

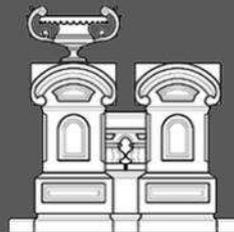
# Case Studies

## Religious Building Repairs



*Image from exploring the burned over district*

The Art of Preservation  
Landmark Society of Western New York  
April 17, 2015



# AIA Rochester

A001

## ROC2015- Case Studies in Religious Building Repairs

Virginia Searl, Bero Architecture, PLLC  
Valerie O'Hara, Pike Stained Glass Studios

April 17, 2015



Credit(s) earned on completion of this course will be reported to **AIA CES** for AIA members.

Certificates of Completion for both AIA members and non-AIA members are available upon request.

This course is registered with **AIA CES** for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.



# Course Description

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Regular maintenance and repairs required by deferred maintenance are some of the most common challenges faced by houses of worship. Balancing the cost associated with historic buildings and mission can be difficult. Case studies presented will discuss the identification of recommended or required work, development of construction projects, and their completion. Case studies will be presented by trade/building area and systems.

# Learning Objectives

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At the end of the this course, participants will be able to:

1. Participants will be able to identify the unique design and research challenges posed by religious buildings and be able to employ creative strategies to work around such challenges.
2. Participants will be able to reconcile the conflicting goals of energy conservation, comfort, and preservation for a given rehabilitation project
3. Participants will be able to judge whether proposed work in a rehabilitation project will meet the mission, budget and future of a congregation.
4. Through case studies the participants will be able to implement specific strategies for rehabbing religious buildings.

- Pursue official designation as historic by listing the building(s) in the State and National Registers of Historic Places.

Is the building:

-Over 50 years old

-Retains a high level of integrity -Is it significant

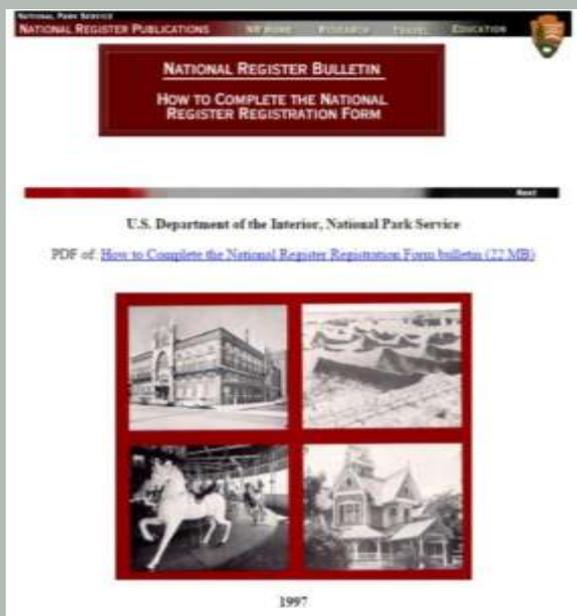
- Request evaluation of eligibility from New York State Office of Parks, Recreation and Historic Preservation's State Historic Preservation Office (SHPO).

<http://nysparks.comshpo/contact> - National Register Unit representatives listed by county, with phone numbers.



St. James Episcopal Church, Batavia

- Complete National Register of Historic Places Registration Form , available with instructions at [www.nps.gov/nr](http://www.nps.gov/nr)
- Consider using a professional architectural historian to assist or complete the form, cost can range from \$3,000 to \$5,000. State and national registration uses the same form.



NPS Form 10-900 OMB No. 1024-0018  
**United States Department of the Interior**  
 National Park Service  
**National Register of Historic Places Registration Form**

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

**1. Name of Property**  
 Historic name: \_\_\_\_\_  
 Other names/site number: \_\_\_\_\_  
 Name of related multiple property listing: \_\_\_\_\_  
 \_\_\_\_\_  
 (Enter "N/A" if property is not part of a multiple property listing)

---

**2. Location**  
 Street & number: \_\_\_\_\_  
 City or town: \_\_\_\_\_ State: \_\_\_\_\_ County: \_\_\_\_\_  
 Not For Publication:  Vicinity:

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**3. State/Federal Agency Certification**  
 As the designated authority under the National Historic Preservation Act, as amended,  
 I hereby certify that this \_\_\_ nomination \_\_\_ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.  
 In my opinion, the property \_\_\_ meets \_\_\_ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:  
 \_\_\_national \_\_\_statewide \_\_\_local  
 Applicable National Register Criteria:  
 \_\_\_A \_\_\_B \_\_\_C \_\_\_D

\_\_\_\_\_  
 Signature of certifying official/Title: Date

\_\_\_\_\_  
 State or Federal agency/bureau or Tribal Government

In my opinion, the property \_\_\_ meets \_\_\_ does not meet the National Register criteria.

\_\_\_\_\_  
 Signature of commenting official: Date

\_\_\_\_\_  
 Title : State or Federal agency/bureau or Tribal Government

1

## Why seek designation?

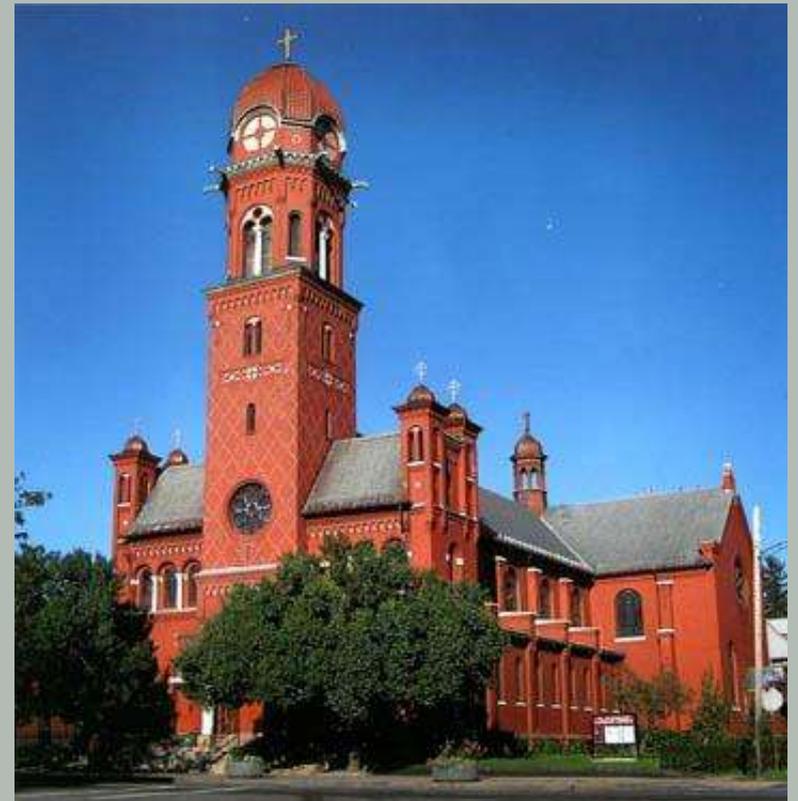
Access to funding assistance for preservation planning and construction projects.

St. James Episcopal Church  
Batavia, New York



Christ Church  
Rochester, New York

St. James Episcopal Church  
Skaneateles, New York



St. Stanislaus Kostka Church  
Rochester, New York

# BERO ARCHITECTURE PLLC

ARCHITECTURE SUSTAINABILITY PRESERVATION

Thirty Two Winthrop Street, Rochester, New York 14607  
885-262-2035 (phone) • 885-262-2054 (fax) • [contact@beroarchitecture.com](mailto:contact@beroarchitecture.com) (email)

## SOME THOUGHTS ON OFFICIAL RECOGNITION OF LANDMARKS AND HISTORIC DISTRICTS

### THE STATE AND NATIONAL REGISTERS OF HISTORIC PLACES

The National Register of Historic Places is the list of the nation's properties officially designated as worthy of preservation, including archeological or historical sites, districts, buildings, and objects that:

- a. are associated with events that have made a significant contribution to the broad patterns of our history; or
- b. are associated with the lives of persons significant in our past; or
- c. embody the distinctive characteristics of a type, period, or method of construction, or which represent a significant and distinguishable entity whose components may lack individual distinction; or
- d. have yielded, or may be likely to yield, information important in prehistory or history.

The list is maintained by the National Park Service under the U.S. Department of the Interior. This program is administered at the state level by the State Historic Preservation Office (SHPO). The SHPO also administers the State Register of Historic Places which uses the same criteria for listing as the National Register.

Having a property listed in the State and National Registers provides certain benefits. It recognizes that the property is of significance to the Nation, the State, and/or the community. Rehabilitation of listed income-producing properties which meet the *Secretary of the Interior's Standards for Rehabilitation* is eligible for tax incentives, as is rehabilitation of certain owner-occupied residential properties located in qualifying census tracts. Listing of an individual property or a district in the State and National Registers does not interfere with the owner's right to alter, manage, or dispose of the property, but it often enhances the way communities perceive historic resources, gives credibility to preservation efforts by private citizens and public officials, and is required for access to most historic preservation grants. This program was designed to help communities celebrate and document their heritage, history, and architecture. New York State has more than 75,000 buildings, structures, objects, and sites listed in the State and National Registers of Historic Places.

Listing provides some protection from State or Federally financed, licensed, or assisted projects. If a property has been determined eligible for listing or is actually listed, two separate laws apply: the National Historic Preservation Act and the New York State Historic Preservation Act. These laws come into play only if the property in question is being considered for funding from a state or federal agency, such as Community Development or HUD, or if the property owner is applying for a state or federal permit, such as a Department of Environmental Conservation or Army Corps of Engineers permit. In these cases the funding or permitting agency, by law, must ask the SHPO to determine if the project will have an impact on the historic property and, if it will, what steps can be taken to lessen the impact. (Neither of these two laws apply to locally issued or granted permits, such as building permits, local subdivisions, zoning variances or special use permits.)

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BA915.13.OfficialRecognitionOfLandmarks&HistDistricts.02715.doc

### Some Thoughts On Official Recognition of Landmarks And Historic Districts

Another law that may be triggered for projects having potential impacts on State/National Register listed properties is the State Environmental Quality Review Act (SEQR). Established in 1977, SEQR was designed to insure that a broad spectrum of environmental and community concerns were taken into consideration when any discretionary governmental action is taken. At the local level this law may be triggered when a community is asked to grant a discretionary action (an action requiring a judgment), such as a zoning variance or subdivision approval. This law does not come into play when a ministerial action (an action defined by law that does not require a judgment) is undertaken by a locality. A building permit is an example of a ministerial action. Routine building maintenance does not require review under SEQR. In brief, if the action the property owner is seeking does not require a local, county or state board approval, SEQR will not apply.

