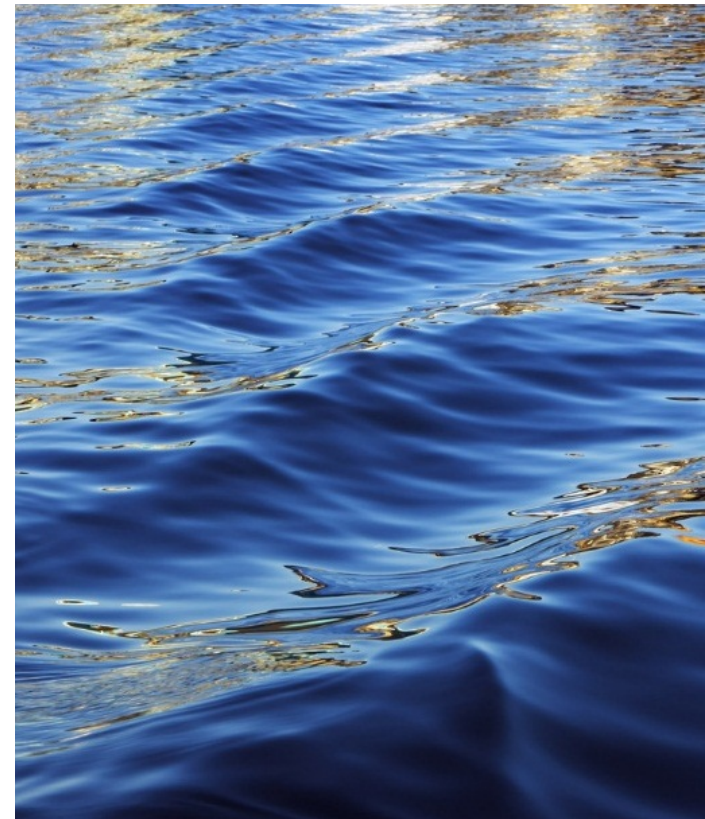




Sustainability and the Rehabilitation of Historic Buildings

October 20, 2017



Sustainability and the Rehabilitation of Historic Buildings

- The State Historic Preservation Office: Who we are and what we do
- The Standards for Rehabilitation
- Applying the Standards for Rehabilitation to Historic Properties
- Guidelines on Sustainability
 - Windows
 - Insulation
 - HVAC
 - Solar and Wind Technology
- Additional Resources: Where can I learn more?



CT State Historic Preservation Office

450 Columbus Boulevard, Suite 5, Hartford, CT

CT State Historic Preservation Office

- The State Historic Preservation Office (SHPO) is responsible for overseeing the governmental program of historic preservation for Connecticut's citizens.
- Every state in the country, the US territories and Washington DC have a SHPO.
- SHPO administers a range of federal and state programs that identify, register and protect the buildings, sites, structures, districts and objects that comprise Connecticut's cultural heritage.
 1. Keeps and maintains the State and National Register of Historic Places
 2. Carries out the duties under Section 106 of the National Historic Preservation Act and the CT Environmental Policy Act
 3. Administers state and federal historic rehabilitation tax credit programs
 4. Provides grant funding to municipalities and non-profit organizations
 5. Works with municipalities to establish Certified Local Government Program
 6. And Much More

