## STANDARDS FOR RESTORATION & GUIDELINES FOR RESTORING HISTORIC BUILDINGS

# 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.*

## Standards for Restoration

1. A property will be used as it was historically or be given a new use that interprets the property and its restoration period.
2. Materials and features from the restoration period will be retained and preserved. The removal of materials or alteration of features, spaces and spatial relationships that characterize the period will not be undertaken.
3. Each property will be recognized as a physical record of its time, place and use. Work needed to stabilize, consolidate and conserve materials and features from the restoration period will be physically and visually compatible, identifiable upon close inspection and properly documented for future research.
4. Materials, features, spaces and finishes that characterize other historical periods will be documented prior to their alteration or removal.
5. Distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize the restoration period will be preserved.
6. Deteriorated features from the restoration period 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.
7. Replacement of missing features from the restoration period will be substantiated by documentary and physical evidence. A false sense of history will not be created by adding conjectural features, features from other properties, or by combining features that never existed together historically.
8. 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.
9. Archeological resources affected by a project will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
10. Designs that were never executed historically will not be constructed.

GUIDELINES FOR RESTORING HISTORIC BUILDINGS

# INTRODUCTION

**Restoration** is the treatment that should be followed when the expressed goal of the project is to make the building appear as it did at a particular—and at its most significant—time in its history. The guidance provided by the **Standards for Restoration and Guidelines for Restoring Historic Buildings** is to first ***identify*** the materials and features from the *restoration period*. After these materials and features have been identified, they should be maintained, protected, repaired, and replaced, when necessary. Unlike the other treatments in which most, if not all, of the historic elements are retained, restoration will likely include the removal of features from other periods. Missing features from the *restoration period* should be *replaced*, based on physical or historic documentation, with either the same or compatible substitute materials. Only those designs that can be documented as having been built should be recreated in a restoration project.

## Identify, Retain, and Preserve Materials and Features from the Restoration Period

The guidance for the treatment **Restoration** begins with recommendations to identify the form and detailing of those architectural materials and features that are significant to the *restoration period* as established by historic research and documentation. Therefore, guidance on ***identifying, retaining, and preserving*** features from the *restoration period* is always given first.

## Protect and Maintain Materials and Features from the Restoration Period

After identifying those materials and features from the *restoration period* that must be retained in the process of **Restoration** work, then ***protecting and maintaining*** them are addressed. Protection generally involves the least degree of intervention and is preparatory to other work. Protection includes the maintenance of materials and features from the *restoration period* as well as ensuring that the property is protected before and during restoration work. An overall evaluation of the physical condition of the features from the *restoration period* should always begin at this level.

## Repair (Stabilize, Consolidate, and Conserve) Materials and Features from the Restoration Period

Next, when the physical condition of *restoration-period* features requires additional work, repairing by ***stabilizing, consolidating, and conserving*** is recommended. **Restoration** guidance focuses on the preservation of those materials and features that are significant to the period. In **Restoration**, repair may include the limited replacement in kind or with a compatible substitute material of extensively deteriorated or missing components of existing *restoration-period* features when there are surviving prototypes to use as a model.

## Replace Extensively Deteriorated Features from the Restoration Period

In **Restoration**, ***replacing*** an entire feature from the *restoration period,* such as a porch, that is too deteriorated to repair may be appropriate. Together with documentary evidence, the form and detailing of the historic feature should be used as a model for the replacement. Using the same kind of material is preferred; however, compatible substitute material may be considered. New work may be unobtrusively dated to guide future research and treatment.

## Remove Existing Features from Other Historic Periods

Most buildings change over time, but in **Restoration** the goal is to depict the building as it appeared at the most significant time in its history. Thus, it may involve ***removing*** or altering existing historic features that do not represent the *restoration period*. Materials, features, spaces, and finishes that characterize other historical periods should be documented to guide future research and treatment prior to their alteration or removal.

## Recreate Missing Features from the Restoration Period

Most **Restoration** projects involve ***recreating*** features that were significant to the building during the *restoration period*, such as a porch, but are now missing. Missing features to be replaced should be substantiated by documentary and physical evidence to ensure the restoration is accurate. Using the same materials to depict lost features is always the preferred approach; however, using compatible substitute material is an acceptable alternative in **Restoration** because the goal of this treatment is to replicate the *appearance* of the historic building at a particular time.

If documentary and physical evidence are not available to provide an accurate recreation of missing features, the treatment Rehabilitation might be a better overall approach to project work.

## Code-Required Work: Accessibility and Life Safety

Sensitive solutions to meeting code requirements in a **Restoration** project are an important part of protecting the historic character of the building. Work that must be done to meet accessibility and life-safety requirements must also be assessed for its potential impact on the historic building as it is restored.

## Resilience to Natural Hazards

Resilience to natural hazards should be addressed as part of a **Restoration** project. A historic building may have existing characteristics or features that help to address or minimize the impacts of natural hazards. These should always be used to best advantage when planning new adaptive treatments that have the least impact on the historic character of the building, its site, and setting.

