

HOME, SAFE HOME.

SEISMIC SAFETY & REHABILITATING HISTORIC HOMES

Six webinars. A team of preservation professionals. One goal.

Welcome.

Office of Historic Preservation



Office of Historic
Preservation



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Six webinars. A team of preservation professionals. One goal.

Is 'Compatible' 'Matchy-Matchy'?

Workshop #2 | July 26, 2022

Presented by

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HOME, SAFE HOME.

SEISMIC SAFETY & REHABILITATING HISTORIC HOMES

Workshop #1: What Makes My Home 'Historic'? | Thursday, June 23, 2022

Workshop #2: Is 'Compatible' 'Matchy-Matchy'? | Tuesday, July 26, 2022

Workshop #3: Seismic Retrofit Basics | Tuesday, August 30, 2022

Workshop #4: Retrofit Projects | Thursday, October 6, 2022

Workshop #5: Keep it Lookin' Great | Tuesday, November 8, 2022

Workshop #6: The Nuts and Bolts of Retrofits | Thursday, December 15, 2022

Program offered by:



Office of Historic
Preservation

Grant funding from:



FEMA

Presented by:



PAGE & TURNBULL



AGENDA

1. Learning Objectives
2. Overview of Previous Workshop
3. Secretary of the Interior's Standards
 - a. Four Treatments
 - b. Rehabilitation Standards
4. Guidelines for the Treatment of Historic Properties
 - a. Structural Systems
 - b. Code Compliance Work
5. Case Studies
6. Summary & Questions



WORKSHOP #2 OBJECTIVES

Following the workshop, you will be able to:

- Define and differentiate between the Secretary of the Interior's Standards four approaches to treating historic properties – Preservation, Rehabilitation, Restoration, and Reconstruction.
- Identify resources that will help you to understand and apply the Standards to your project.
- Analyze how the Standards for Rehabilitation might apply to common repair and alterations.
- Predict how your project may impact historic features and characteristics.



South Pasadena house
with rear addition

Is your home:

- (a) an individual landmark
- (b) in a historic district
- (c) both
- (d) I don't know/neither



Overview of Previous Workshop



TYPES OF HISTORIC PROPERTIES



Buildings



Structures



Objects



Sites



Districts

WHAT MAKES A PLACE HISTORIC?

Historic Context + Significance + Integrity

=

Historic Resource Eligibility

- Resources can be significant under one or multiple criteria
- Historic resources have a defined **period(s) of significance**
- Historic resources have physical **character-defining features** that convey their significance
- Historic resources are typically (but not always) 50+ years old (“age-eligible”)

**1. HISTORIC
CONTEXT**

2. SIGNIFICANCE

3. INTEGRITY

WHAT MAKES A PLACE HISTORIC?

HISTORIC CONTEXT

Theme
Place
Time

HISTORIC SIGNIFICANCE

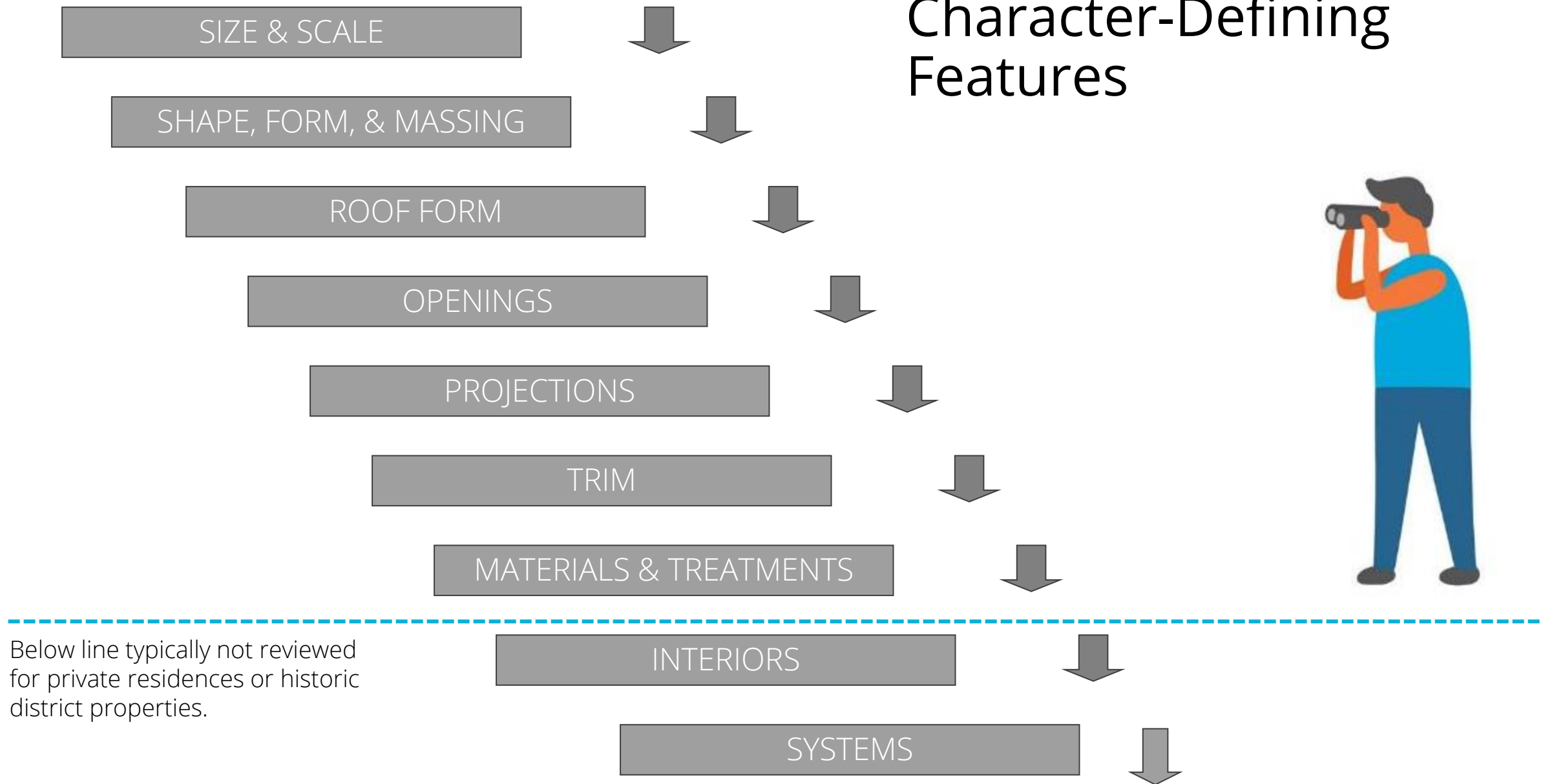
Events
Person
Design
Information Potential