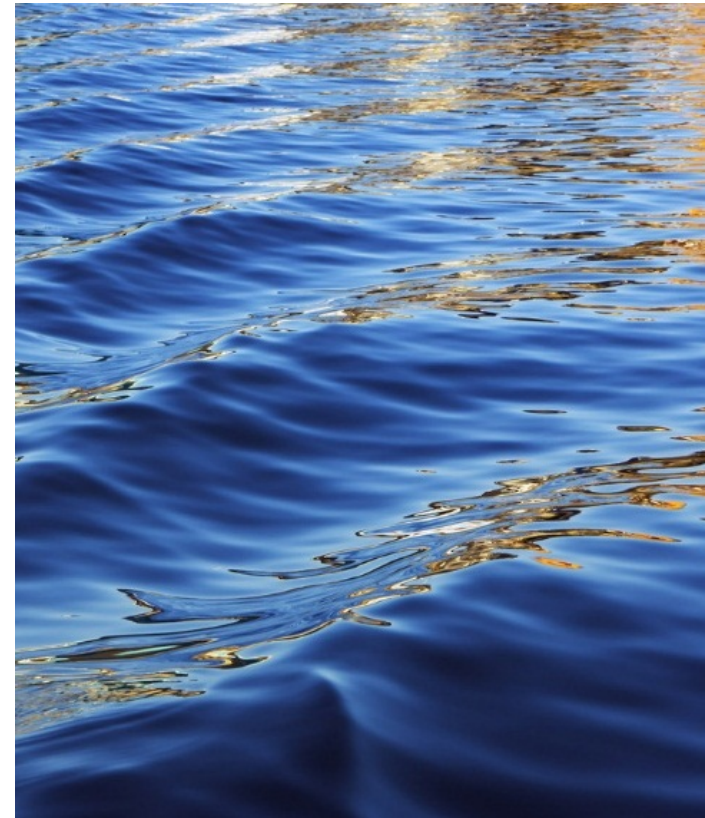
SHPO - Continued

- All SHPO program staff must meet federal professional qualifications under 36 Code of Federal Regulations Part 61
- The SHPO evaluates the impact to historic resources under all our programs
- Last year, the SHPO:
 1. Accepted over 114 new application to our tax credit programs
 2. Reviewed over 3,000 projects under Section 106 and CEPA
 3. Awarded 36 new grants totaling \$775,000
 4. Listed 19 new resources on the State and National Register for a total of 650 properties



The Standards for Rehabilitation

What are they and How are they applied?



The Secretary of the Interior's Standards


- The Standards for the Treatment of Historic Buildings are a set of codified requirements that must be followed when undertaking work at historic properties using state or federal programs.
- The Standards pertain to historic buildings of all materials, construction types, sizes and occupancy; and apply to exterior and interior work, as well as new additions and the building's site and environment.
- There are four treatment standards for historic properties:
 1. Preservation
 2. Restoration
 3. Reconstruction
 4. **Rehabilitation**
the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural or architectural values.
- The Standards for Rehabilitation are the only treatment option that allows for the incorporation of sustainable measures into historic properties.

The Standards for Rehabilitation

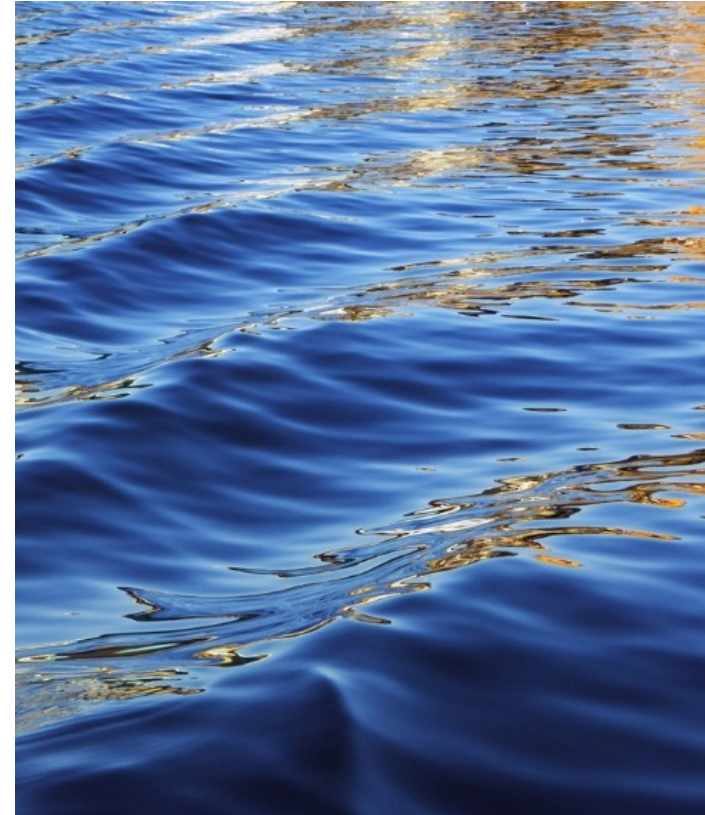
1. **A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces and spatial relationships.**
2. **The historic character of a property will be retained and preserved.**
3. Each property will be recognized as a physical record of its time, place and use.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. **Distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize a property will be preserved.**
6. **Deteriorated historic features will be repaired rather than replaced (or replaced in-kind, if too deteriorated).**
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible.
8. Archaeological resources will be protected and preserved in place.
9. New additions, exterior alterations or related new construction will not destroy historic materials, features and special relationships that characterize the property.
10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Applying the Rehabilitation Standards to Historic Properties