## Sustainability

Sustainability should be addressed as part of a **Restoration** project. Good preservation practice is often synonymous with sustainability. Existing energy-efficient features should be retained and repaired. New sustainability treatments should generally be limited to updating existing features and systems to have the least impact on the historic character of the building.

The topic of sustainability is addressed in detail in *The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings*. Although specifically developed for the treatment Rehabilitation, the Sustainability Guidelines can be used to help guide the other treatments.

***Restoration as a Treatment.*** *When 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; when there is substantial physical and documentary evidence for the work; and when contemporary alterations and additions are not planned, Restoration may be considered as a treatment. Prior to undertaking work, a particular period of time, i.e., the restoration period, should be selected and justified, and a documentation plan for Restoration developed.*

## **MASONRY:** STONE, BRICK, TERRA COTTA, CONCRETE, ADOBE, STUCCO, AND MORTAR

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Identifying, retaining and preserving*** masonry features from the restoration period (such as walls, brackets, railings, cornices, window and door surrounds, steps, and columns) and decorative ornament and other details, such as tooling and bonding patterns, coatings, and color. | Altering masonry features from the restoration period.<br><br>Failing to document masonry features from the restoration period, which may result in their loss.<br><br>Applying paint or other coatings (such as stucco) to restoration-period masonry features, or removing them, if such treatments cannot be documented to the restoration period.<br><br>Changing the type of paint or coating or the color of restoration-period masonry features, unless the work can be substantiated by historical documentation. |
| ***Protecting and maintaining*** masonry features from the restoration period by ensuring that historic drainage features and systems that divert rainwater from masonry surfaces (such as roof overhangs, gutters, and downspouts) are intact and functioning properly. | Failing to identify and treat the causes of masonry deterioration, such as leaking roofs and gutters or rising damp. |

[1] (a) When it was acquired by the National Trust for Historic Preservation in the 1980s, Montpelier in Montpelier Station, VA, the home of James and Dolley Madison, had been much altered and enlarged since it was first constructed. Based on historical documentation and research, Montpelier was accurately restored to its 1820s appearance when the president and his wife lived there (b). *Photos: Courtesy of The Montpelier Foundation.*

## **MASONRY:** STONE, BRICK, TERRA COTTA, CONCRETE, ADOBE, STUCCO, AND MORTAR

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Cleaning masonry only when necessary to halt deterioration or remove heavy soiling. | Cleaning masonry surfaces from the restoration period when they are not heavily soiled to create a "like-new" appearance, thereby needlessly introducing chemicals or moisture into historic materials. |
| Carrying out masonry cleaning tests when it has been determined that cleaning is appropriate. Test areas should be examined to ensure that no damage has resulted and, ideally, monitored over a sufficient period of time to allow long-range effects to be predicted. | Cleaning masonry surfaces without testing or without sufficient time for the testing results to be evaluated. |
| Cleaning soiled restoration-period masonry surfaces with the gentlest method possible, such as using low-pressure water and detergent and natural bristle or other soft-bristle brushes. | Cleaning or removing paint from masonry surfaces from the restoration period using most abrasive methods (including sandblasting, other media blasting, or high-pressure water) which can damage the surface of the masonry and mortar joints.<br><br>Using a cleaning or paint-removal method that involves water or liquid chemical solutions when there is any possibility of freezing temperatures.<br><br>Cleaning with chemical products that will damage some types of masonry (such as using acid on limestone or marble), or failing to neutralize or rinse off chemical cleaners from masonry surfaces. |
| Using biodegradable or environmentally-safe cleaning or paint-removal products. | |
| Using paint-removal methods that employ a poultice to which paint adheres, when possible, to neatly and safely remove old lead paint. | |
| Using coatings that encapsulate lead paint, when possible, where paint is not required to be removed to meet environmental regulations. | |
| Allowing only trained conservators to use abrasive or laser cleaning methods, when necessary, to clean hard-to-reach, highly-carved, or detailed decorative stone features. | |

## **MASONRY:** STONE, BRICK, TERRA COTTA, CONCRETE, ADOBE, STUCCO, AND MORTAR

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Removing damaged or deteriorated paint only to the next sound layer using the gentlest method possible (e.g., hand scraping) prior to repainting. | Removing paint that is firmly adhered to masonry surfaces. |
| Applying compatible paint coating systems to historically-painted, restoration-period masonry following proper surface preparation. | Failing to follow manufacturers' product and application instructions when repainting masonry features. |
| Repainting historically-painted masonry features with colors that are documented to the restoration period of the building (i.e., verifying through paint analysis). | Using paint colors on historically-painted masonry features that are not documented to the restoration period. |
| Protecting adjacent restoration-period materials when cleaning or removing paint from masonry features from the restoration period. | Failing to protect adjacent restoration-period materials when cleaning or removing paint from masonry features from the restoration period. |
| Evaluating the overall condition of masonry from the restoration period to determine whether more than protection and maintenance, such as repairs to masonry features will be necessary. | Failing to undertake adequate measures to ensure the protection of masonry features from the restoration period. |
| ***Repairing*** masonry features from the restoration period by patching, splicing, consolidating, or otherwise reinforcing the masonry using recognized preservation methods. Repair may include the limited replacement in kind or with a compatible substitute material of those extensively deteriorated or missing components of masonry features from the restoration period when there are surviving prototypes (such as terra-cotta brackets or stone balusters) or when the replacement can be based on physical or historic documentation. The new work should match the old in material, design, scale, color, and finish. | Removing masonry from the restoration period that could be stabilized, repaired, and conserved, or using untested consolidants and unskilled personnel, potentially causing further damage to materials. |