HISTORIC INTEGRITY

Materials
Design
Feeling
Location
Association
Workmanship
Setting



Character-Defining Features



CHARACTER-DEFINING FEATURES



Tudor Revival Style

Secretary of the Interior's Standards for the Treatment of Historic Properties



WHAT ARE THE STANDARDS?

Developed by National Park Service within the U.S. Department of the Interior.

The Standards are a series of concepts about maintaining, repairing, and replacing historic materials, as well as designing new additions or making alterations.

- Four distinct approaches (or treatments) with accompanying Guidelines

The Standards and Guidelines together provide a framework and guidance for decision-making about work or changes to a historic property.



WHO USES THE STANDARDS?

- Federal agencies use the Standards and Guidelines in carrying out their historic preservation responsibilities.
- State and local officials use them in reviewing both Federal and nonfederal rehabilitation proposals.
- Historic district and planning commissions across the country use the Standards and Guidelines to guide their design review processes.
- The Standards may be regulatory (depends on program/jurisdiction); Guidelines are advisory, not regulatory.



SECRETARY OF THE INTERIOR'S *STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES*



Preservation



Restoration



Rehabilitation



Reconstruction

PRESERVATION

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property.

- Preliminary measures to protect and stabilize
- Focus on the ongoing maintenance and repair
- New exterior additions are not within the scope
- Limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate.



Heilborn House, Sacramento, CA

WHEN TO USE PRESERVATION AS THE TREATMENT?

- The property's distinctive materials, features, and spaces are essentially intact and thus convey the historic significance without extensive repair or replacement;
- Depiction at a particular period of time is not appropriate; and
- A continuing or new use does not require additions or extensive alterations

Prior to undertaking work, a documentation plan for Preservation should be developed.



Heilborn House, Sacramento, CA

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.

Rehabilitation is the most commonly used treatment.

Even if rehabilitation is the overall treatment approach, preservation/restoration/reconstruction treatments may be applied to specific areas/features as appropriate.



Before, Historic District Contributor, South Pasadena, CA

WHEN TO USE REHABILITATION AS THE TREATMENT?

- Repair and replacement of deteriorated features are necessary;
- Alterations or additions to the property are planned for a new or continued use; and
- Its depiction at a particular time is not appropriate.

Prior to undertaking work, a documentation plan for Rehabilitation should be developed.



After with addition, Historic District Contributor, South Pasadena, CA

RESTORATION

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.



Rear side of Leland
Stanford Mansion
prior to restoration.

WHEN TO USE RESTORATION AS THE TREATMENT?

- The property's design, architectural, or historical significance during a particular period of time outweighs the potential loss of extant materials, features, spaces, and finishes that characterize other historical periods;
- There is substantial physical and documentary evidence for the work; and
- Contemporary alterations and additions are not planned.

Prior to undertaking work, the restoration period, should be selected and justified.



Rear side of Leland
Stanford Mansion
after restoration.

RECONSTRUCTION

Reconstruction is defined as the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.



Reconstruction of the Old Mill in Mill Valley.

WHEN TO USE RECONSTRUCTION AS THE TREATMENT?

- A contemporary depiction is required to understand and interpret a property's historic value (including the re-creation of missing components in a historic district or site);
- No other property with the same associative value has survived; and
- Sufficient historical documentation exists to ensure an accurate reproduction.

Prior to undertaking work, a documentation plan for Reconstruction should be developed.



1907 postcard of the Old Mill in Mill Valley, CA.
Source: Mill Valley Public Library, Lucretia Little History Room.

Old Mill, Mill Valley, Cal.

SELECTING AN APPROPRIATE SOI TREATMENT OPTION

1. Evaluate historic significance and integrity
 - What is the level of significance (relative importance in history)?
 - What are the character-defining features?
2. Assess physical condition
 - What are immediate stabilization needs?
 - What are medium- and long-term maintenance and rehabilitation needs?
 - What are the resources available to address these needs?
3. Plan for future use
 - Will the building be used for its historic purpose?
 - Will the building be adaptively re-used?
 - Is an addition necessary?
 - Are accessibility, structural, code upgrades necessary?

Selecting an Appropriate Treatment



Interactive Exercise

Re-creates vanished or non-surviving portions of a property for interpretive purposes.

Depicts a property at a particular period of time in its history, while removing evidence of other periods.

Acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character.

Focuses on the maintenance and repair of existing historic materials and retention of a property's form as it has evolved over time.