- The Standards are **not applied broadly** across all building types, eras and styles. They are **applied on a case by case basis**, specific to the historic building, its level of integrity, style, and significance.
- The SHPO and NPS do not dictate treatments, products or procedures. We evaluate those proposed for conformance with the Standards.
- Before undertaking a rehabilitation project, it is important to identify the architectural materials and features that define the building's historic character (aka "character-defining features"). For example (this is not a complete list!):
 1. Apartment Buildings – decorative moldings, plaster and millwork; lobby and corridor spaces
 2. Schools – wide corridors; stairwells; floor to ceiling height; wood floors, glazed tile, and windows
 3. Industrial Buildings – exposed brick walls and structural members; windows; floor to ceiling height
- Rehabilitation projects should always include consideration for accessibility and life safety improvements, resilience to natural hazards, and sustainability.



Guidelines on Sustainability



The Guidelines

- In response to the demand to improve energy efficiency, the National Park Service published its *Illustrated Guidelines on Sustainability for Rehabilitated Historic Buildings* in 2013.
- The Guidelines begin with an understanding that historic buildings are themselves often inherently sustainable and that this should be used to advantage when proposing upgrades.
- Unlike the Standards, the Guidelines are not codified as program requirements. They are general and intended to provide guidance to help interpret and apply the Standards.



Applying the Guidelines

- Before implementing any energy conservation measures, the existing energy-efficient characteristic of the building should be assessed.
- Historic building construction methods and materials often maximized natural sources of heating, lighting and ventilation to respond to local climatic conditions.
 1. Shutters, awnings, porches, vents, skylights, light wells
 2. Site placement and existing vegetation
- The most sustainable building is often the one that already exists and good preservation practice is often synonymous with sustainability.



Windows

- Historic windows are often character-defining features of a property.
- As with all rehabilitations, preservation of historic building fabric is the goal through routine maintenance, weather stripping, caulking, installing storm windows, etc.
- Retrofitting historic windows with high-performance glazing or clear film is often an option that incorporates efficiency while preserving the historic window sash and framing.
- In instances where repairing windows is not possible, the SHPO and NPS recommend the following:
 1. Installing compatible replacement windows that match the historic in appearance, size, design, proportion and profile
 2. Energy efficient, insulated glass windows are allowable under the Standards provided they match the historic window to the extent possible