## **MASONRY:** STONE, BRICK, TERRA COTTA, CONCRETE, ADOBE, STUCCO, AND MORTAR

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Repairing masonry walls and other masonry features from the restoration period by repointing the mortar joints where there is evidence of deterioration, such as disintegrating mortar, cracks in mortar joints, loose bricks, or damaged plaster. | |
| Removing deteriorated lime mortar from the restoration period carefully by hand raking the joints to avoid damaging the masonry. | Removing restoration-period mortar that is not deteriorated from sound joints. |


[2] (a) Decatur House in Washington, DC, was designed by William Henry Latrobe and constructed in 1816. (b) In the late-19th century, the façade was "modernized" by removing the limestone lintels on the first floor and replacing them with decorative sandstone lintels in the style of the period. (c) In the mid-20th century, the house was brought back to its original appearance based on historic documentation. Photos: The White House Historical Association and Decatur House, a National Trust Site.

## **MASONRY:** STONE, BRICK, TERRA COTTA, CONCRETE, ADOBE, STUCCO, AND MORTAR

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Using power tools only on horizontal joints on restoration-period brick masonry in conjunction with hand chiseling to remove hard mortar that is deteriorated or that is a non-historic material which is causing damage to the masonry units. Mechanical tools should be used only by skilled masons in limited circumstances and generally not on short, vertical joints in brick masonry. | Allowing unskilled workers to use masonry saws or mechanical tools to remove deteriorated mortar from joints prior to repointing. |
| Duplicating historic mortar joints in strength, composition, color, and texture when repointing is necessary. In some cases, a lime-based mortar may also be considered when repointing Portland cement mortar joints because it is more flexible. | Repointing masonry units with mortar of high Portland cement content (unless it is the content of the mortar from the restoration period). |
| Duplicating restoration-period mortar joints in width and joint profile when repointing is necessary. | Using "surface grouting" or a "scrub" coating technique, such as a "sack rub" or "mortar washing," to repoint exterior masonry units from the restoration period instead of traditional repointing methods.<br><br>Changing the width or joint profile when repointing masonry from the restoration period. |

[3] **Not Recommended:** Although the Dutchman stone repair has been well executed, the replacement stone is not a good color match.

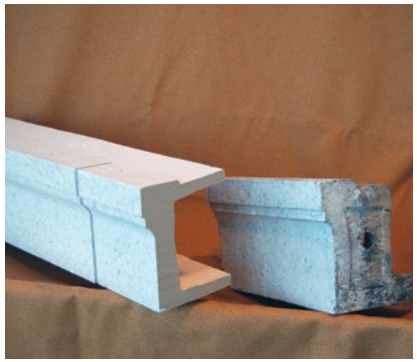
## **MASONRY:** STONE, BRICK, TERRA COTTA, CONCRETE, ADOBE, STUCCO, AND MORTAR

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Repairing stucco from the restoration period by removing the damaged material and patching with new material that duplicates the historic stucco in strength, composition, color, and texture. | Removing sound stucco from the restoration period or repairing with new stucco that is different in composition from the historic stucco.<br><br>Patching stucco or concrete from the restoration period without removing the source of deterioration.<br><br>Replacing deteriorated stucco from the restoration period with synthetic stucco, an exterior finish and insulation system (EFIS), or other non-traditional materials. |
| Using mud plaster or a compatible lime-plaster adobe render, when appropriate, to repair adobe from the restoration period. | Applying cement stucco, unless it already exists, to adobe from the restoration period. |
| Sealing joints in concrete from the restoration period with appropriate flexible sealants and backer rods, when necessary. | Repointing masonry units from the restoration period (other than concrete) with a synthetic caulking compound instead of mortar. |
| Cutting damaged concrete from the restoration period back to remove the source of deterioration, such as corrosion on metal reinforcement bars. The new patch must be applied carefully so that it will bond satisfactorily with and match the historic concrete. | Patching concrete from the restoration period without removing the source of deterioration. |
| Using a non-corrosive, stainless-steel anchoring system when replacing damaged stone, concrete, or terra-cotta units from the restoration period that have failed. | |
| Repairing masonry features from the restoration period by patching, splicing, consolidating, or otherwise reinforcing the masonry using recognized preservation methods. Repair may include the limited replacement in kind or with a compatible substitute material of those extensively deteriorated or missing components of masonry features from the restoration period when there are surviving prototypes (such as terra-cotta brackets or stone balusters) or when the replacement can be based on physical or historic documentation. The new work should match the old in material, design, scale, color, and finish. | Removing masonry from the restoration period that could be stabilized, repaired, and conserved, or using untested consolidants, improper repair techniques, or unskilled personnel, potentially causing further damage to materials.<br><br>Replacing an entire masonry feature from the restoration period, such as a cornice or balustrade, when repair of the masonry and limited replacement of deteriorated or missing components are appropriate. |