Preservation ordinances and architectural review boards are established by local laws (see Local Landmarks and Historic Districts below); they are not a part of the National Register program. For more information on the State and National Register programs contact the New York State Office of Parks, Recreation and Historic Preservation at (518) 237-8643.

### LOCAL LANDMARKS AND HISTORIC DISTRICTS

More than 100 municipalities across New York State have adopted local preservation ordinances designed to prevent destruction or insensitive alteration of buildings and districts which have special historic, architectural or cultural character. Local preservation ordinances are administered by an architectural review board or historic preservation commission. Boards identify significant historic and architectural resources, designate landmarks and historic districts, and review applications for proposed exterior changes to buildings that are individual landmarks or located in a historic district.

Designation as a local landmark confers a certain amount of prestige to the property. There may also be some potential economic benefits. Local preservation ordinances may help to stabilize or increase property values.

Visible changes to local landmarks or buildings located in historic districts require a certificate of appropriateness from the review board. A certificate of appropriateness is usually granted if the reviewing board feels that a proposed alteration is compatible with the design, scale, texture and materials of the historic building. In a historic district, the proposed alteration must also be sympathetic to the character of surrounding properties. In general, new construction, demolition, or moving of a building, or any change in material or appearance of the exterior of a property that can be seen from a public-right-of-way requires a certificate of appropriateness.

Property owners should contact their town or village offices to find out if a local preservation ordinance has been enacted. If so, the architectural review board can provide more specific information on the ordinance, the designation procedures for landmarks and districts, and the responsibilities of historic property owners.

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Local versus State and National Registers of Historic Preservation designations? Local designation provides, through local zoning ordinances, protections to structures, may provide relief from some building code requirements, and usually requires review of changes. State and national designation is honorary without restrictions until public funding is awarded. This and other material is available at [www.beroarchitecture.com](http://www.beroarchitecture.com) - "Some Thoughts On..."



Condition Report  
First Presbyterian Church  
One Symphony Circle, Buffalo, NY  
Bero Architecture P.C., 32 Winthrop Street,

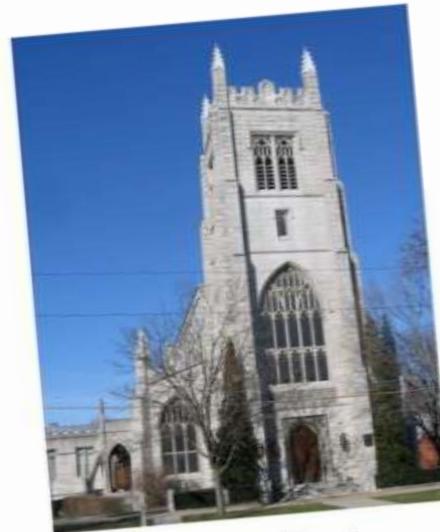


Condition Report  
St. James' Episcopal Church  
Skaneateles, New York  
May, 2008



Condition Report  
First Baptist Church  
92 South Main Street, Fairport, NY  
Bero Architecture P.C.  
32 Winthrop Street  
Rochester, NY 14607

96413



Condition Report  
Trinity Church  
520 South Main Street, Geneva, NY

Bero Architecture P.C., 32 Winthrop Street, Rochester, NY 14607

06180

# Existing Conditions Assessments

## Condition Report or Report of Site Visit

- Visual, non-invasive survey of building envelope and site
- Should include representative photographs to illustrate deficiencies
- Should include prioritized list of recommended repairs and improvements
  - ❖ Recommendations should use the Secretary of the Interior's Standards for Rehabilitation as guidelines.
- Should include Opinion of Probable Construction Cost (estimates)
- Should include additional reference resource information
- May include interior spaces and mechanical systems
- Probably will not include specialized systems like organs or leaded glass

## Prepared by experienced preservation architect

“Qualified 36 CFR 61 in Architecture or Historic Architecture, Federal Register Vol. 48, No. 190.”

## Uses

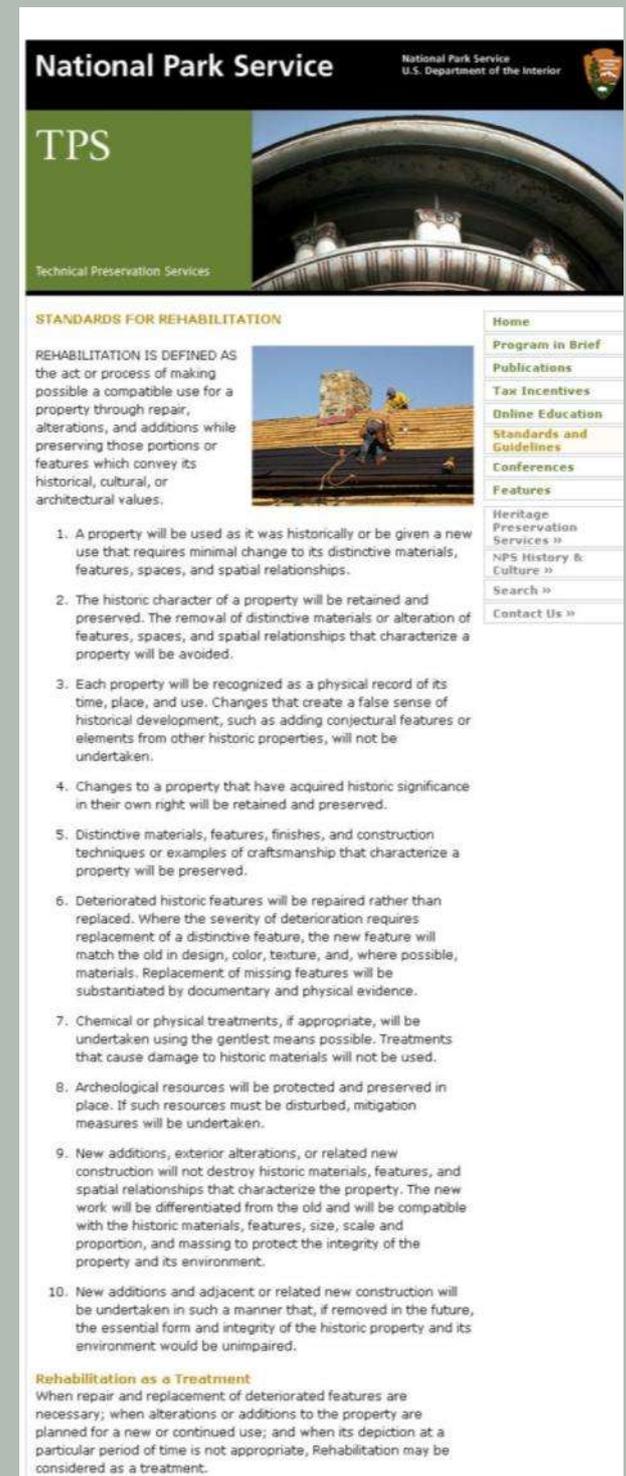
- Supporting documentation for grant funding applications
- Planning and budgeting for maintenance and repairs
- Development of construction projects in a logical and affordable manner
- Verification to grantors that requested amounts are appropriate for work identified

# Secretary of the Interior's Standards for Rehabilitation

One of four approaches to the treatment of historic properties\*.

- Standards for Preservation focus on maintenance and repair of existing historic materials.
- Standards for Restoration focus on depiction of a property at a particular period of time in its history, most generally useful for the interpretation of a building museum.
- Standards for Reconstruction focus on the re-creation of non-extant properties for interpretation.
- Standards for Rehabilitation allow alteration or additions to a historic property allowing continued and changing uses while retaining the property's character.

\* Paraphrased from [www.nps.gov](http://www.nps.gov)



The screenshot shows the National Park Service website page for 'Standards for Rehabilitation'. The header includes the National Park Service logo and the text 'National Park Service U.S. Department of the Interior'. Below the header is a green box with 'TPS' and 'Technical Preservation Services'. The main content area is titled 'STANDARDS FOR REHABILITATION' and includes a definition of rehabilitation and a list of 10 standards. A sidebar on the right contains navigation links such as 'Home', 'Program in Brief', 'Publications', 'Tax Incentives', 'Online Education', 'Standards and Guidelines', 'Conferences', 'Features', 'Heritage Preservation Services', 'NPS History & Culture', 'Search', and 'Contact Us'. A small image of a person working on a roof is also visible.

**National Park Service** National Park Service U.S. Department of the Interior

**TPS** Technical Preservation Services

**STANDARDS FOR REHABILITATION**

REHABILITATION IS DEFINED AS 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.

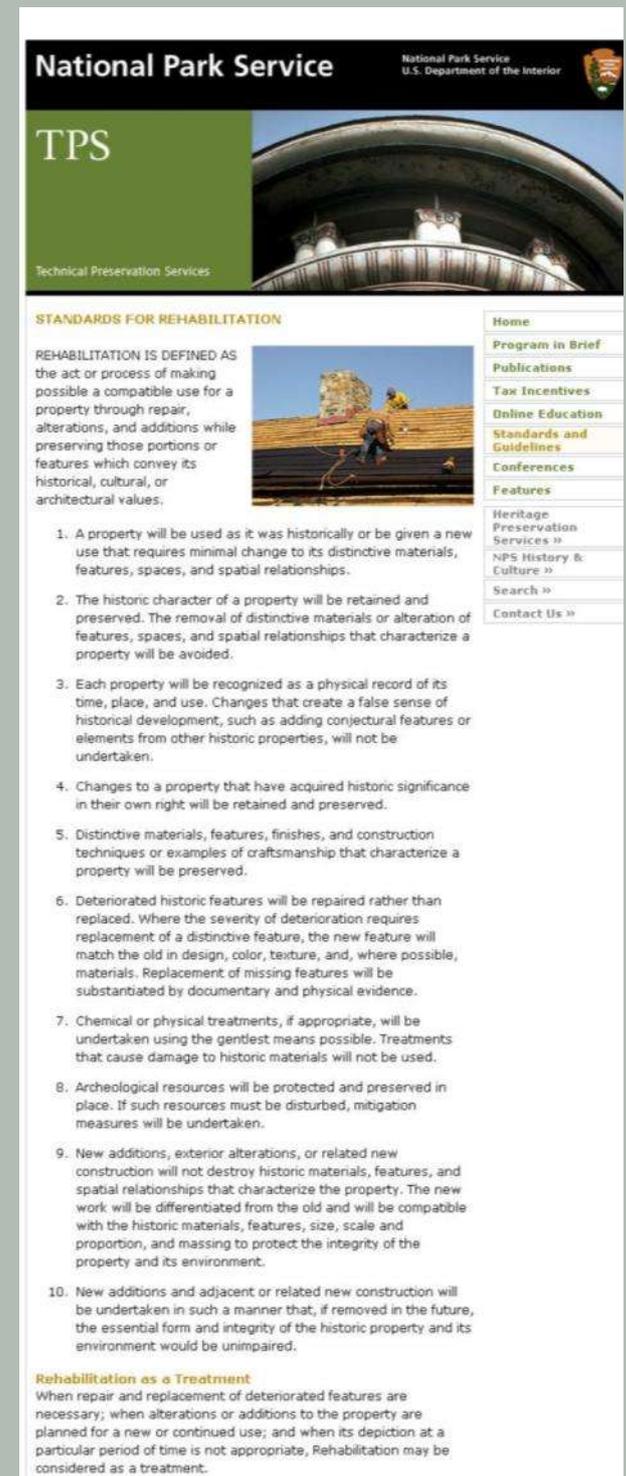
1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
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. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
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.