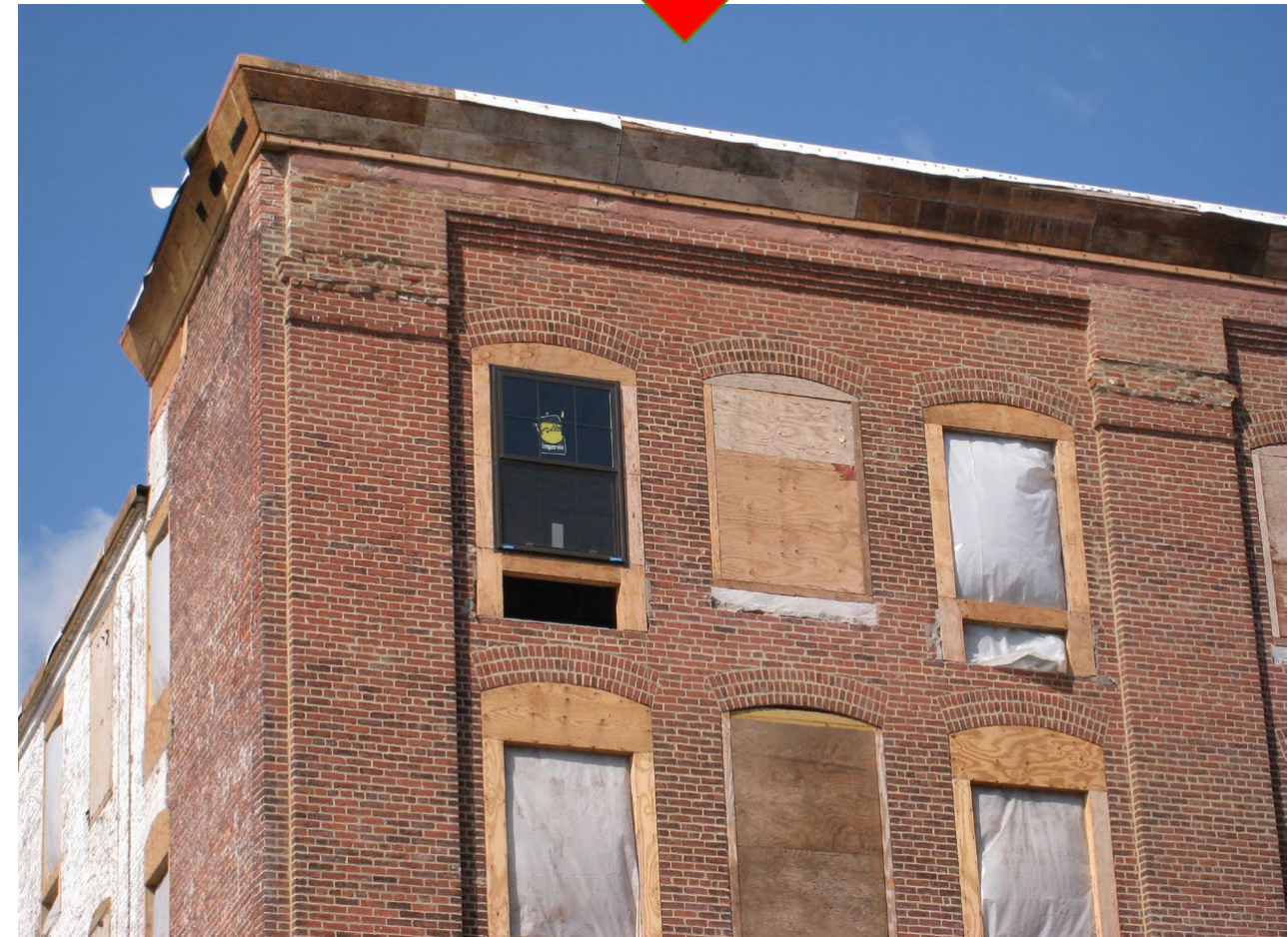


Windows

Treatments not recommended for historic windows include:

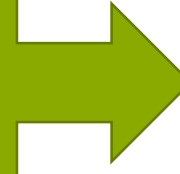
1. Replacing repairable windows with new insulated windows
2. Installing incompatible or inefficient replacement window units
3. Installing new or retrofitting historically clear windows with tinted glass or reflective coatings.
4. Removing historic shutters and awnings
5. Covering or removing existing transoms

Not only have incompatible windows that do not fit the size and shape of the historic window openings been installed, but the original openings have also been shortened to install through-the-wall HVAC units.