[4] (a) Over the years terra-cotta cladding had been replaced on the lower floors of this early-20th century bank building with a storefront and incompatible windows. (b) A 1936 photograph of the building provided the documentation to restore its historic appearance. (c) Glass fiber reinforced plastic (GRFP) was chosen as a substitute material, and samples were made in a variety of colors and textures to obtain the best match for the missing and damaged terra cotta. (d) This photo taken after restoration shows that the GFRP replacements successfully blend in with the original terra cotta. *Photo (d): Blamonet at English Wikipedia.*


(a)


(b)



(c)

(d)

## **MASONRY:** STONE, BRICK, TERRA COTTA, CONCRETE, ADOBE, STUCCO, AND MORTAR

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Applying non-historic surface treatments, such as water-repellent coatings, to masonry from the restoration period only after repointing and only if masonry repairs have failed to arrest water penetration problems. | Applying waterproof, water-repellent, or other coatings that are not from the restoration period (such as stucco) to masonry as a substitute for repointing and masonry repairs. |
| Applying permeable, anti-graffiti coatings to masonry from the restoration period when appropriate. | Applying water-repellent or anti-graffiti coatings that change the historic appearance of the masonry from the restoration period or that may trap moisture if the coating is not sufficiently permeable. |
| ***Replacing*** in kind an entire masonry feature from the restoration period that is too deteriorated to repair (if the overall form and detailing are still evident) using the physical evidence as a model to reproduce the feature. Examples can include a large section of a wall, a cornice, balustrade, pier, or parapet. If using the same kind of material is not feasible, then a compatible substitute material may be considered. The new work may be unobtrusively dated to guide future research and treatment. | Removing a masonry feature from the restoration period that is unrepairable and not replacing it, or replacing it with a new feature that does not match.<br><br>Using a substitute material for the replacement that does not convey the same appearance of the surviving components of the masonry. |
| *The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic masonry features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing masonry features from the restoration period using all new materials.* | |
| **Removing Existing Features from Other Historic Periods** | |
| Removing masonry features from other historic periods, such as a door surround, porch, or steps. | Failing to remove a masonry feature from another period, thereby confusing the depiction of the building's appearance from the restoration period. |
| Documenting masonry features dating from other periods prior to their alteration or removal. If possible, selected examples of these features or materials should be stored for future research. | Failing to document masonry features from other historic periods that are removed from the building so that a valuable portion of the historic record is lost. |
| **Recreating Missing Features from the Restoration Period** | |
| Recreating a missing masonry feature that existed during the restoration period based on documentary and physical evidence; for example, duplicating a terra-cotta bracket or stone balustrade. The new work may be unobtrusively dated to guide future research and treatment. | Constructing a masonry feature that was part of the original design for the building but was never actually built, or a feature which was thought to have existed during the restoration period but which cannot be documented. |

## **WOOD:** CLAPBOARD, WEATHERBOARD, SHINGLES, AND OTHER FUNCTIONAL AND DECORATIVE ELEMENTS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Identifying, retaining, and preserving*** wood features from the restoration period (such as siding, cornices, brackets, window and door surrounds, and steps) and their paints, finishes, and colors. | Altering wood features from the restoration period.<br><br>Failing to document wood features from the restoration period, which may result in their loss.<br><br>Applying paint or other coatings to restoration-period wood features, or removing them, if such treatments cannot be documented to the restoration period.<br><br>Changing the type of paint or coating or the color of restoration-period wood features, unless the work can be substantiated by historical documentation. |
| ***Protecting and maintaining*** wood features from the restoration period by ensuring that historic drainage features that divert rainwater from wood surfaces (such as roof overhangs, gutters, and downspouts) are intact and functioning properly. | Failing to identify and treat the causes of wood deterioration, such as faulty flashing, leaking gutters, cracks and holes in siding, deteriorated caulking in joints and seams, plant material growing too close to wood surfaces, or insect or fungal infestation. |
| Applying chemical preservatives or paint to wood features from the restoration period that are subject to weathering, such as exposed beam ends, outriggers, or rafter tails. | Using chemical preservatives that can change the appearance of wood features from the restoration period. |
| Implementing an integrated pest management plan to identify appropriate preventive measures to guard against insect damage, such as installing termite guards, fumigating, and treating with chemicals. | |
| Retaining coatings from the restoration period (such as paint) that protect the wood from moisture and ultraviolet light. Paint removal should be considered only when there is paint surface deterioration and as part of an overall maintenance program which involves repainting or applying other appropriate coatings. | Stripping restoration-period paint or other coatings from wood features without recoating them. |
| Using biodegradable or environmentally-safe cleaning or paint-removal products. | |