**Rehabilitation as a Treatment**  
When repair and replacement of deteriorated features are necessary; when alterations or additions to the property are planned for a new or continued use; and when its depiction at a particular period of time is not appropriate, Rehabilitation may be considered as a treatment.

Home  
Program in Brief  
Publications  
Tax Incentives  
Online Education  
Standards and Guidelines  
Conferences  
Features  
Heritage Preservation Services »  
NPS History & Culture »  
Search »  
Contact Us »

# The short version:

1. Retain historic property use if possible.
2. Retain character, avoid removal of character-defining features.
3. Do not make changes that create a false impression of age or style.
4. Retain past appropriate changes and additions.
5. Preserve character-defining features.
6. Repair instead of replace deteriorated building elements.
7. Use the most gentle methods in all work. If replacement is required, match existing exactly.
8. Protect and preserve archaeological materials.
9. Additions and alterations should be compatible with the existing property and identifiable as new.
10. Additions and alterations should be reversible, removable in the future without affecting the original historic property.



The screenshot shows the National Park Service website page for Technical Preservation Services (TPS). The header includes the National Park Service logo and the text "National Park Service U.S. Department of the Interior". The main content area is titled "STANDARDS FOR REHABILITATION" and features a definition of rehabilitation, a list of 10 standards, and a section titled "Rehabilitation as a Treatment". A navigation menu on the right side includes links for Home, Program in Brief, Publications, Tax Incentives, Online Education, Standards and Guidelines, Conferences, Features, Heritage Preservation Services, NPS History & Culture, Search, and Contact Us. An image of a person working on a roof is also visible.

**National Park Service**  
National Park Service  
U.S. Department of the Interior

**TPS**  
Technical Preservation Services

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**Home**  
**Program in Brief**  
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**Tax Incentives**  
**Online Education**  
**Standards and Guidelines**  
**Conferences**  
**Features**  
**Heritage Preservation Services »**  
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# Character-defining features



Exterior wood panel at door jamb



Wrought iron railing



Cast stone masonry trim



Patterned slate roofing

# Develop a Project

- Some grants may cover preservation planning including condition reports and development of construction documents.
- Use an experienced preservation architect familiar with archaic materials and methods. Interview and discuss your needs with more than one architect.
- Discuss priorities and budget with architect to develop an appropriate project. A report of site visit rather than a condition report may be appropriate.
- If you proceed with construction, invite experienced, qualified contractors to bid your project, ask for references from owners of similar buildings who have done similar work. Your architect should be able to make recommendations.
- Retain your architect for contract administration (construction supervision). They act as your representative during construction, making recommendations for modifications in the scope of work based on unforeseen conditions and certify work as complete and acceptable for payment to contractors.

# Site



Problems: Vegetation too close to building and grade sloping back toward foundations.

Solution: Trim or remove vegetation, regrade or add soil around foundations to slope at 1" in 10' minimum for 10' ..

# Roofing



Problems: Deteriorated slate at end of useful service life (75+ years of age) missing or broken slate, or poor original quality.

# Roofing



Roofing as a character-defining feature; colors, patterns, cresting.



# Roofing

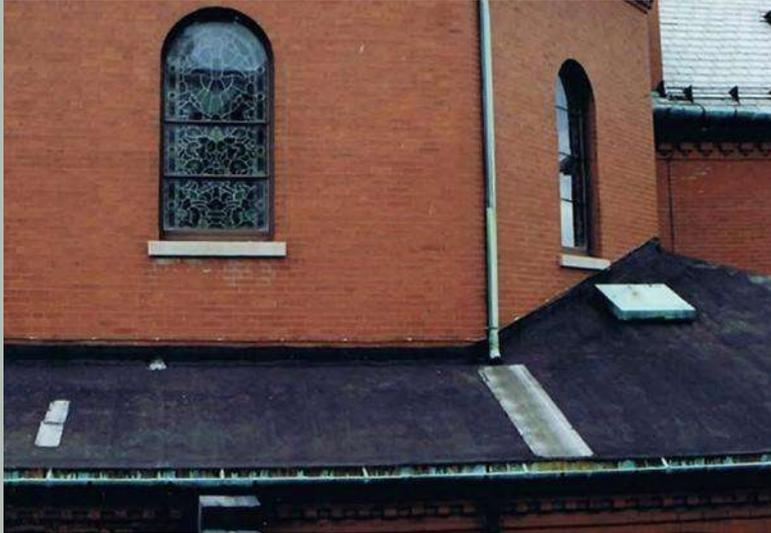
Unfortunate choices for patching. Use materials that match existing historic material. Asphalt roofing cement will accelerate copper deterioration; sulfur in cement forms sulfuric acid when in contact with rain water or melting snow.

Future work should match original. Roofing replacement should use original material pallet.



# Roofing

Sheetmetal roofing



Membrane roofing  
before, standing seam  
copper after



Membrane roofing  
before, flat seam copper  
after

# Roofing



Worn bituminous roofing membrane above, synthetic rubber roofing membrane below penetrated by slate shard from above.

Use best, most long lasting roofing materials you can afford. Consider first cost vs. long term benefits when making a selection. Single ply membranes are not recommended. Multiple ply modified bitumen membranes are acceptable.

Edge terminations are susceptible to leaks unless properly detailed.



# Roofing

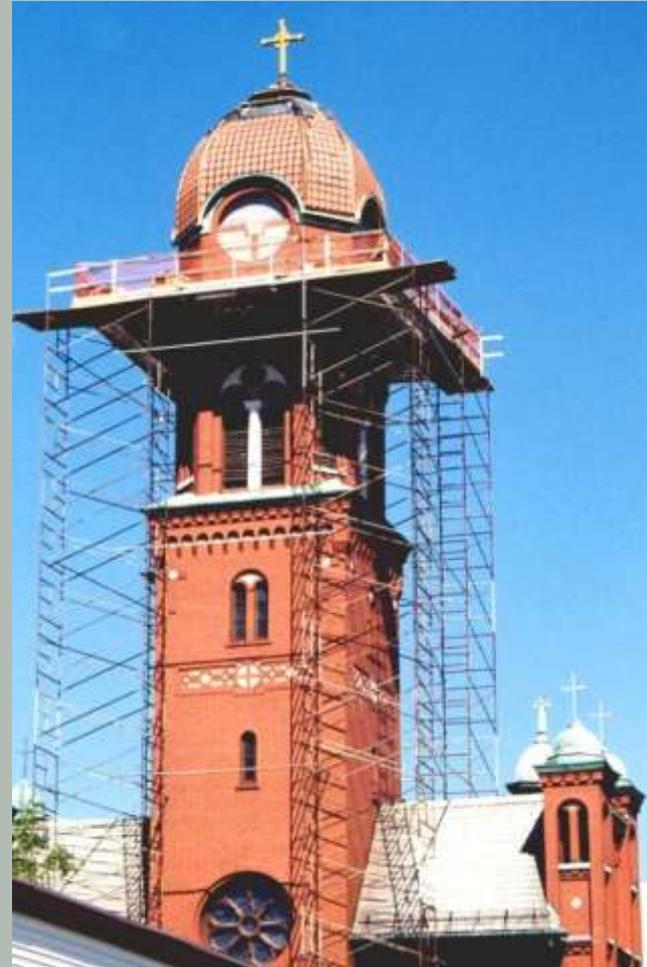
When replacing roofing, always remove old roofing systems, all layers, to the roof deck for inspection by architect. Persistent leaks particularly at edges can lead to rotted deck materials. DO NOT use roofing materials in place of or to disguise the need for masonry repairs.



# Roofing



Access is expensive whether by lift or scaffolding. Do as much work as you can afford when access is available, including work of more than one trades.



# Stormwater Management



Collection - roof drains and scuppers. Leaves and debris collect on low sloped roofs clogging stormwater collection elements. Stormwater collection elements should always be free flowing. Standing water on roofs that do not drain can stress roof structures. Debris washed into down stream elements can cause damage to the building envelope.



Roof drains



Scupper

# Stormwater Management



Gutters, clockwise from top left: hung gutter or eaves trough, box gutter, built-in at bottom.

# Stormwater Management



Built-in gutter with new gutter frame slopes to downspouts, new copper gutter liner, expansion joint to prevent damage from thermal movement. Twists in hung gutter straps to allow water to drop into gutter.



Twists in hung gutter straps to allow water to drop into gutter.

## Rebuilding a gutter

# Stormwater Management



Downspout clogged with leaves, abandoned underground systems, well installed multiple downspout system.

Underground stormwater disposal systems are the highest quality. They are often abandoned after debris or roots clog the systems, sometimes breaking underground piping.



Downspouts and underground stormwater disposal system

# Masonry

## Brick



Open joints below split gutter joint.

Deterioration due to exposure.

Open joint, previously repointed with poorly matched mortar mix.

Previous coating used to cover deteriorated chimney caused additional damage.