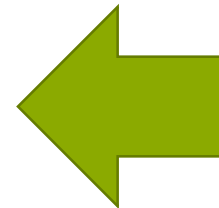
Traditional canvas awnings should be retained when they exist on historic buildings.



The original windows, which were deteriorated beyond repair, featured a dark tint. They were replaced with a slightly lighter-tinted glazing to improve daylighting in this mid-century modern office building.



Installing patio slider doors as interior storm windows was a creative and successful solution to improve the energy efficiency of the existing windows.



Weatherization and Insulation

- The Guidelines recommend an incremental approach to weatherization and retrofit treatments beginning with the least invasive measures. Such as:
 1. Eliminating infiltration through caulking and weather stripping
 2. Insulating unfinished spaces like attics, basements and crawl spaces
 3. Installing wall insulation only after lower impact treatments have been carried out
- Wall insulation is frequently approved for rehabilitation projects, particularly those using other state funding sources, but with some conditions:
 1. The SHPO and NPS do not generally approve wet-spray or other spray-in insulations
 2. The wholesale removal of plaster and trim in order to install insulation
 3. Altering the original proportion and relationship of the wall to the door and window openings



The original proportion and relationship of the wall to the door trim has been all but lost because the gypsum board installed was too thick.



When wall insulation was installed here the walls were furred out, which created deep, historically inappropriate window recesses. The repairable historic trim was also not reinstalled.



The original proportion and relationship of the wall to the windows and trim, which is important in defining the character of these historic interior spaces, has been retained here.

HVAC

- Of primary concern is retaining the historic character of the building and site when a new HVAC system is necessary. For example,
 1. It is appropriate to leave ductwork exposed in industrial spaces or when concealing it would destroy historic fabric (like a tin ceiling)
 2. It is inappropriate to leave it exposed in historically finished spaces
 3. Placing HVAC equipment in highly-visible locations on the roof or on the site where it would negatively impact the historic character of the building or site is not recommended



To avoid damaging the metal ceiling, the ductwork was left exposed and it was painted to minimize its impact, thus preserving the historic character of this former bank



Interior ductwork has been inappropriately left exposed and unpainted here in this traditionally-finished school entrance hall.

The cuts made in the brick and the decorative stone trim to install through-the-wall air conditioners have not only destroyed building material, but have also negatively impacted the character of this historic apartment building

Solar and Wind Technologies

- The SHPO appreciates that solar technology is an important source of renewable energy and we work with historic property owners to ensure they can utilize the technology while preserving the historic character of their property and surrounding historic district.
- The Guidelines recommend the following:
 1. Installing a solar device in a compatible location on the site or on a non-historic building or addition where it will have minimal impact on the historic building and its site
 2. Installing a low-profile solar device on the building so that it is not visible or only minimally visible from the public right of way.
 3. Installing solar roof panels horizontally – flat or parallel to the roof – to reduce visibility