Preservation

Rehabilitation

Restoration

Reconstruction



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Preservation

Rehabilitation

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SOI Standards for Rehabilitation



SOI REHABILITATION STANDARDS (ABRIDGED)

1. Appropriate new (continued) use.
2. Preserve historic character – features, spaces, and spatial relationships.
3. No false historicism.
4. Recognize change over time.
5. Preserve materials, finishes, construction techniques and craftsmanship.
6. Repair rather than replace. When replacing, match design, color, texture, (and materials).
7. Treat with “gentlest means possible.”
8. Protect and preserve archeological resources.
9. New construction shall be differentiated, yet compatible.
10. New construction shall be reversible, i.e. add rather than subtract.

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. 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.

1

REHABILITATION STANDARD 1: A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.



1

REHABILITATION STANDARD 1: A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.



2

REHABILITATION STANDARD 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.



2

REHABILITATION STANDARD 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.



3

REHABILITATION STANDARD 3: Each property shall 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 architectural elements from other buildings, shall not be undertaken.



Art glass original.
Stained glass
windows salvaged
from another
Victorian house in
1970s

4

REHABILITATION STANDARD 4: Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.



Second story addition designed by original master architect a few years after original construction.

5

REHABILITATION STANDARD 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.



6

REHABILITATION STANDARD 6: Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.



7 **REHABILITATION STANDARD 7:** Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.



8

REHABILITATION STANDARD 8: Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.



9

REHABILITATION STANDARD 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.



10 **REHABILITATION STANDARD 10:** New additions and adjacent or related new construction shall 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.



Tools for Applying the SOI Standards



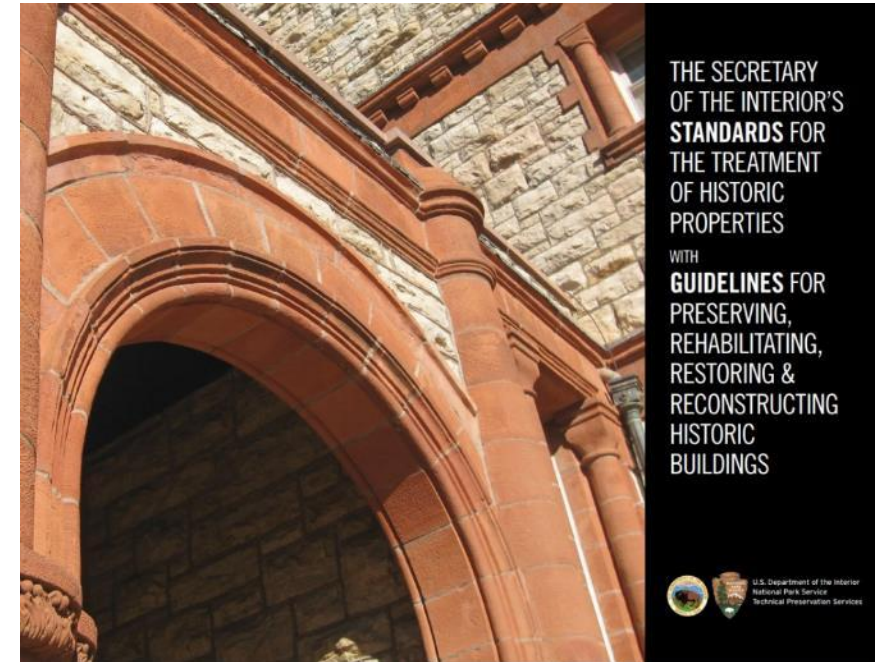
GUIDELINES FOR TREATMENT OF HISTORIC PROPERTIES

General design and technical recommendations to assist in applying the Standards to a specific property.

Additional Illustrated Guidelines for:

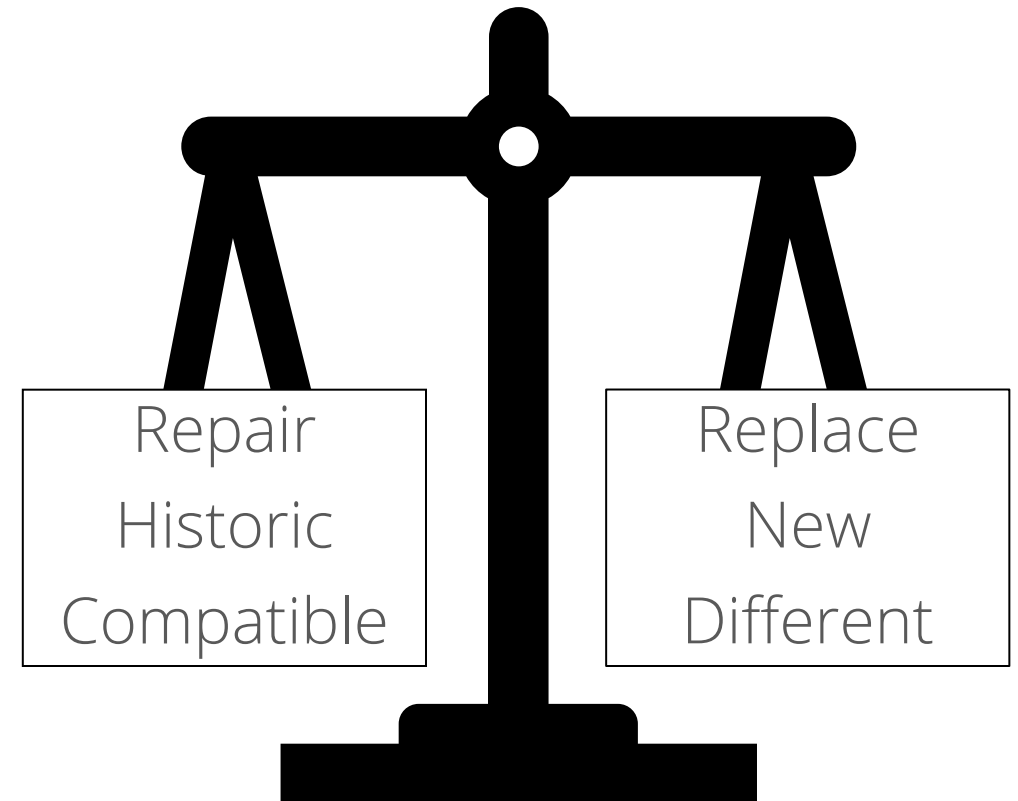
- Cultural Landscapes
- Sustainability
- Flood Adaptation