## **WOOD:** CLAPBOARD, WEATHERBOARD, SHINGLES, AND OTHER FUNCTIONAL AND DECORATIVE ELEMENTS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Using thermal devices (such as infrared heaters) carefully to remove paint, when it is so deteriorated that total removal is necessary prior to repainting. | Using a thermal device to remove paint from wood features without first checking for and removing any flammable debris behind them.<br><br>Using thermal devices without limiting the amount of time the wood is exposed to heat. |
| Using paint-removal methods that employ a poultice to which paint adheres, when possible, to neatly and safely remove old lead paint. | |
| Using coatings that encapsulate lead paint, when possible, where the paint is not required to be removed to meet environmental regulations. | |
| Using chemical strippers primarily to supplement other methods such as hand scraping, hand sanding, and thermal devices. | Failing to neutralize the wood thoroughly after using chemical paint removers so that new paint may not adhere.<br><br>Removing paint from detachable, restoration-period wood features by soaking them in a caustic solution which can roughen the surface, split the wood, or result in staining from residual acid leaching out through the wood. |
| Removing damaged or deteriorated paint to the next sound layer using the gentlest method possible (e.g., hand scraping and hand sanding) prior to repainting. | Using potentially-damaging paint-removal methods on restoration-period wood surfaces, such as open-flame torches, orbital sanders, abrasive methods (including sandblasting, other media blasting, or high-pressure water), or caustic paint-removers.<br><br>Removing paint that is firmly adhered to wood surfaces. |
| Applying compatible paint coating systems to historically-painted wood following proper surface preparation. | Failing to follow manufacturers' product and application instructions when repainting wood features from the restoration period. |
| Repainting historically-painted wood features with colors that are documented to the restoration period of the building (i.e., verifying through paint analysis). | Using paint colors on historically-painted wood features that are not documented to the restoration period. |

## **WOOD:** CLAPBOARD, WEATHERBOARD, SHINGLES, AND OTHER FUNCTIONAL AND DECORATIVE ELEMENTS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Protecting adjacent restoration-period materials when cleaning or removing paint from wood features from the restoration period. | Failing to protect adjacent restoration-period materials when cleaning or removing paint from wood features from the restoration period. |
| Evaluating the overall condition of wood features from the restoration period to determine whether more than protection and maintenance, such as repairs to wood features, will be necessary. | Failing to undertake adequate measures to ensure the protection of wood features from the restoration period. |
| ***Repairing*** wood features from the restoration period by patching, splicing, consolidating, or otherwise reinforcing the wood using recognized preservation methods. Repair may include the limited replacement in kind or with a compatible substitute material of those extensively deteriorated or missing components of features from the restoration period when there are surviving prototypes (such as brackets, molding, or sections of siding) or when the replacement can be based on physical or historic documentation. The new work should match the old in material, design, scale, color, and finish. | Removing wood features from the restoration period that could be stabilized, repaired, and conserved, or using untested consolidants or unskilled personnel, potentially causing further damage to historic materials.<br><br>Replacing an entire wood feature from the restoration period, such as a cornice or porch railing, when repair of the wood and limited replacement of deteriorated or missing components are appropriate. |
| ***Replacing*** in kind an entire wood feature from the restoration period that is too deteriorated to repair (if the overall form and detailing are still evident) using the physical evidence as a model to reproduce the feature or when the replacement can be based on historic documentation. Examples can include a cornice, entablature, or a balustrade. If using the same kind of material is not feasible, then a compatible substitute material may be considered. The new work may be unobtrusively dated to guide future research and treatment. | Removing a wood feature from the restoration period that is unrepairable and not replacing it, or replacing it with a new feature that does not match.<br><br>Using substitute material for the replacement that does not convey the same appearance of the surviving components of the wood feature from the restoration period or that is physically incompatible. |

## **WOOD:** CLAPBOARD, WEATHERBOARD, SHINGLES, AND OTHER FUNCTIONAL AND DECORATIVE ELEMENTS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| *The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic masonry features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing wood features from the restoration period using all new materials.* | |
| **Removing Existing Features from Other Historic Periods** | |
| Removing wood features from other historic periods, such as a door surround, porch, or steps. | Failing to remove a wood feature from another period, thereby confusing the depiction of the building's appearance from the restoration period. |
| Documenting wood features dating from other periods prior to their alteration or removal. If possible, selected examples of these features or materials should be stored for future research. | Failing to document wood features from other historic periods that are removed from the building so that a valuable portion of the historic record is lost. |
| **Recreating Missing Features from the Restoration Period** | |
| Recreating a missing wood feature that existed during the restoration period based on documentary and physical evidence; for example, duplicating a wood dormer or porch | Constructing a wood feature that was part of the original design for the building but was never actually built, or a feature which was thought to have existed during the restoration period but cannot be documented. |


[5] New wood trim pieces were milled to match the few remaining historic features to replace those that were missing.