# Masonry

## Brick and metal



Ferrous metal, typically uncoated steel, was often used as lintels to support masonry above window and door openings. The type of typical deficiency seen here, oxide or rust jacking, is caused by moisture in contact with ferrous metal. Rust forms, the metal expands, displacing and or cracking masonry.



# Masonry

## Stone



Open joints left too long will cause failure.

Roofing cement is not an acceptable substitute for mortar in open joints.

Horizontal joints are very hard to keep sealed and require vigilance and regular maintenance.



# Masonry

## Stone



Regionally sourced dolomitic limestone is common and often trimmed with dressed Indiana limestone or cast stone. As with all masonry, when well maintained it is very durable. When inappropriate mortar is used to repoint, moisture can be trapped inside walls causing severe deterioration and failure of mortar joints and exterior masonry materials.

Moisture can also migrate to the interior causing failure of interior finishes, paint at least, plaster and more at worst.

# Masonry



## Cast Stone

Cast stone is a specialized concrete product. Historic cast stone is softer than modern cast stone. Much of the cast stone on our historic buildings has reached the end of its useful service life and needs to be replaced. New cast stone and cut stone are available and may be approximately the same cost.



Upper left – view of deteriorated cast stone cross.

Lower left – detail of cross condition.

Right – new cast stone cross installed. Original construction documents were used to detail new cast stone.

# Masonry

## Cast Stone



This cast stone was patched. An option which will last approximately 25 years if well done.

# Masonry

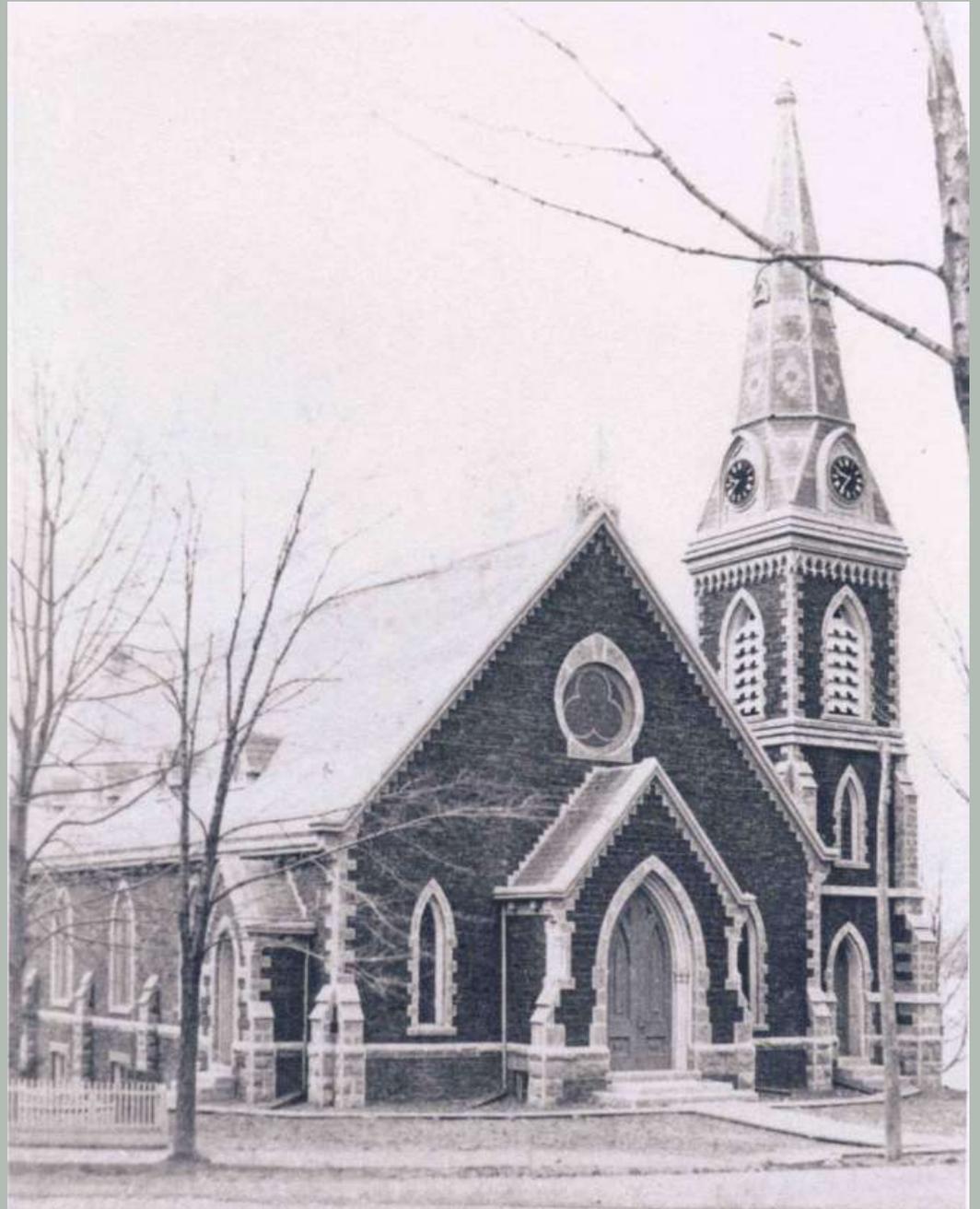
Masonry work is weather sensitive. No work should occur when night time temperatures are below 45 degrees. Tenting and heating were used in this project to meet owner's schedule. Work continued through the winter.



# Masonry

Sometime it's not what you think.

The black residue on the stone below is not environmental soil but left over from the original coloring on this church. Historic photo at right is c. 1873.

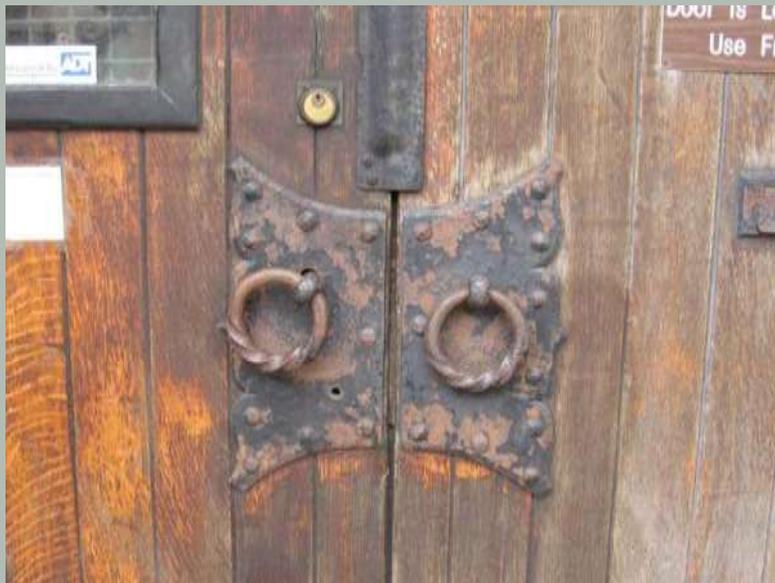


# Metal

## Decorative Cast and Wrought Iron



Fine metal pieces are easily lost if not well maintained.



# Metal

## Light Structural



If not maintained, rusting ferrous metal can cause expensive damage to surrounding materials.



# Metal

## Heavy Structural



New steel beam added to support the tower roof was lifted by crane and inserted below reinforced roof joists.



# Metal



Specialty sheetmetal is often associated with roofing. Highly skilled craftsmen are available in western New York to fabricate elaborate, decorative sheetmetal.



# Carpentry

Decorative or structural, keep it dry and keep the finish intact

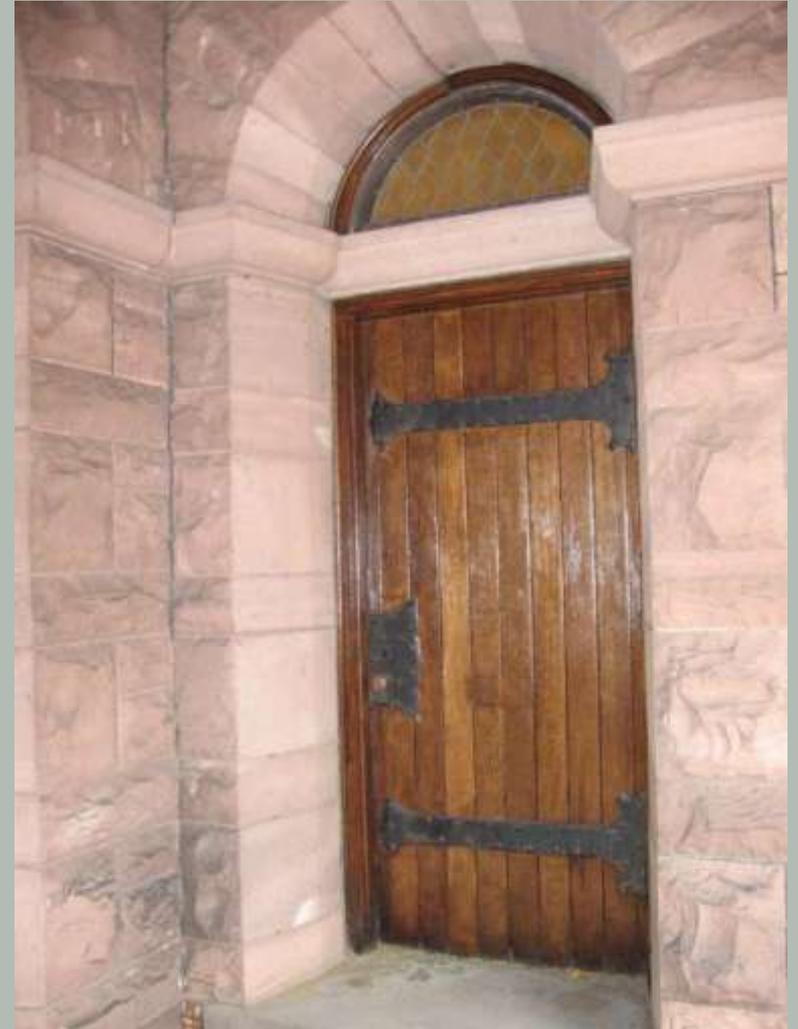


Decorative fascia,  
interior trim,  
exterior door jamb,  
and rotted valley  
rafter.



# Doors and Windows

Exterior doors must be kept finished to resist persistent moisture exposure. Clear finishes are susceptible to ultraviolet light degradation.