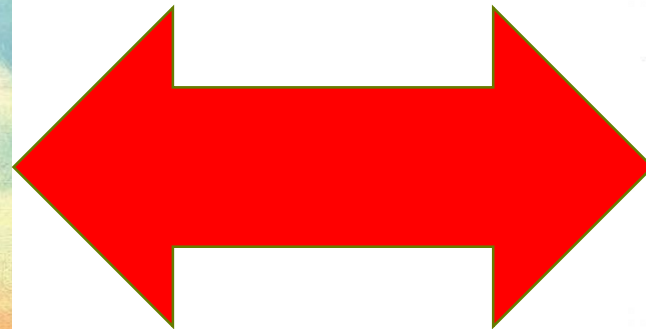
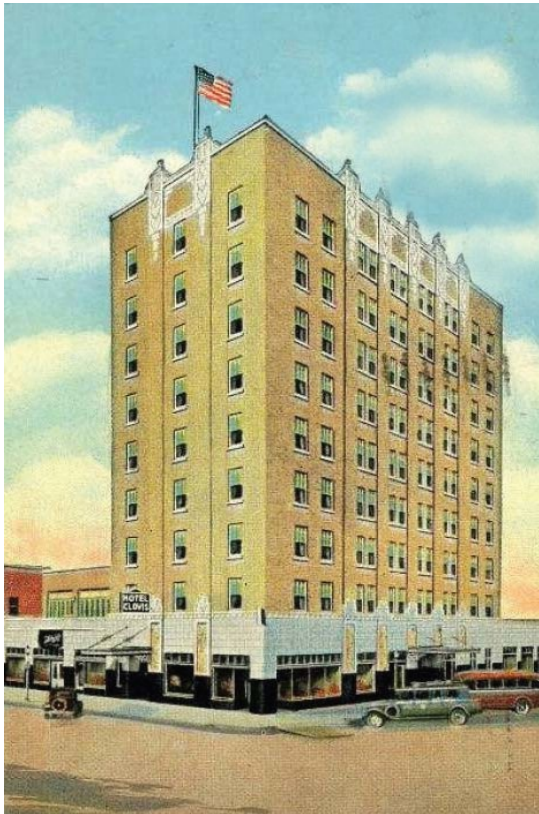
Solar roof panels have been installed at the rear, but because the house is situated on a corner, they are highly visible and negatively impact the property's character.

Solar panels, which also serve as awnings, were installed in secondary locations on the side and rear of this historic post office and cannot be seen from the front of the building.

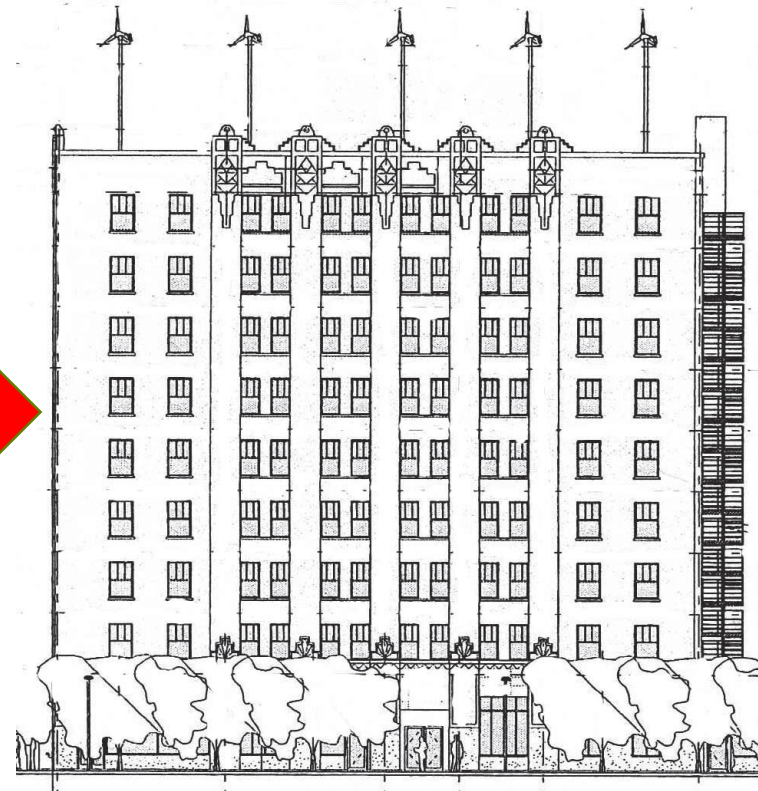


Solar and Wind Technologies

- Like Solar technology, wind-power technologies are only recommended when the equipment will not negatively impact the historic character of the building, site or surrounding historic district.