## **METALS:** WROUGHT AND CAST IRON, STEEL, PRESSED METAL, TERNEPLATE, COPPER, ALUMINUM, AND ZINC

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Identifying, retaining, and preserving*** metal features from the restoration period (such as columns, capitals, pilasters, spandrel panels, or stairways) and their finishes and colors. The type of metal should be identified prior to work because each metal has its own properties and may require a different treatment. | Altering metal features from the restoration period.<br><br>Failing to document metal features from the restoration period, which may result in their loss.<br><br>Applying paint or other coatings to restoration-period metal features, or removing them, if such treatments cannot be documented to the restoration period.<br><br>Changing the type of paint or coating or the color of restoration-period metal features, unless the work can be substantiated by historical documentation. |
| ***Protecting and maintaining*** metals from the restoration period from corrosion by providing proper drainage so that water does not stand on flat, horizontal surfaces or accumulate in curved decorative features. | Failing to identify and treat the causes of corrosion of restoration-period metal features such as moisture from leaking roofs or gutters. |
| Cleaning metals from the restoration period, when necessary, to remove corrosion prior to repainting or applying other appropriate protective coatings. | Failing to reapply coating systems after cleaning metals from the restoration period that require protection from corrosion.<br><br>Removing the patina from restoration-period metal features. The patina may be a protective layer on some metals (such as bronze or copper) as well as a distinctive finish. |
| Identifying the particular type of metal from the restoration period prior to any cleaning procedure and then testing to ensure that the gentlest cleaning method possible is selected; or alternatively, determining that cleaning is inappropriate for the particular metal. | Using cleaning methods which alter or damage the restoration-period color, texture, and finish of the metal, or cleaning when it is inappropriate for the metal. |
| Using non-corrosive chemical methods to clean soft metals from the restoration period (such as lead, tinplate, terneplate, copper, and zinc) whose finishes can be easily damaged by abrasive methods. | Cleaning soft metals from the restoration period (such as lead, tinplate, terneplate, copper, and zinc) with abrasive methods (including sandblasting, other media blasting, or high-pressure water) which will damage the surface of the metal. |

## **METALS:** WROUGHT AND CAST IRON, STEEL, PRESSED METAL, TERNEPLATE, COPPER, ALUMINUM, AND ZINC

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Using the least abrasive cleaning method on hard metals from the restoration period (such as cast iron, wrought iron, and steel) to remove paint buildup and corrosion. If hand scraping and wire brushing have Using the least abrasive cleaning method on hard metals from the restoration period (such as cast iron, wrought iron, and steel) to remove paint buildup and corrosion. If hand scraping and wire brushing have proven ineffective, low-pressure abrasive methods may be used as long as they do not damage the surface. | Using high-pressure abrasive techniques without first trying gentler cleaning methods prior to cleaning cast iron, wrought iron, or steel. |
| Applying appropriate paint or other coating systems to historically-painted, restoration-period metal features after cleaning to protect them from corrosion. | Applying paint or other coatings to metals (such as copper, bronze, or stainless steel) if they were not coated during the restoration period. |
| Repainting historically-painted metal features with colors that are documented to the restoration period of the building (i.e., verifying through paint analysis). | Using paint colors on historically-painted metal features that are not documented to the restoration period of the building. |
| Applying an appropriate protective coating (such as lacquer or wax) to an architectural metal feature that was historically unpainted, such as a bronze door, that is subject to heavy use. | |
| Protecting adjacent restoration-period materials when working on metal features from the restoration period. | Failing to protect adjacent restoration-period materials when working on metal features from the restoration period. |
| Evaluating the overall condition of metals from the restoration period to determine whether more than protection and maintenance, such as repairs to metal features, will be necessary. | Failing to undertake adequate measures to ensure the protection of metal features from the restoration period. |
| ***Repairing*** metal features from the restoration period by reinforcing the metal by using recognized preservation methods. Repair may include the limited replacement in kind or with a compatible substitute material of those extensively deteriorated or missing parts of features when there are surviving prototypes (such as porch balusters, column capitals or bases, storefronts, railings, or porch cresting) or when the replacement can be based on physical or historic documentation. The new work should match the old in material, design, scale, color, and finish. | Removing metal features from the restoration period that could be stabilized, repaired, and conserved, or using improper repair techniques, or untrained personnel, potentially causing further damage to historic materials.<br><br>Replacing an entire metal feature from the restoration period, such as a column or balustrade, when repair of the metal and limited replacement of deteriorated or missing components are appropriate. |

[6] Preliminary work before starting restoration revealed that the columns and the decorative shingles ornamenting the top floor of this historic building were fabricated of metal to imitate the red sandstone used elsewhere on the building.