<https://www.nps.gov/tps/standards.htm>



WHAT'S IN THE GUIDELINES

- Guidelines for each of the four treatments
- Organized by topic
 - Building Materials
 - Building Features and Systems
 - Structural Systems
 - Interior Spaces, Features, and Finishes
 - Building Site
 - Setting (District/Neighborhood)
 - Code-Required Work
 - Resilience to Natural Hazards
 - Sustainability
 - New Exterior Additions and Related New Construction (Rehabilitation only)

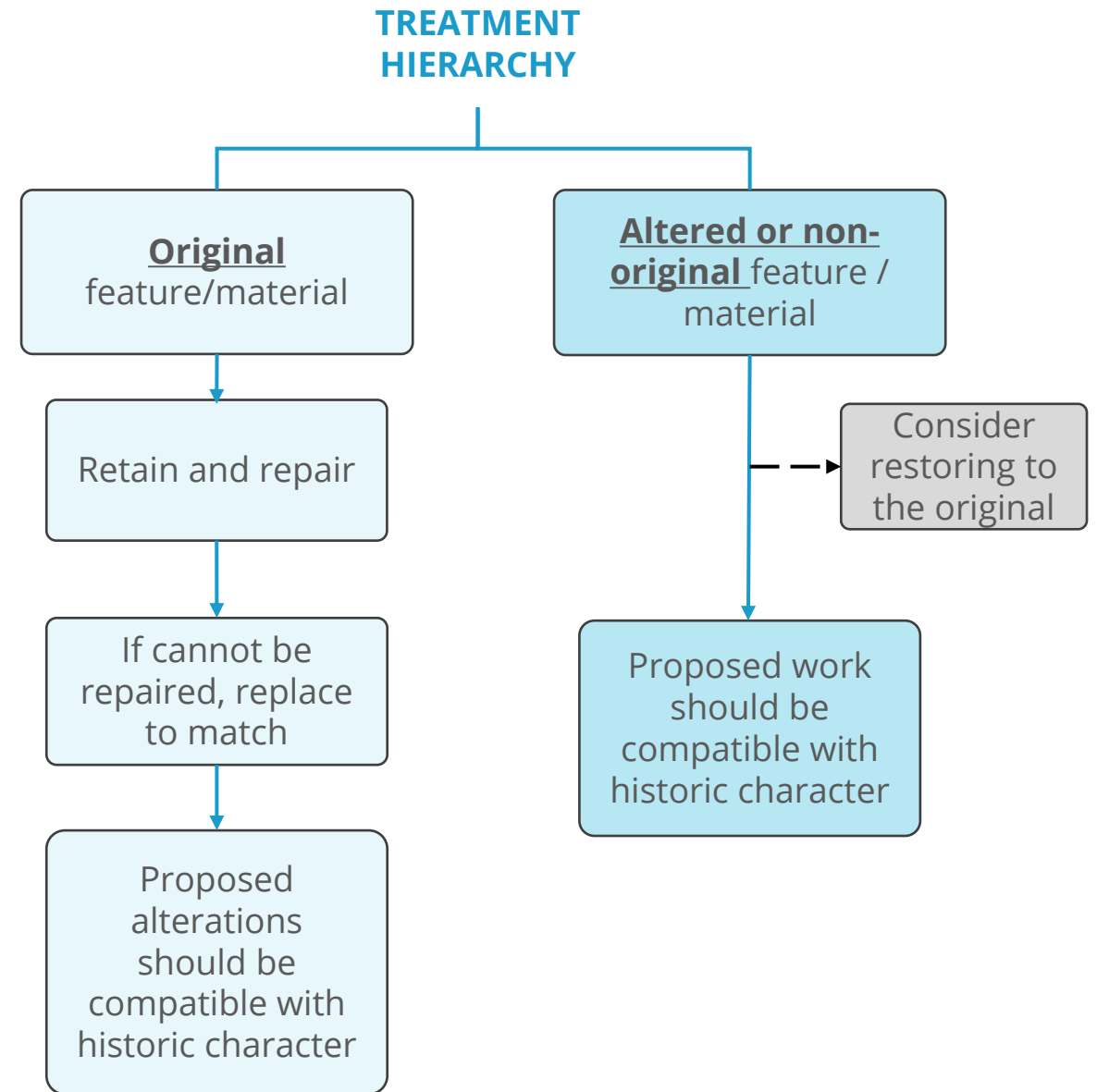


GENERAL APPROACH

For Rehabilitation Treatment

1. Identify, retain, and preserve
2. Protect and maintain
3. Repair
4. Replacement, if beyond repair
5. Alterations and Additions for New Use

Approach similar for the other three treatments



GUIDELINES FOR STRUCTURAL SYSTEMS

1. Identify, Retain, and Preserve

Recommended (Do)

- Identify, retain, and preserve visible features of structural systems important to historic character
- Includes materials (wood, metal, masonry), types of system and their features (post and beam, trusses, cast-iron or concrete columns, above-grade stone foundation walls, load-bearing masonry walls).