# Doors and Windows



Watch for signs of moisture infiltration at exterior doors. Be sure closures are tight and weatherstripping is in place and in good condition. Don't forget non-door doors.



# Doors and Windows



Keep finishes in tact and sealant at dissimilar materials, like wood and stone, in good condition to prevent rotted wood.

Keep grade level windows clear of leaves and debris to prevent rotting wood elements.





Some days in the field I should pay the Owner!



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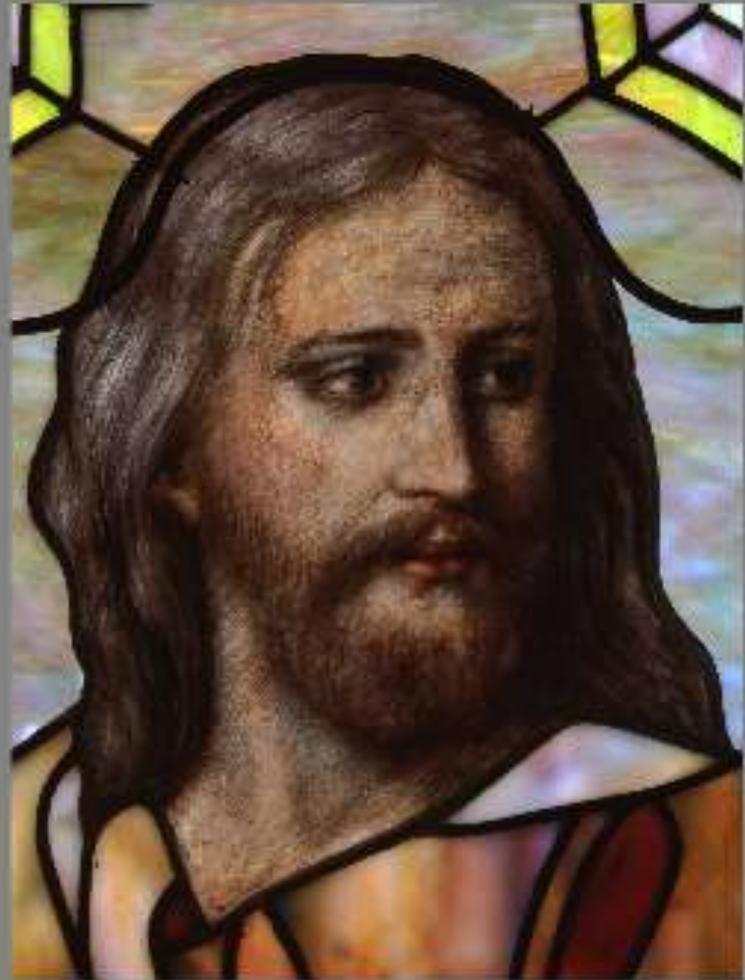
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[www.pikestainedglassstudios.com](http://www.pikestainedglassstudios.com)