## **METALS:** WROUGHT AND CAST IRON, STEEL, PRESSED METAL, TERNEPLATE, COPPER, ALUMINUM, AND ZINC

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Replacing*** in kind an entire metal feature from the restoration period that is too deteriorated to repair (if the overall form and detailing are still evident) using the physical evidence as a model to reproduce the feature or when the replacement can be based on historic documentation. Examples of such a feature could include cast-iron porch steps or steel-sash windows. If using the same kind of material is not feasible, then a compatible substitute material may be considered as long as it has the same appearance as the original. The new work may be unobtrusively dated to guide future research and treatment. | Removing a metal feature from the restoration period that is unrepairable and not replacing it, or replacing it with a new feature that does not match.<br><br>Using a substitute material for the replacement that does not convey the same appearance of the surviving components of the metal feature from the restoration period or that is physically or chemically incompatible. |
| *The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic masonry features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing metal features from the restoration period using all new materials.* | |
| **Removing Existing Features from Other Historic Periods** | |
| Removing metal features from other historic periods, such as a cast-iron porch railing or aluminum windows. | Failing to remove a metal feature from another period, thereby confusing the depiction of the building's appearance from the restoration period. |
| Documenting metal features dating from other periods prior to their alteration or removal. If possible, selected examples of these features or materials should be stored for future research. | Failing to document metal features from other historic periods that are removed from the building so that a valuable portion of the historic record is lost. |
| **Recreating Missing Features from the Restoration Period** | |
| Recreating a missing metal feature that existed during the restoration period based on documentary and physical evidence; for example, duplicating a cast-iron storefront or porch. | Constructing a metal feature that was part of the original design for the building but was never actually built, or a feature which was thought to have existed during the restoration period but cannot be documented. |

## ROOFS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Identifying, retaining, and preserving*** roofs from the restoration period and their functional and decorative features. The form of the roof (gable, hipped, gambrel, flat, or mansard) is significant, as are its decorative and functional features (such as cupolas, cresting, parapets, monitors, chimneys, weather vanes, dormers, ridge tiles, and snow guards), roofing materials (such as slate, wood, clay tile, metal, roll roofing, or asphalt shingles) and size, color, and patterning. | Altering roof and roofing materials from the restoration period.<br><br>Failing to document roof features from the restoration period, which may result in their loss.<br><br>Changing the type of paint or coating or the color of restoration-period roof features, unless the work can be substantiated by historical documentation.<br><br>Stripping the roof of sound historic roofing material (such as slate, clay tile, wood, or metal) from the restoration period. |
| ***Protecting and maintaining*** a roof from the restoration period by cleaning gutters and downspouts and replacing deteriorated flashing. Roof sheathing should also be checked for indications of moisture due to leaks or condensation. | Failing to clean and maintain gutters and downspouts so that water and debris collect and cause damage to roof fasteners, sheathing, and the underlying structure. |
| Providing adequate anchorage for roofing material from the restoration period to guard against wind damage and moisture penetration. | Allowing flashing, caps, and exposed roof fasteners to corrode, which accelerates deterioration. |
| Protecting a leaking roof with a temporary waterproof membrane with a synthetic underlayment, roll roofing, plywood, or a tarpaulin until it can be repaired. | Leaving a leaking roof unprotected so that accelerated deterioration of historic building materials from the restoration period (such as masonry, wood, plaster, paint, and structural members) results. |
| Repainting a roofing material from the restoration period that requires a protective coating and was painted historically (such as a terneplate metal roof or gutters) as part of regularly-scheduled maintenance. | Failing to repaint a roofing material from the restoration period that requires a protective coating and was painted historically as part of regularly-scheduled maintenance. |
| Protecting a restoration-period roof covering when working on other roof features from the restoration period. | Failing to protect restoration-period roof coverings when working on other roof features from the restoration period. |
| Evaluating the overall condition of the roofing materials from the restoration period to determine whether more than protection and maintenance, such as repairs to roof features, will be necessary. | Failing to undertake adequate measures to ensure the protection of roof features from the restoration period. |

[7 a-b] This crumbling chimney was restored to its historic appearance using matching bricks.

[8] The missing steeple of this historic church was replaced with a new steeple made of a substitute material that, from the street below, closely resembles the original steeple. *Photo: en.Wikipedia.*