Not Recommended (Don't)

- Remove or substantially change visible features that may be character defining.
- Overload the existing system or adding equipment that could damage structure.
- Replace load-bearing masonry (brick, stone, concrete) walls that could be augmented and retained.
- Leave known structural problems untreated

GUIDELINES FOR STRUCTURAL SYSTEMS

2. Protect and Maintain

Recommended (Do)

- Protect and maintain the structural system by keeping gutters and downspouts clear and roofing in good repair, and ensure wood structural members are free from insects.
- Stabilize deteriorated or damaged structural systems prior to undertaking preservation work.
- Evaluate to determine if more than protection and maintenance is needed.

Not Recommended (Don't)

- Use treatments or products that may retain moisture, which could accelerate deterioration.
- Failing to take adequate measures to ensure the protection of structural systems.

GUIDELINES FOR STRUCTURAL SYSTEMS

3. Repair

Recommended (Do)

- Repair structural system by augmenting individual components.
- Reinforce or supplement weakened structural members, such as through pairing or sistering with a new member, bracing, or other method.
- Install reinforcement in ways that minimizes impact on the historic fabric and character.

Not Recommended (Don't)

- Upgrade structurally in way that diminishes the historic character (exterior or interior).
- Replace a feature when it can be augmented and retained.

GUIDELINES FOR STRUCTURAL SYSTEMS

4. Replacement

Recommended (Do)

- Replacement in kind, or with compatible substitute material, large portions or entire features that are extensively damaged or deteriorated, or missing when there are surviving prototypes.
- Substitute material must be structurally sufficient, physically compatible with the rest of the system, and where visible, have the same form, design, and appearance as the historic feature.

Not Recommended (Don't)

- Use substitute material that does not equal the load-bearing capabilities of the historic material, does not convey the same appearance, or if visible, is physically incompatible.
- Install a visible or exposed structural replacement that does not match.



GUIDELINES FOR STRUCTURAL SYSTEMS

5. Alterations and Additions for a New Use

Recommended (Do)

- Correct structural deficiencies needed to accommodate a new use in a manner that preserves the structural system and individual character-defining features.
- Design and install new mechanical or electrical equipment (when necessary) that minimizes number and size of cuts or holes in structural members.

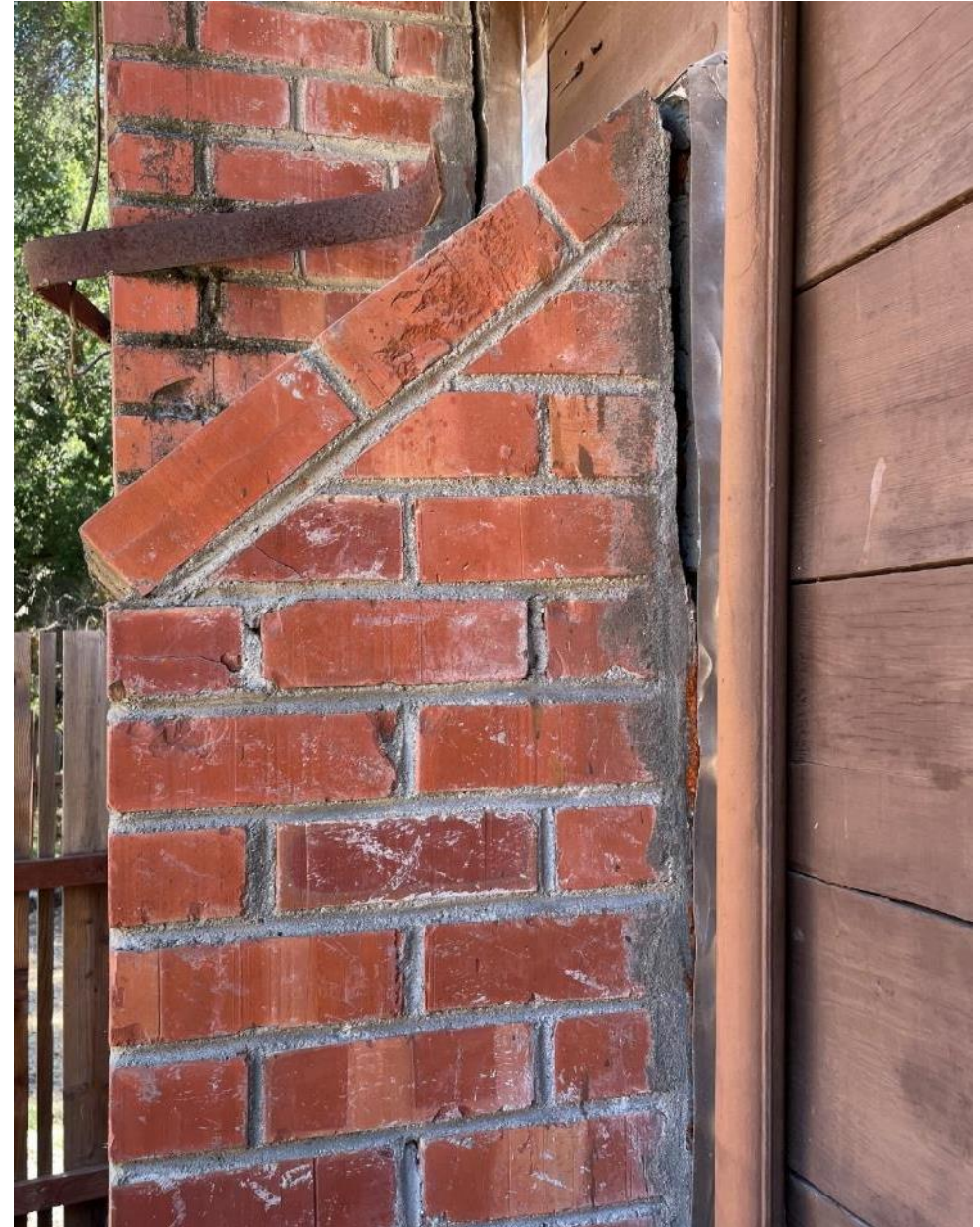
Not Recommended (Don't)