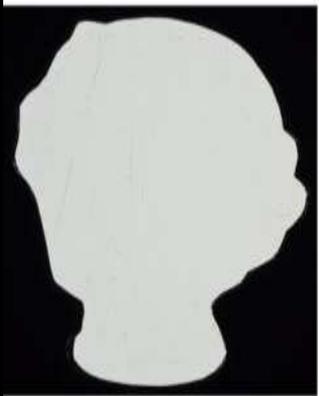














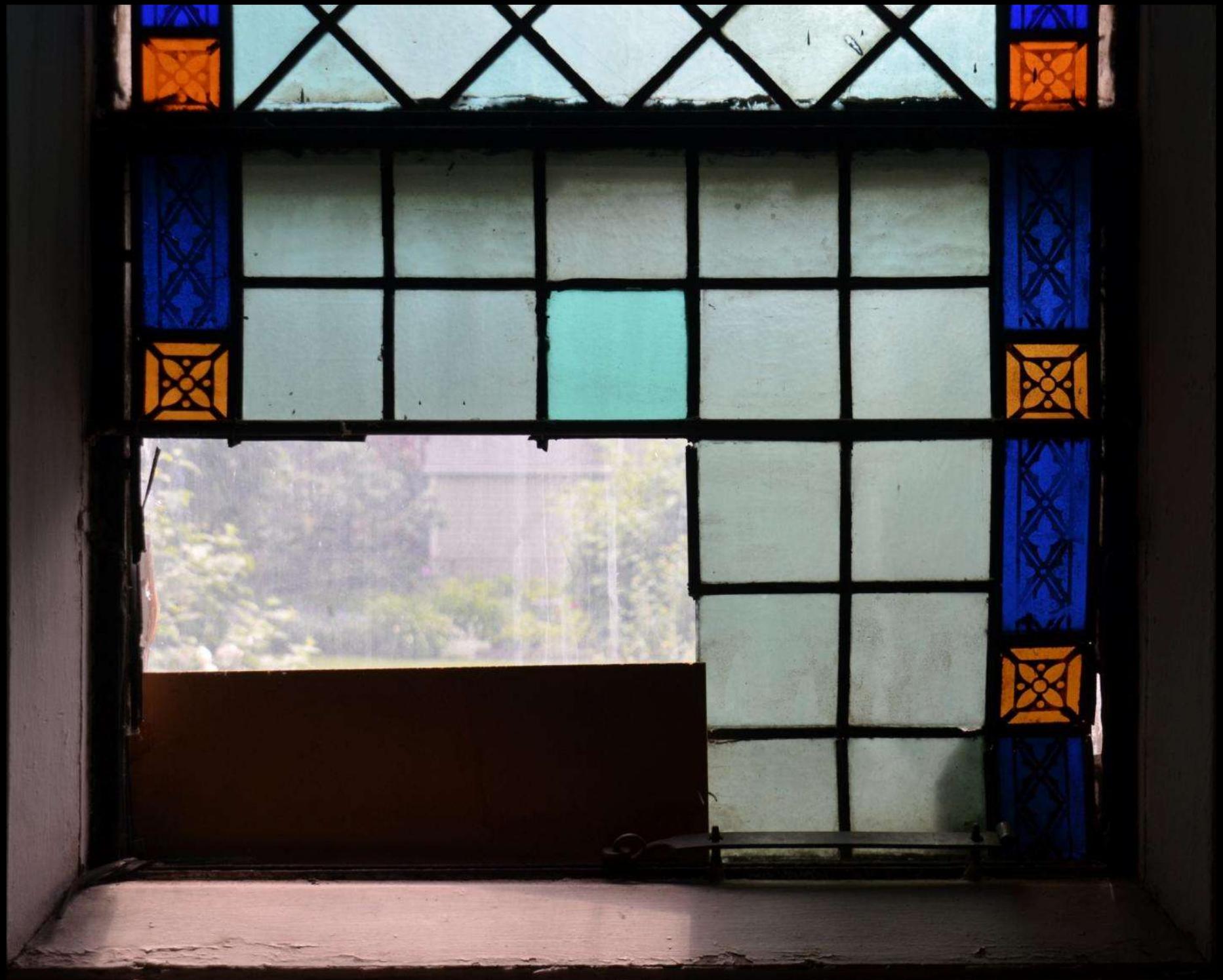


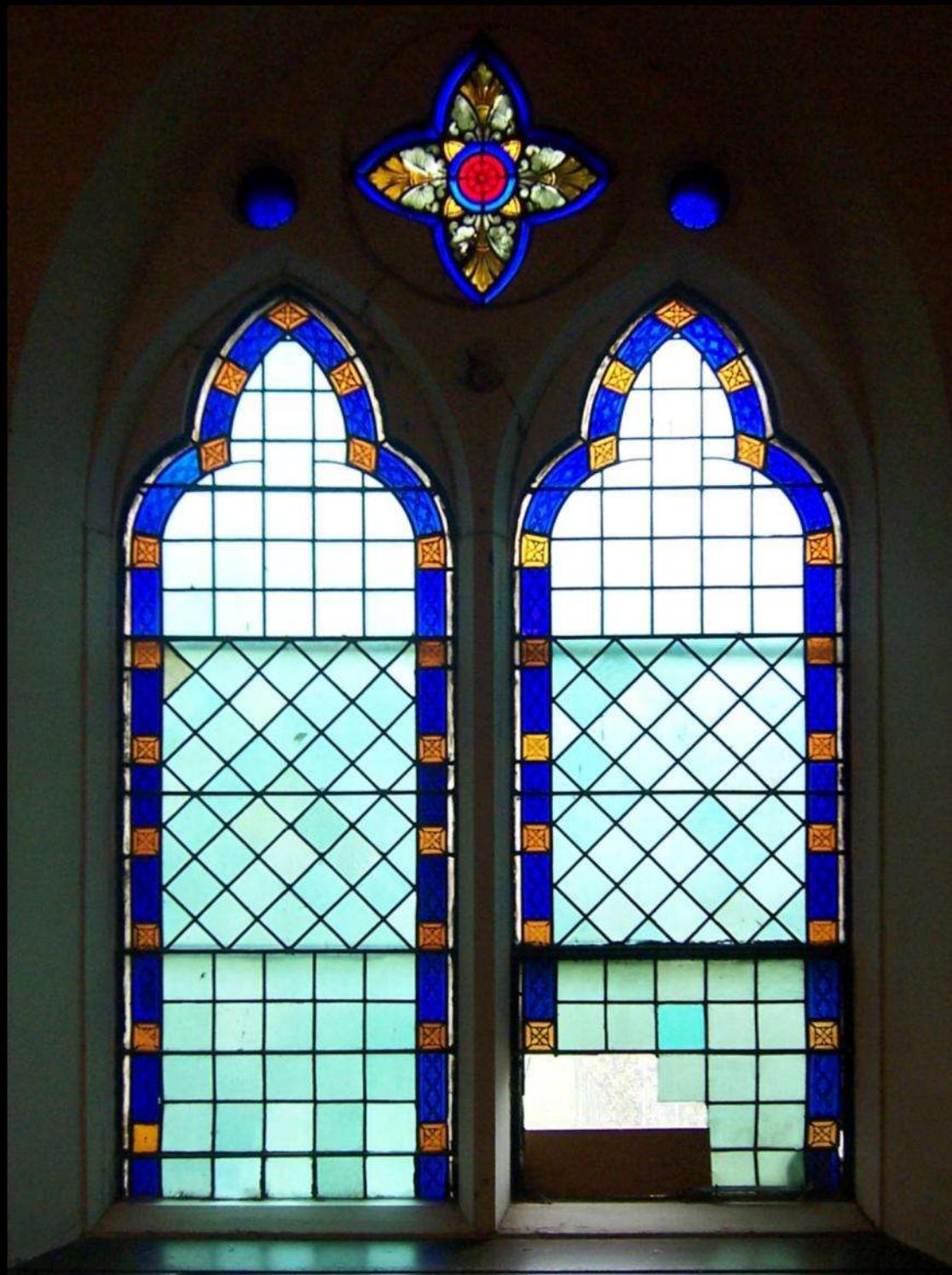






IN MEMORY OF  
REV. RANSOM MAREAN  
27 YEARS PASTOR OF THIS CHURCH



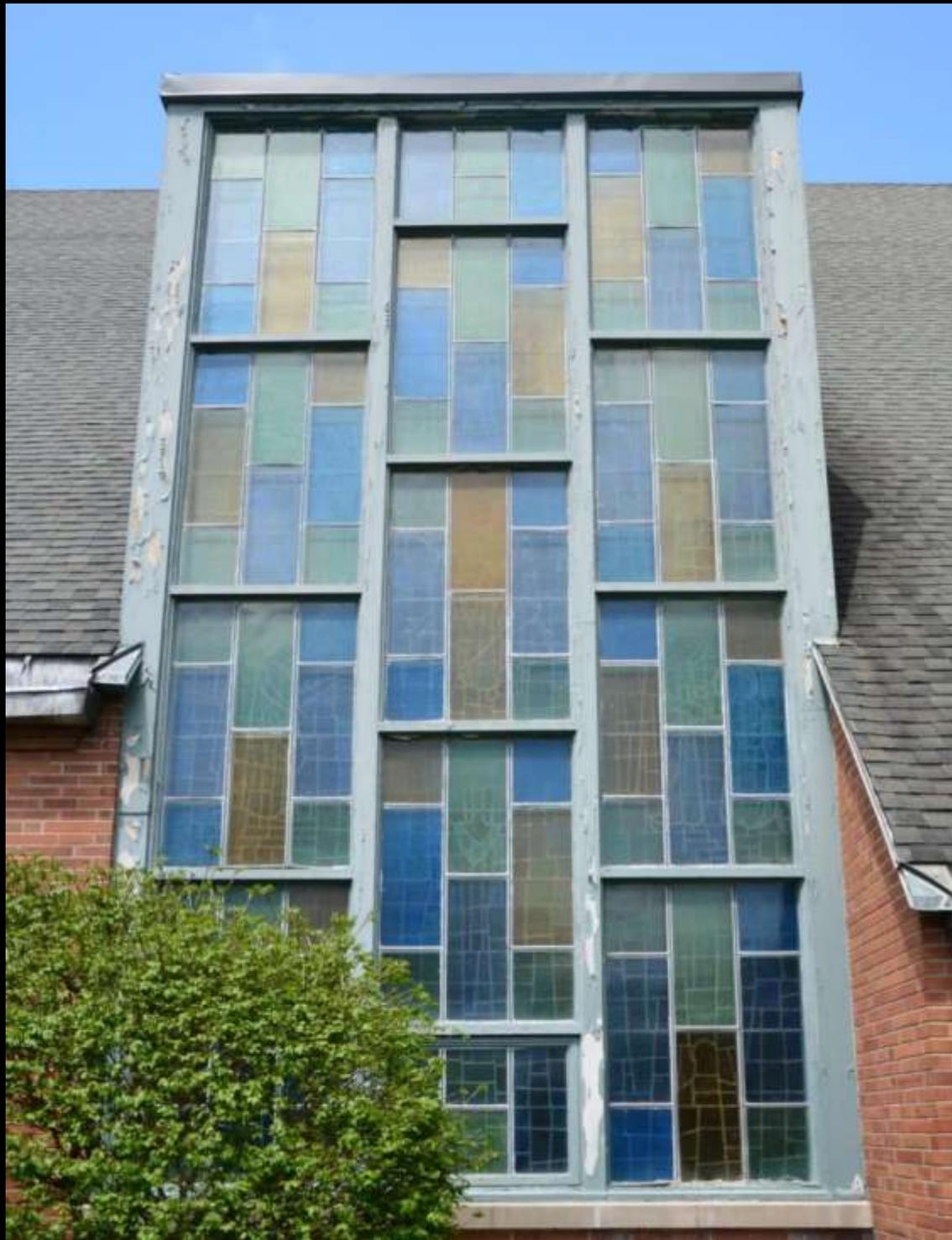




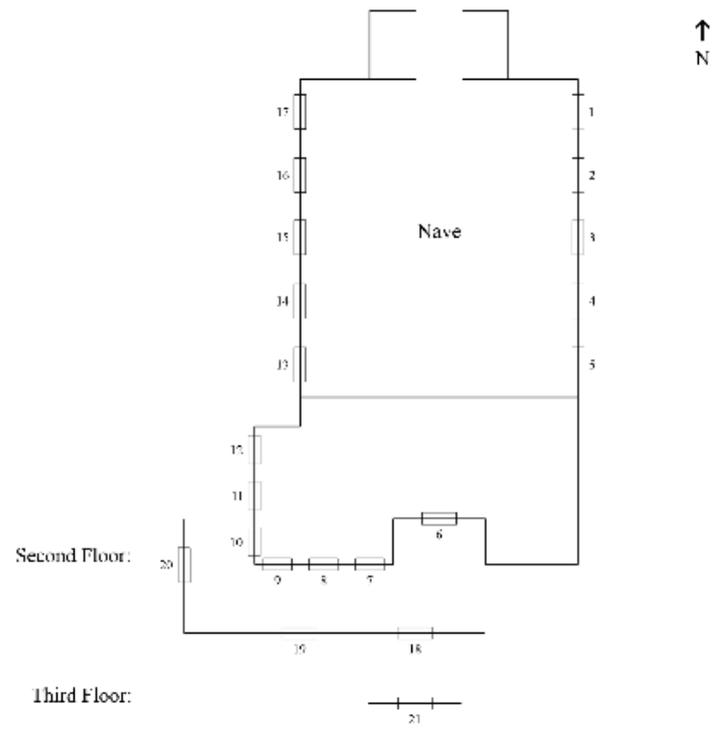




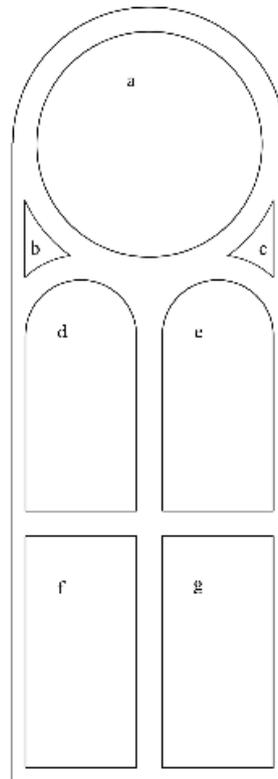




448 Warren Street  
Hudson, NY



Type E



Window Survey 2015

The degree of bulge is listed on the spreadsheet as follows:

- P1 - Relead within 5 years
- P2 - Relead within 10 years
- P3 - Relead within 15 years
- P4 - Relead within 20 years
- P5 - Relead within 25 years

The broken pieces of glass are listed on the spreadsheet as follows:

- SC - Single Crack
- MC - Multiple Crack
- FL - False Leaded
- PR - Previously Repaired
- SPP - Sand, Prime & Paint

Window #	Section	Broken Pieces				Conditions / Notes	Recommendations	Priority
		SC	MC	FL	PR			

Note: Zinc vent frames, old caulk on vent. The bulge and slamming of vent cause breakage. If releading windows, add rebar above symbol.

1	bottom	8	7		2	vent not closed but good condition.	Relead within 25 years above symbol, could use recementing.	P5
	top	9	2		4	1 flat bar added, 2 rebars have been caulked to window.	SPP bars	
2	bottom	6	5			vent has been caulked on interior. Good condition.	Recement	
	top	9	4			1 MC with hole, 1 very large MC in corner. Good condition.		
3	bottom	4	3			2 MC's with hole, good condition.	Relead within 30 years above symbol.	P6
	top	4	5		4	2 rebars have been puttyed, 1 piece shows daylight		
4	bottom	5	2		1	1 MC with hole filled, 1 PR with hole. Good condition.	Relead within 35 years.	P7
	top	5			5			
5	bottom	8	2			1 MC with hole filled, top vent not closed and caulked.	Relead within 30 years at bottom of vent. Work on top vent.	P6
	top	3				1 piece of lead in bad condition- need to relead to fix.	Relead within 20 years above symbol.	P4
6	bottom	12	6		11	PR's mostly in vent	Relead vent.	P2
	top	1	3			2 with hole filled. Good condition.		
7	bottom		2				Caulk 2 pieces with daylight.	
	top	2				2 SC's in upper section including 1 large brown. 1 piece and lead missing, bent rebar.	Relead top section within 45 years. Paint exterior frame below upper vent.	P9
8	bottom	5	2			1 MC with hole. Vent- good, has been releaded.		
	top				2	Bottom of section above vent- 2 pieces with daylight. Top section not closed.	Putty pieces with daylight. Relead top section within 35 years.	P7
9	bottom	4	1			Slight bulge at bottom and top of section above vent.	Relead within 40-45 years.	P8
	top					Top vent not closed- caulk in the way.	Relead within 50 years.	P10
10	bottom	2	1			Vent- good. Section above inscription- daylight and broken lead.		
	top				4	1 piece missing lead- weak from PR and slight bulging.	Relead within 55 years.	P11
11	bottom	1			3			
	top		2			1 MC with hole filled		
12	bottom	8	5		6	2 PR's with daylight	Caulk PR's with daylight, relead within 15-20 years.	P3
	top	1	3			1 large piece with large hole in center section.	Relead top section within 60 years. Must remove plastic and repair from exterior.	P12
13						Good.		
14		8	10	2	5	Daylight in vent, failed flat added rebar.	Relead within 15 years.	P3
15		4	4			1 SC is a large amber jewel, 1 MC was patched in		

- attached at intersections of two or more leads.
- E. For reinstallation, we will drill holes into the stone +/- 4" O.C. and set stainless steel bolts next to the border lead with the height of the post not to exceed the width of the border lead. We will secure the posts with anchor setting mortar per masonry specifications.
- 3.02
- A. Prior to start of removal, the windows shall be photographed in-situ, both sides, with reflected light (to show surface texture, coloration and leading pattern) and transmitted light (to indicate observed colors and painted details), using 35mm color transparency slide film (f/ ABA f4 or approved equal). We will record existing damaged pieces as accurately as possible, and submit one set of slides to the Architect for approval prior to removal of window.  
The slides shall include as a minimum:
1. Overall views of window at interior and exterior.
  2. Interior detail shots indicating installation details, damaged areas, and signs of deterioration, including paint failures.
  3. Exterior detail shots of installation details and special problems.
- B. Prior to start of work, we will prepare a pattern of the window.
- 3.03 General Documentation:
- A. We will photographically document the window throughout process using 35mm color slides and showing (at minimum) disassembly, cleaning, re-leading and re-installation.
- B. We will provide one set of slides of all shots, labeled and dated, to the Architect.
- 3.04 Removal and Transportation:
- A. We will ensure that leaded glass is stabilized prior to removal.
- B. We will carefully remove leaded glass sash from the stone frame.
- C. Crating, Transportation and Handling:
1. We will crate the glass carefully, taking care to protect glass and sash from damage.
  2. Removed sash will be transported and stored in a vertical position with sufficient packing material to prevent breakage.

