar panels, the property owners must justify their request. The commission requires that any homeowner proposing the installation of an alternative energy system within the historic district prove that it is a necessity. The commission considers whether the applicant has pursued more traditional energy conservation measures—such as insulation, weather-stripping, or caulking—before approving any application for the addition of solar panels. If a property owner has not taken the basic steps set by the commission, then the proposed alteration would not be deemed necessary and the owner's application would more than likely be denied.

In some cases, design standards for solar panels might be addressed outside the historic preservation ordinance. For example, Maryland's Washington County zoning ordinance was recently amended to allow for solar panels and small wind turbines in zoning districts. These zoning districts are classified by their permissible uses—residential, business, rural, planned development, special, and industrial. The rural district contains guidelines for both a conservation and a preservation district. Another set of guidelines pertains to a historic preservation district located within the special district division. The ordinance outlines eight standards applicable to solar collection systems. These standards refer to the size, setbacks, height, location, code compliance, roof placement, and acquisition of solar easements—all without reference to historic districts.[21]The amended zoning ordinance does not indicate that applications for solar panels within designated historic districts would be reviewed any differently than those within a non-designated area. While the historic preservation commission's traditional design review authority clearly affords oversight of changes to exterior features, the lack of direct reference to solar panel installations could confuse property owners about the permitting process.

Best Practices for Green Guidelines

The number of applications for green modifications to properties located within historic districts is ever increasing. As such, the preservation community and the preservation commission should be at the forefront of this significant trend. The preservation community should continue to research and highlight best practices on how to incorporate green building technologies into rehabilitation projects. Preservation commissions, in turn, should develop clear guidance on how green technology can be used without adversely affecting the historic sites and buildings they are charged with protecting.

Specifically, commissions should develop new design standards governing the use of solar panels. Commissioners should first consider if the character-defining features of a property will be compromised by the new technology proposed. As a general rule, solar applications should ideally be positioned on auxiliary structures or built as free-standing installations, with restricted

visibility from the main right of way. If those are impossible, and installation on the primary resource is required, then solar panels should be located on secondary elevations, not visible from the main right of way, and should be reversible and non-damaging to historic features. Historic rooflines, dormers, chimneys, and elevations should be preserved as much as possible during the design process. Remember that the review of applications for solar installations is best conducted on a case-by-case basis, as photovoltaics are not appropriate for every historic resource or district. Finally, be able to present any new guidance to historic district residents in an easily understandable format.

By working with property owners, contractors, and manufacturers, local preservation commissions can be key players in the growing green revolution.

Notes

1. Garrett Andrews, "City Council moving toward solar energy," *Durango Herald*, June 24, 2009.

2. Sara Schaefer Munoz, "An Inconvenient Turbine: Conservation vs. Preservation," *Wall Street Journal Online*, July 12, 2007; January 20, 2008, 2.

3. Munoz.

4. Colleen McCann Kettles, *Solar American Board for Codes and Standards Report: Suggested Standards for a Model Statue and Ordinance*, October 2008, 6.

5. Kettles, 1.

6. Kettles, 8–10.

7. Kettles, 8.

8. Office of Historic Preservation, State of California. *Solar Rights Act*. Available from http://ohp.parks.ca.gov/?page_id=25664 (accessed on February 2, 2008).

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10. Eileen Fogarty, *Solar Energy Systems Design Standards City of Santa Monica*. Available from www01.smgov.net/cityclerk /council/agendas/2009/20090630 (accessed July 23, 2009).

11. For an example of historic district design guidelines that attempt to fully integrate sustainability concerns (Davidson, N.C.), see Jo Ramsay Leimenstoll, "Going Green: Applying a Sustainability Lens to Historic District Guidelines," Forum Journal 23, no. 3 (Spring 2009).

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17. City of Ypsilanti, Michigan, Historic Preservation Commission, *Alternative Energy Systems: Fact Sheet*. Available from http://city-ypsilanti.org/boards/bd_historic/factsheets

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18. City of Ypsilanti, 1.

19. City of Ypsilanti, 1.

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21. Washington County, Zoning Ordinance for Washington County. Available from www.washco-md.net/washco_2/pdf_files/legal/ZoningOrd.Pdf (accessed July 23, 2009).

Publication Date: Fall 2009

Author(s): Kimberly Kooles
Volume:24
Issue:1

Tags and Keywords

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