- Excavate or regrade adjacent land that could cause the historic foundation to settle, shift, or fail.
- Make substantial changes to significant interior spaces or damage or destroy character-defining features or finishes to correct structural deficiencies.

GUIDELINES FOR CODE-REQUIRED WORK | LIFE SAFETY

Most relevant to seismic work:

1. Identify character-defining features (exterior, interior, site, setting) that may be affected by life-safety code-required work.
2. Comply with life-safety codes while preserving character-defining features and impacting them as little as possible.
3. Work with code officials and historic preservation specialists to investigate options for compliance.
4. Use relevant sections of existing codes that provide alternative means of code compliance when work would negatively impact historic character.

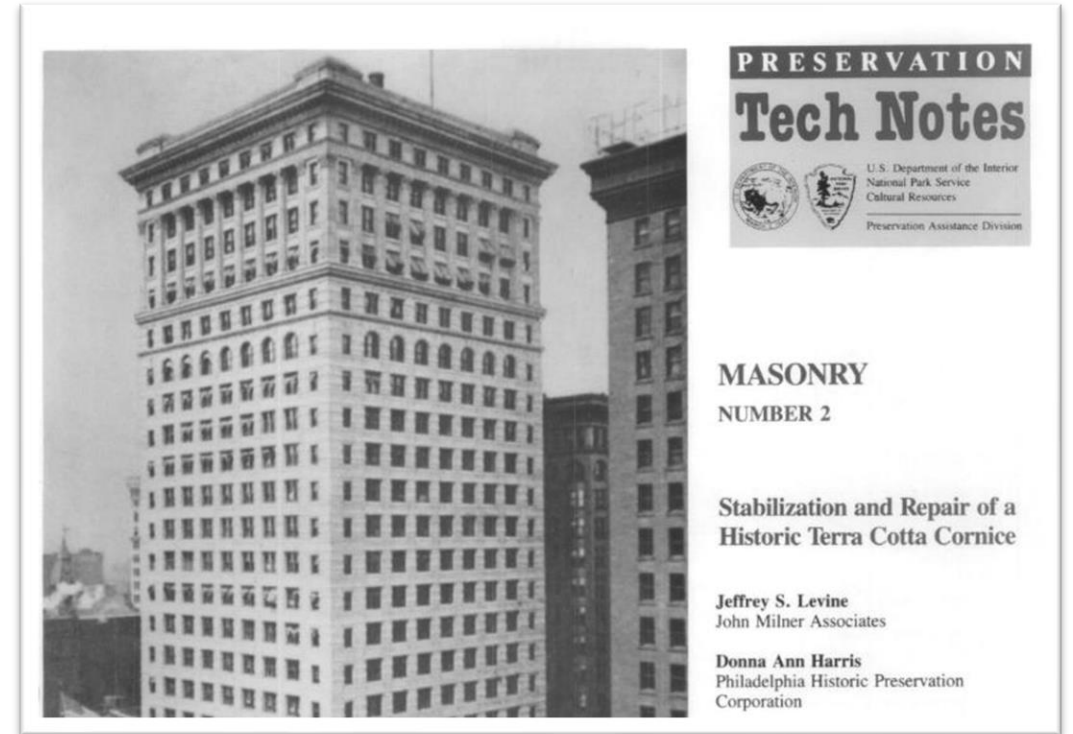


NPS PRESERVATION BRIEFS & TECH NOTES



Preservation Briefs provide information on preserving, rehabilitating, and restoring historic buildings. These NPS publications help historic building owners recognize and resolve common problems prior to work. The briefs are especially useful to Historic Preservation Tax Incentives Program applicants because they recommend methods and approaches for rehabilitating historic buildings that are consistent with their historic character.

<https://www.nps.gov/tps/how-to-preserve/briefs.htm>



Preservation Tech Notes provide practical information on traditional practices and innovative techniques for successfully maintaining and preserving cultural resources.

<https://www.nps.gov/tps/how-to-preserve/tech-notes.htm>

PRESERVATION BRIEF 41: THE SEISMIC REHABILITATION OF HISTORIC BUILDINGS

Four Preservation Principals:

1. Preserve and retain historic structural system, not replace wholesale in the process of seismic strengthening.
2. If damaged beyond repair or must be removed, replace in kind or with compatible substitute materials.
3. New seismic retrofit systems should work in concert with inherent strength of historic structural system, respect the historic character/integrity, be visually unobtrusive and compatible, and limit damage.
4. Seismic work should be reversible.



Case Studies



Case Study #1 Rehabilitation

George Key Ranch (1898)

- Suffered damage in 2014 La Habra earthquake
- Reinforcing & attachment of unreinforced concrete block columns at front porch
- Supplemental strengthening in the attic
- Addition of new SureBoard to increase shear capacity of some perimeter walls (at interior)
- Most relevant Standards:
 - Standard 2 – Retain character
 - Standard 5 – Character-defining features retained





Concrete block columns.