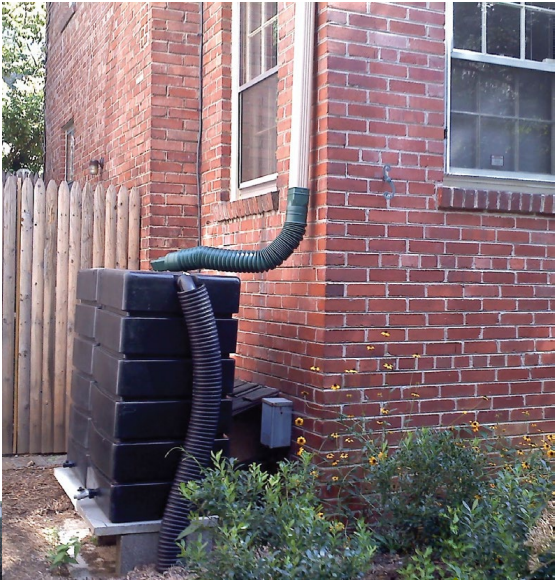
This historic hotel is a prominent and highly visible local landmark, and the wind turbines proposed to be added on the roof would negatively impact its historic character.



Other considerations that may meet the Standards



Green and cool roof systems



Rain gardens and water collection tanks



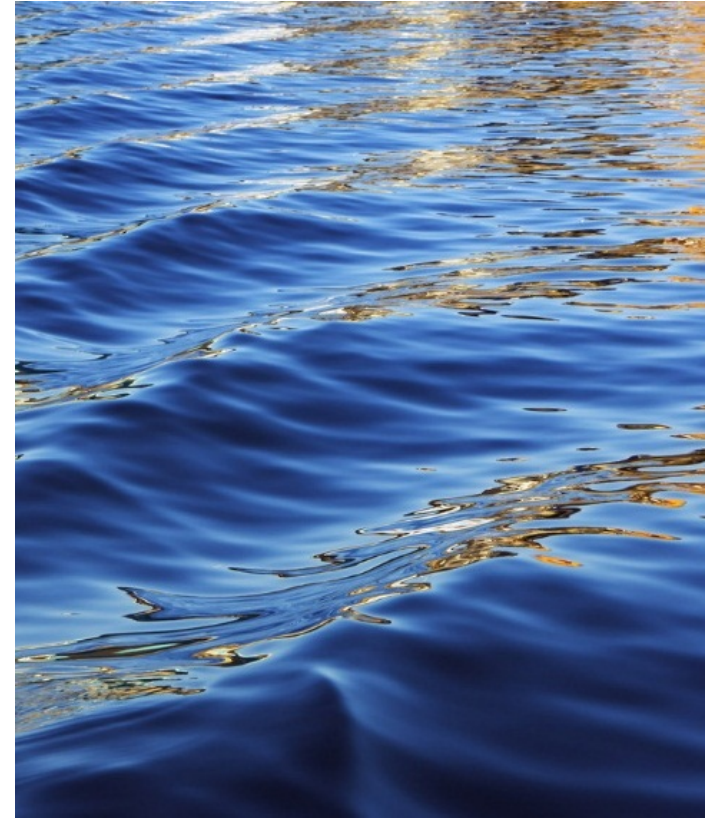
Permeable Pavers





Additional Resources

Where can I learn more?



Helpful Websites

- <https://www.nps.gov/tps/standards.htm>
- <https://www.nps.gov/tps/standards/applying-rehabilitation/standards-bulletins.htm>
- <https://www.nps.gov/tps/standards/rehabilitation/guidelines/index.htm>
- <https://www.nps.gov/tps/sustainability/energy-efficiency/weatherization.htm>
- <http://www.preservationnation.org/issues/>

Questions??

Contact Information:

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Historic Tax Credits

- Available to properties listed on the National or State Register of Historic Places
- Federal Historic Credit offers 20% credit on rehabilitation of income-producing properties
- State Historic Credit offers 25% or 30% credit on rehabilitation of properties, homeownership or income producing
- Real Estate Equity program, not a grant; not exclusively a housing program
- Program, contact and applications are reviewed and approved at the State Historic Preservation Office/DECD (SHPO) in Hartford

Preservation Applications to SHPO and National Park Service

Part 1 – Application submitted to SHPO and then to NPS (if federal credit) that affirms eligibility of project as certified historic structure (Federal and State credit)