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- 2.02 Temporary Infill Panel: Per the Architect's instructions, we will build a 2 x 6 wood framework, covered with 3/8" ~~OSB~~, attached to the exterior facing side of the framework, and caulked to the sill glass.
- 2.03 Glass:
- A. Unless otherwise approved, all existing glass shall be reused in its original location and placement.
- B. New glass (where specifically required or otherwise approved) shall be selected to match exactly for base, color, density, thickness, texture, light transmission and all other visual qualities of the existing.
- C. Upon request, we will submit digital images of all proposed replacement glass, alongside images of the original glass being reproduced, to the architect for approval. All other photography will be completed with 35mm slide film per the Architect's instructions and specifications 3.02, 3.03 & 3.05 B, below.
- D. We will include samples of all replacement glass, along with fragments of the original glass being reproduced, as part of the project's final documentation package.
- 2.04 Lead Cames:
- A. Unless otherwise approved, new lead cames shall match the existing in shape, size, depth, lead thickness, lead width, and cross-section. We will provide custom-fabricated shapes as necessary to match accurately.
- B. Lead cames shall be per ASTM B-20-79 of alloy suitable for leaded glass restoration work with the following approximate composition: ...99% lead, 0.6% to 0.8% antimony, 0.6% to .8% tin, and trace amounts (.02% to .06%) of copper and/or silver.
- 2.05 Edge Glazing: ~~Hexal~~, Dow Corning RTV 108, or Dow Corning Silastic RTV 734.
- 2.06 Copper Felt: minimum 0.03 mm thickness, high quality copper felt of width sufficient for the thickness of the glass.
- 2.07 Copper Tie Wires: 14 gauge copper wire, length as required.
- 2.08 Glazing Putty: Non-hardening glazing compound, modified oil type.

3

- 2.09 Saddle / Reinforcing Bars:
- A. All existing reinforcing bars shall be retained and reused unless otherwise indicated.
- B. New bars, if required, shall match the existing in shape, size, material and finish.
- C. Bars shall be painted with black alkyl rust-inhibiting paint (primed plus two coats).
- 2.10 Solder and Flux:
- A. Solder shall be manufacturer's top quality of 60/40 tin/lead solid wire solder.
- B. Flux shall be mild acid type, such as oleic acid or stearic acid thickened with glycerin for soldering lead cames. Acids of lower pH than oleic acid shall not be used. Chloride fluxes such as zinc chloride also shall not be used.
- C. Tinning of copper wires with rosin dissolved in 100% isopropyl alcohol.
- 2.11 Waterproofing Compound: Art glass glazier's putty composed of calcium carbonate in an organic oil medium mixed to a stiff consistency with lamp black or a compatible tinting product. Products with Portland cement and plaster of Paris will not be used.
- 2.12 Glass Cleaning Products:
- A. Water: Soft or distilled warm (Maximum 120 deg. F.), water.
- B. Detergent: Non-ionic (pH 7/neutral) detergent with surfactant, Triton XL-N80.
- C. Brushes: Soft natural bristles brushes.
- D. No chemicals (including ammonia based cleaners) or abrasive cleaning materials shall be used without prior review and written approval.
- 2.13 Epoxy: ~~Hexal~~ epoxy / ~~Hexal~~ NYL-1

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### Part 3 - Execution

- 3.01 General Observations
- D. Existing saddle bars will not be used. Provide new saddle bars with copper wires

- 1.02 Quality Assurance:
- A. Leaded Glass Contractor:
1. We have submitted to the General contractor a complete list of all craftspeople proposed for work on the windows, documenting their training and relevant experience, and equivalent projects successfully completed by the designated personnel.
  2. We will provide capable supervision of the work in progress to ensure the intended objective and to prevent damage to the panels.
  3. We will provide proper studio facilities for storage and restoration of the panels. Such facilities shall be safe from danger, including vandalism and accidental damage, from deleterious environmental conditions, and all other threats to the panels.
- B. All work shall be executed in accordance with the "Standards and Guidelines for the Preservation of Historic Stained Glass", latest edition, published by the Stained Glass Association of America.
- 1.03 Safety Considerations
- A. Refer to Alternates for possible asbestos in glazing putty.
- B. The Stained Glass Contractor shall NOT be responsible for abatement of hazardous asbestos materials directly associated with this work on the site. In the studio, we shall utilize appropriate safety procedures including (without being limited to) proper clothing and material handling procedures, and compliance with all applicable safety codes and standards.
- 1.04 Warranty: We will guaranty the work of this Section for a period of not less than ten (10) years from the date of final project completion.
- 1.06 Submittals: We will submit samples for Architect approval where indicated below.
- 1.07 Restoration Plan: (see above & below)
- 1.08 Coordination: We will ensure that the related masonry work and stained glass work are properly coordinated.

### Part 3 - Products: We will use the following Products:

- 2.01 Crating: Min. 3/4" CDX plywood

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3. The stained glass contractor will oversee all crating and transportation procedures personally.
- D. We will transport leaded glass to crated glass studio on same day as removal.
- E. Upon completion of restoration of leaded glass sash, we will transport the leaded glass to site for reinstallation on same day.
- 3.05 In-Studio Documentation:
- A. Prior to the start of work, we will prepare a "cartoon" rubbing (traces or charcoal) of each section 100% cotton rag vellum. The rubbing shall show all lead lines and be labeled to identify the section. The rubbing shall be annotated to identify missing, damaged and previously repaired or replaced glass.
- B. We will photograph panel by panel with consistent light source.
- 3.06 Disassembly and Re-leading
- A. We will completely disassemble leaded glass sections, removing all lead cames.
- B. We will wash and clean glass, both sides. Remove residual surface putty, etc. carefully, without damaging glass or applied finishes. We will put dry with clean, lint free, acid-free cloths.
- C. We will repair the cracked glass, unless otherwise specifically approved for replacement, using copper-dil and/or epoxy repair techniques. We will review proposed techniques for each glass piece over 4 square inches with Architect. The existing glass will not be altered in any way.
- E. All surface decoration on replacement pieces shall be reproduced to match. We will sign and date each replacement piece along the edge where it will be covered by the leading.
- G. We will reassemble leaded glass sections with new lead cames. Waterproofing cement will be thoroughly forced into all lead came on both sides. All excess cement shall be removed so that some remains on the glass surface egg around the edge of the lead came.

### 3.07 Reinforcing Bars

- A. Sand existing metal frame work and saddle bars clean and paint with black rust inhibiting paint (prime plus two coats).

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- B. Unless indicated otherwise reinstall original round saddle bars in original locations. Solder new copper tie wires in all original locations at lead came joints. Additional ties, if required, shall be installed atop all lead came joints. Ties shall be twisted tightly to reinforcing bars, excessive wire clipped off, and the ends bent tight to the reinforcing bars.
- 3.08 Reinstallation & Final Cleaning
- A. We will verify that the stone frame has been properly restored to our templates to be suitable for reinstallation of the leaded glass sections.
- B. We will reinstall the leaded glass sections in the restored stone frame in their original locations and orientations. We will secure the sections with stainless steel pins into the stone frame at every solder joint.
- C. We will backbed the exterior and glass to the interior with a bond of DAP 1012 glazing compound.
- D. We will reinstall the steel reinforcing bars to the interior, securing them into the stone frame on either side of each opening, glass, level and true. The tie wires will be twisted firmly around the steel bars, and the excess clipped off. The wires will be pressed flush against the rebars.
- E. Upon completion of the reinstallation, we will clean the window carefully on both sides.
- F. We will document carefully any additional glass broken during removal, restoration, transportation, or reinstallation and repair at no additional cost to the owner.
- Alternate #1: Installation of the exterior protective glazing: We will install UV filtering protective glazing at the exterior of all sections of stained glass at the rear window, as follows: 1/4" thick laminated glass equal to PPG Spectra 580 with Low E solar Layer, inner layer to be clear glass, and 3/64" strip between layers. 1/8" dia. stainless steel pins will be inserted into the space @ 4" o.c. and the perimeter will be secured with clear Urethane sealant (NF-1 or Clear Castle 912), 1/8" dia. Vesp ruber, set flush with sealant between the air space and the interior of the building will be installed at 12" o.c. around the perimeter.

Proposed Schedule for restoration of the stained glass at Trinity Episcopal Church.