New straps to chimney in attic.



New anchor plate with bolts down into newly reinforce stone columns.



New supplement at rafter ends to wall.

Case Study #1

George Key Ranch House



Plaster removed at interior corner.



New straps before SureBoard.



New SureBoard at interior corner.

Case Study #2 Replacement

Grant Park Ranch House (1882/1930s)

- Sunroom required strengthening without changing wall of windows
- Added new compatible structural element (moment frame)
- Embed into surrounding wall around windows
- Most relevant Standards:
 - Standard 2 – Retain character
 - Standard 6 – Replace to match





Existing structure, once windows removed.



Windows reinstalled with moment frame in place.



Steel moment frame installed.



Completed with siding reinstalled.

Summary & Questions



SUMMARY: SECRETARY OF THE INTERIOR'S *STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES*



Preservation



Restoration



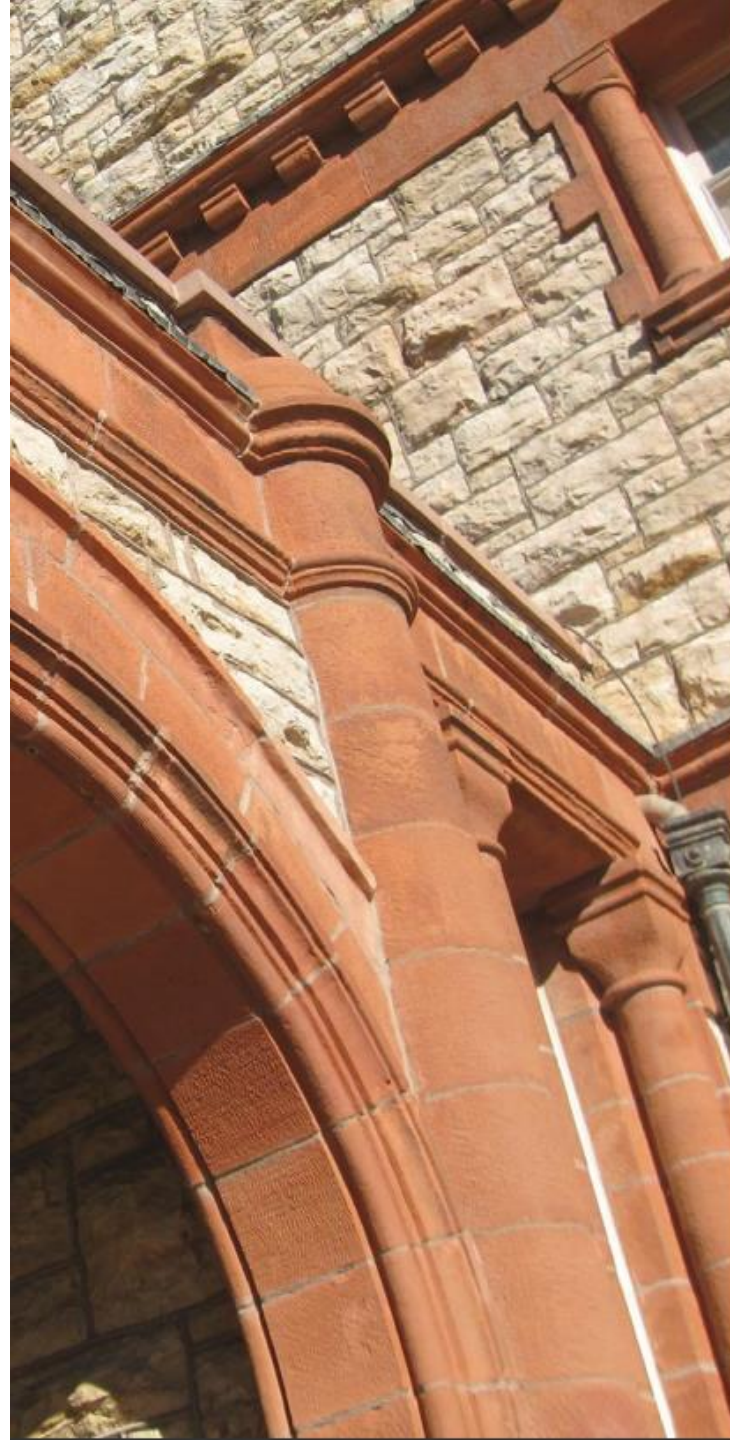
Rehabilitation



Reconstruction

SUMMARY: SOI REHABILITATION STANDARDS (ABRIDGED)

1. Appropriate new (continued) use.
2. Preserve historic character – features, spaces, and spatial relationships.
3. No false historicism.
4. Recognize change over time.
5. Preserve materials, finishes, construction techniques and craftsmanship.
6. Repair rather than replace. When replacing, match design, color, texture, (and materials).
7. Treat with “gentlest means possible.”
8. Protect and preserve archeological resources.
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THE SECRETARY
OF THE INTERIOR'S
**STANDARDS FOR
THE TREATMENT
OF HISTORIC
PROPERTIES**