Part 2 – Rehab plan that is approved by SHPO and NPS (if federal credit) and must be followed. (For State and Federal credit)

Part 3 – Federal credit, this is application certifying completion of rehab to receive credit; this must match part 2 approved rehab plan and approved by SHPO

Part 3 – State credit, this provides developer a reservation of state credits based on construction estimate

Part 4 – State credit only, this is approval for your rehab plan (like the federal part 3); this must match part 2 approval

Part 5 – State credit only, issuance of voucher after cost certification, CO and construction completion, and approval of part 4

Elements Necessary for Successful Completion of Historic Multi-Family Project

- Preservation architect
- Preservation consultant
- Environmental consultant
- Proven general contractor
- Tax accountant and lawyer
- Financial consultant

Federal Historic Tax Credit

- **Economics of Federal Historic Tax Credit**

- Calculation: 20% of eligible basis development costs and is not limited to just construction hard costs;
- Construction interest, architect/engineer, fees to developer factored into eligible basis calculation;
- Market is 90-95 cents on the TC dollar;
- 5 year recapture period, investor is part of ownership structure;
- SHPO and National Park Service (NPS) design review approval;
- Costs must be certified to investor before credit can be taken

State Historic Credit

- **Economics of State Historic Tax Credits**
 - Calculation: 25% or 30% of eligible construction hard costs; no other fees or costs eligible except hard costs;
 - No NPS design review, only SHPO;
 - No recapture period;
 - Investors buy voucher at end of construction and are not always part of ownership structure
 - Market is 80-85 cents on the dollar, pre-tax, 100% on the dollar with Eversource buying the credits
 - Costs must be certified to SHPO to receive voucher
 - Since voucher is issued at end of rehabilitation, a bridging of the construction costs is necessary

Historic Tax Credits Rehabilitation Issues

- Window and window openings
- Insulation; no spray foam
- Masonry cleaning
- Mill chimneys
- Historic detail in building interior
- Location of air handler
- Use and size of hallway, particularly in schools
- Additions

Simple Historic Credit Eligible Basis/ Equity Raise

Uses of Funds

Construction	\$7 million
Soft costs	\$500,000
Acquisition	\$200,000
Site work	\$300,000
Total Costs:	\$8 million

Qualified Rehab Expenses

\$7 million
\$ 500,000
0
0
Eligible costs: \$7.5 million

TC Calculation into equity:

X 20 percent (federal)	\$1.5 million in tax credits
95 cents to project	\$1.425 million equity
X 25 percent (state) (hard costs only)	\$1.75 million in tax credits
100% to the project	\$1.75 million in equity
Total Equity to project (state and federal)	<u>\$3.175 million in total equity</u>

Loom City Lofts Rockville



Loom City Lofts Rockville



Loom City Lofts

Former Roosevelt Textile Mill

- Individually listed on the National Register
- Since affordable housing, developer received 30% State HTC, rather than 25% through SHPO
- Developer received \$1.2 million Brownsfield Grant through the Town of Vernon in 2008 prior to CHFA involvement
- Developer received tax abatement, zoning, site plan approval for conversion to housing
- Mixed use building, with 7,000 square feet of office/retail; 68 units of housing, 60 LIHTC units and 8 market rate units
- CHFA Tax Exempt bonds and DOH CHAMP funds
- One investor bought LIHTC and federal HTCs; another, Eversource, purchased the state HTCs

Loom City Lofts, HTC and LIHTC

Federal Historic Credit:	3,142,000
State Historic Credit:	3,664,000
LIHTC:	3,349,000
CHFA Mortgage:	3,982,000
DOH CHAMP:	5,000,000
Energy Rebates:	147,500
Lease up Revenue:	67,000
Deferred Dev Fee:	348,000
Total Dev Costs:	19,699,500

Loom City Lofts Rockville





LOOM CITY LOFTS

Rockville, CT

The Architecture + Development Studio, L.L.C.