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# Disasters



*Image from [www.pittsfordpres.org](http://www.pittsfordpres.org)*

# Disasters



# Disasters



# Disasters



# Disasters















100 Pieces of Glass  
100 Pieces of Glass  
100 Pieces of Glass

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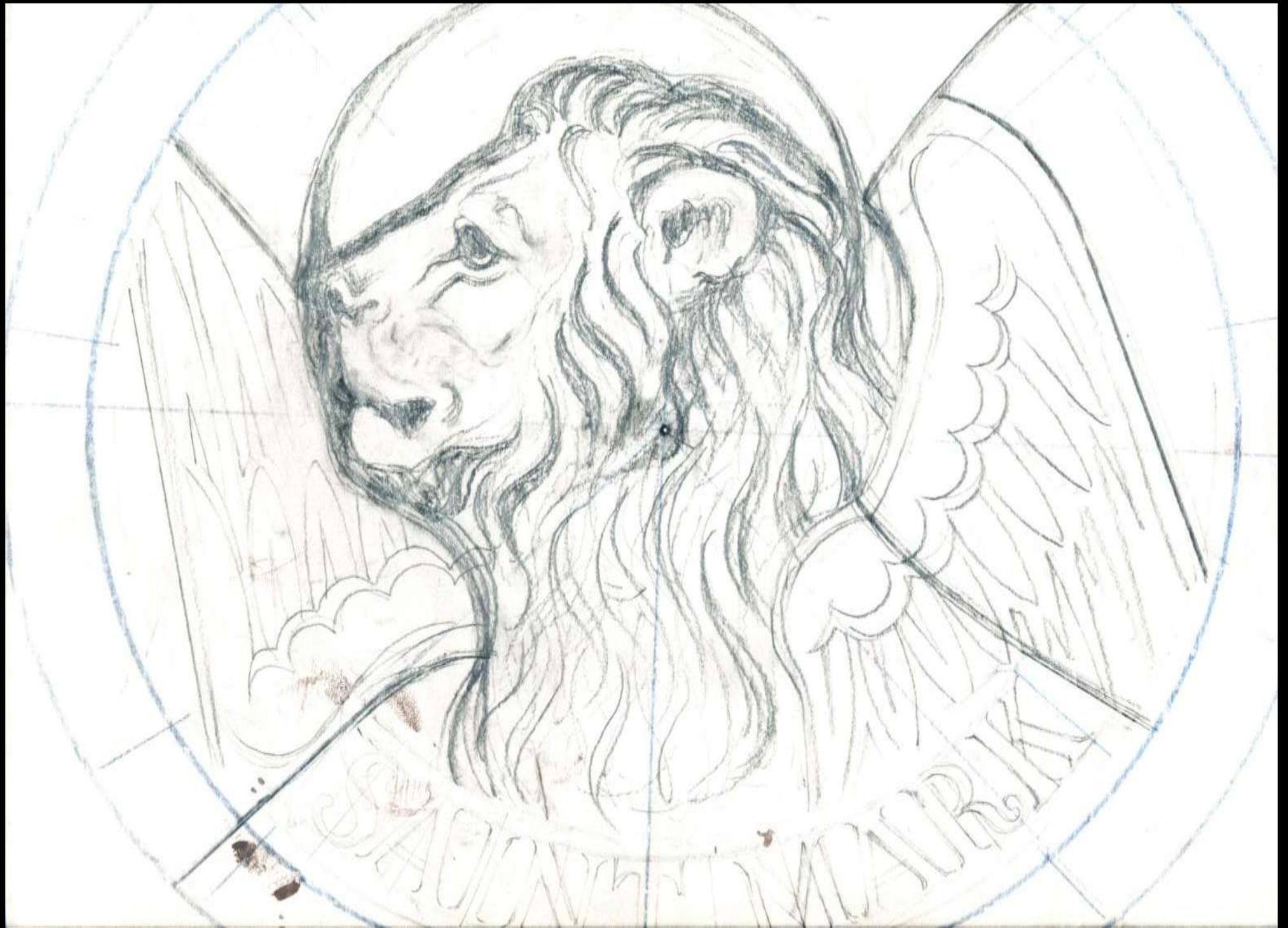
















# Funding

## BERO ARCHITECTURE PLLC

ARCHITECTURE SUSTAINABILITY PRESERVATION

Thirty Two Winthrop Street, Rochester, New York 14607  
585-262-2035 (phone) • 585-262-2054 (fax) • [contact@beroarchitecture.com](mailto:contact@beroarchitecture.com) (email)

### SOME THOUGHTS ON PRESERVATION FUNDING

The following programs offer grants for historic preservation planning and/or construction work. Most grants are available only to nonprofit organizations and municipalities, require a cash or in-kind match, and are quite competitive. National Register, State Register, or local landmark designation is required for most programs.

**New York State Council on the Arts; Contact: Kristin Herron (212) 459-8825; [www.nysea.org](http://www.nysea.org)**

#### Facilities (Design & Planning Studies)<sup>1,7</sup>

Work funded: design studies for planned capital projects (arts and cultural facilities)  
Grant range: typically \$5,000 to \$49,500  
Application deadline: varies (refer to website)  
Award date: varies (refer to website)

#### Facilities (Capital Projects)<sup>1,7</sup>

Work funded: rehabilitation, expansion, restoration, including accessibility improvements (arts & cultural facilities)  
Grant range: \$5,000 to \$49,500  
Application deadline: varies (refer to website)  
Award date: varies (refer to website)

**Preservation League of New York State; Contact: Tania Werbicky, (607) 272-6510, [www.preservenys.org](http://www.preservenys.org)**

#### Preserve New York Grant Program<sup>1</sup>

Work funded: cultural resource surveys, historic structure reports, historic landscape reports  
Funding range: typically \$3,000 to \$10,000  
Application deadline: around May 1 (refer to website)  
Award date: early September

#### Technical Assistance Grant Program<sup>3</sup>

Work funded: professional studies e.g. condition surveys, reuse/feasibility studies, structural analyses  
Funding range: \$3,000 maximum, \$500 match required  
Application deadline: spring and fall (see website)  
Award date: within six weeks

**The Community Foundation; Contact: Saul Mancira, (585) 321-4356; [www.raecf.org](http://www.raecf.org)**

#### Historical Preservation Funds (includes Klos and Holahan Funds)

Work funded: preservation, information, and education  
Funding range: typically \$15,000 to \$25,000  
Application deadline: varies (refer to website)  
Award date: varies (usually spring)

**Heritage Preservation; Contact: Melanie Zucker, (202) 233-0800; [www.heritagepreservation.org](http://www.heritagepreservation.org)**

#### Conservation Assessment Program (CAP)

Work funded: general conservation assessment of small and mid-sized museum collections and structures  
Funding range: N/A (program provides 2-day assessment)  
Application deadline: applications accepted October to early December  
Award date: varies

#### ReCAP

Work funded: new assessment at least seven years after initial CAP assessment  
Funding range: N/A (program provides 2-day assessment)  
Application deadline: applications accepted October to early December  
Award date: varies

**New York Landmarks Conservancy; Contact: Ann-Isabel Friedman, (212) 995-5260; [www.nylandmarks.org](http://www.nylandmarks.org)**

#### Sacred Sites Program<sup>3</sup>

Work funded: planning and implementation  
Funding range: up to \$10,000 (\$3,000-\$5,000 typical)  
Application deadline: Jan. 15, June 1  
Award date: 5 months later

#### Robert W. Wilson Challenge Grant<sup>3</sup>

Work funded: large-scale restoration  
Funding range: \$25,000 to \$100,000 (\$30-35,000 typical)  
Application deadline: Jan. 15, June 1  
Award date: 5 months later (refer to website)

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### Some Thoughts on Preservation Funding

**The Landmark Society of Western New York; Contact: Caitlin Meives, (585) 546-7029; [www.landmarksociety.org](http://www.landmarksociety.org)**

#### Preservation Grant Fund

Work funded: Pre-construction planning (studies, reports)  
Funding range: Up to \$3,500  
Application deadline: varies (refer to website)  
Award date: varies

**The Farash Foundation; Contact: Isobel Goldman, (585) 218-9855; [www.farashfoundation.org](http://www.farashfoundation.org)**

#### Building Repair Emergency Fund

Work funded: emergency building repairs; Monroe or Ontario Counties  
Funding range: \$25,000 maximum  
Application deadline: submit letter of inquiry any time

**National Trust for Historic Preservation; Contact: National Headquarters, (202) 588-6000; [www.preservationnation.org](http://www.preservationnation.org)**

#### Preservation Fund<sup>4</sup>

Work funded: consultant services, feasibility studies  
Funding range: \$500 to \$5,000  
Application deadline: Feb. 1, June 1, Oct. 1  
Award dates: about eight weeks later

#### Cynthia Woods Mitchell Fund<sup>2</sup>

Work funded: historic interiors work  
Funding range: \$2,500 to \$10,000  
Application deadline: May 1  
Award date: around August 1

#### Johanna Favrot Fund<sup>4</sup>

Work funded: consultant services  
Funding range: \$2,500 to \$10,000  
Application deadline: May 1  
Award date: around August 1

#### Hart Family Fund for Small Towns<sup>4</sup>

Work funded: preservation planning, education and outreach in towns with population under 5,000  
Funding range: \$2,500 to \$10,000  
Application deadline: May 1  
Award date: Within 3 months

**NYS Office of Parks, Recreation, and Historic Preservation; [www.nyspark.com/shpo](http://www.nyspark.com/shpo)**

#### Certified Local Government Subgrants<sup>2</sup>

Work funded: historic resource studies, education, training  
Funding range: typically \$5,000 to \$15,000  
Application deadline: mid-July (refer to website)  
Award date: several months later  
Contact: Lorraine Weiss, (518) 237-8643

#### Environmental Protection Fund<sup>2</sup>

Work funded: planning/restoration of historic properties  
Funding range: up to \$1 million  
Application deadline: varies (refer to website)  
Award date: varies  
Contact: Lynn LeFebvre, (716) 354-9101 (Rochester and Finger Lakes region); for other regions see website at <http://nyspark.com/grants/grant-programs.aspx>

#### Barn Restoration Tax Credit

Work funded: restoration/stabilization of historic, income-producing barns  
Funding range: 25% of rehabilitation costs  
Application deadline: File with tax return  
Contact: (518) 237-8643

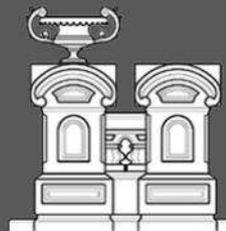
**New York State Division of Homes & Community Renewal; [www.nysdhr.org/Programs/NYMainStreet](http://www.nysdhr.org/Programs/NYMainStreet)**

#### New York Main Street Program<sup>2</sup>

Work funded: improvements to façades, storefronts, and interiors; streetscape enhancement; technical assistance  
Funding range: \$50,000-\$500,000  
Application deadline: varies (refer to website). Application is via the New York State Consolidated Funding Application (CFA).  
Award date: varies (refer to website)

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This concludes The American Institute of Architects  
Continuing Education Systems Course

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AIA Rochester

Linda Hewitt 585.232.7650