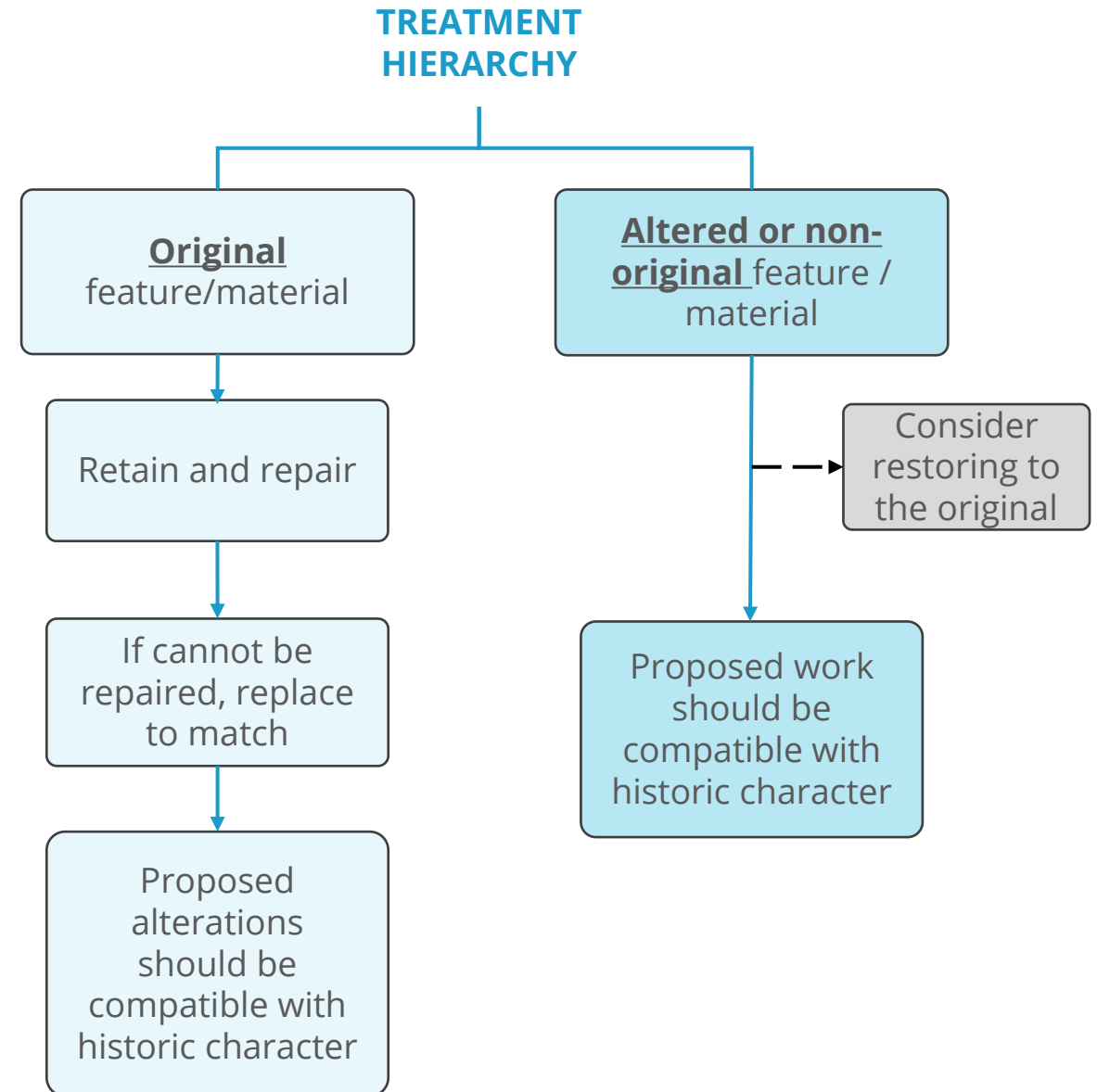
WITH
**GUIDELINES FOR
PRESERVING,
REHABILITATING,
RESTORING &
RECONSTRUCTING
HISTORIC
BUILDINGS**



U.S. Department of the Interior
National Park Service
Technical Preservation Services

SUMMARY: GUIDELINES FOR STRUCTURAL SYSTEMS

1. Identify, retain, and preserve
2. Protect and maintain (and stabilize)
3. Repair
4. Replacement, if beyond repair
5. Alterations and Additions for New Use (Rehabilitation)



Thank you. Questions?

Workshop #1: What Makes My Home 'Historic'? | Thursday, June 23, 2022

Workshop #2: Is 'Compatible' 'Matchy-Matchy'? | Tuesday, July 26, 2022

NEXT WORKSHOP -- Workshop #3: Retrofitting Basic Training | Tuesday, August 30, 2022

Workshop #4: Seismic Retrofits | Thursday, October 6, 2022

Workshop #5: Keep it Lookin' Great | Tuesday, November 8, 2022

Workshop #6: The Nuts and Bolts of Retrofits | Thursday, December 15, 2022



For future workshops, which time slots work for you?

- (a) 11am – 1pm
- (b) 12pm – 2pm
- (c) 5pm – 7pm



Additional Resources & Further Reading

- Secretary of the Interior's Standards for the Treatment of Historic Properties:
<https://www.nps.gov/tps/standards.htm>
 - Standards for Preservation - <https://www.nps.gov/tps/standards/four-treatments/treatment-preservation.htm>
 - Standards for Rehabilitation - <https://www.nps.gov/tps/standards/four-treatments/treatment-rehabilitation.htm>
 - Standards for Rehabilitation (for historic tax credit projects) - <https://www.nps.gov/tps/standards/rehabilitation.htm>
 - Standards for Restoration - <https://www.nps.gov/tps/standards/four-treatments/treatment-restoration.htm>
 - Standards for Reconstruction - <https://www.nps.gov/tps/standards/four-treatments/treatment-reconstruction.htm>
- NPS Guidelines for the Treatment of Historic Properties - <https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf>
- NPS Preservation Brief #41: The Seismic Rehabilitation of Historic Buildings - <https://www.nps.gov/tps/how-to-preserve/briefs/41-seismic-rehabilitation.htm>