# ROOFS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Repairing*** a roof from the restoration period by reinforcing the materials that comprise the roof using recognized preservation methods. Repair may include the limited replacement in kind or with a compatible substitute material of those extensively deteriorated or missing components of features when there are surviving prototypes (such as cupola louvers, cresting, dormer roofing, roof monitors, or slate or tile on a main roof) or when replacement can be based on physical or historic documentation. The new work should match the old in materials, design, scale, color, and finish. | Replacing an entire roof feature from the restoration period, such as a dormer, when repair of the roofing materials and limited replacement of deteriorated or missing components are feasible.<br><br>Failing to reuse intact slate or tile from the restoration period when only the roofing substrate or fasteners need replacement. |
| ***Replacing*** in kind an entire roof covering or feature from the restoration period that is too deteriorated to repair (if the overall form and detailing are still evident) using the physical evidence as a model to reproduce the feature or when the replacement can be based on historic documentation. Examples of such a feature could include a large section of roofing, a dormer, or a chimney. If using the same kind of material is not feasible, then a compatible substitute material may be appropriate. | Removing a roof feature from the restoration period that is unrepairable, such as a chimney or dormer, and not replacing it, or replacing it with a feature that does not match.<br><br>Using a substitute material for the replacement of a single element of a roof (such as a tile or slate) or an entire feature that does not convey the same appearance of the surviving components of the roof feature from the restoration period or that is physically or chemically incompatible. |
| *The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic masonry features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing roof features from the restoration period using all new materials.* | |
| **Removing Existing Features from Other Historic Periods** | |
| Removing roofs or roof features from other historic periods, such as a dormer or asphalt roofing. | Failing to remove a roof feature from another period, thereby confusing the depiction of the building's appearance from the restoration period. |
| Documenting roof features dating from other periods prior to their alteration or removal. If possible, selected examples of these features or materials should be stored for future research. | Failing to document roofing materials and roof features from other historic periods that are removed from the building so that a valuable portion of the historic record is lost. |
| **Recreating Missing Features from the Restoration Period** | |
| Recreating a missing roofing material or roof feature that existed during the restoration period based on documentary and physical evidence; for example, duplicating a former dormer or cupola. | Constructing a roof feature that was part of the original design for the building but was never actually built, or a feature which was thought to have existed during the restoration period but cannot be documented. |

## WINDOWS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Identifying, retaining, and preserving*** windows from the restoration period and their functional and decorative features. The window material and how the window operates (e.g., double hung, casement, awning, or hopper) are significant, as are its components (including sash, muntins, ogee lugs, glazing, pane configuration, sills, mullions, hardware, casings or brick molds) and related features, such as shutters. | Altering windows or window features from the restoration period.<br><br>Failing to document window features from the restoration period, which may result in their loss.<br><br>Applying paint or other coatings to restoration-period window features, or removing them, if such treatments cannot be documented to the restoration period.<br><br>Changing the type of paint or coating or the color of restoration-period windows, unless the work can be substantiated by historical documentation.<br><br>Stripping windows of sound historic material (such as wood or metal) from the restoration period. |
| Conducting an in-depth survey of the condition of existing windows from the restoration period early in the planning process so that repair, upgrading, and, if necessary, possible replacement options can be fully explored. | Replacing windows from the restoration period solely because of peeling paint, broken glass, stuck sash, or high air infiltration. These conditions, in themselves, do not indicate that windows are beyond repair. |
| ***Protecting and maintaining*** the restoration-period wood or metal which comprises the window jamb, sash, and trim through appropriate surface treatments such as cleaning, paint removal, and reapplication of the same protective coatings. | Failing to protect and maintain window materials from the restoration period on a cyclical basis so that deterioration of the window results. |
| Protecting windows from the restoration period against vandalism before work begins by covering them and by installing alarm systems that are keyed into local protection agencies. | Leaving windows unprotected before work begins, thereby also allowing the interior to be damaged if it can be accessed through unprotected windows. |
| Installing impact-resistant glazing, when necessary for security, so that it is compatible with the historic windows from the restoration period and does not damage them or negatively impact their character. | Installing impact-resistant glazing, when necessary, for security that is not compatible with the historic windows from the restoration period and damages them or negatively impacts their character. |

[9] Historic window and shutter hardware such as that shown here should be retained and repaired in a restoration project.

## WINDOWS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Protecting restoration-period windows when working on other features of the building. | Failing to protect restoration-period windows when working on other features of the building. |
| Protecting and retaining historic glass from the restoration period when replacing putty or repairing other components of the window. | Failing to protect historic glass from the restoration period when making repairs. |
| Sustaining the historic operability of windows from the restoration period by lubricating friction points and replacing broken components of the operating system (such as hinges, latches, sash chains or cords) and replacing deteriorated gaskets or insulating units. | Failing to maintain windows and window components from the restoration period so that windows are inoperable, or sealing operable sash permanently.<br><br>Failing to repair and reuse window hardware from the restoration period, such as sash lifts, latches, and locks. |
| Evaluating the overall condition of windows from the restoration period to determine whether more than protection and maintenance, such as repairs to windows and window features, will be necessary. | Failing to undertake adequate measures to ensure the protection of window features from the restoration period. |
| ***Repairing*** window frames and sash from the restoration period by patching, splicing, consolidating, or otherwise reinforcing them using recognized preservation methods. Repair may include the limited replacement in kind or with a compatible substitute material of those extensively deteriorated, broken, or missing components of windows when there are surviving prototypes (such as sash, sills, hardware, or shutters) or when the replacement can be based on physical or historic documentation. The new work should match the old in material, design, scale, color, and finish. | Replacing an entire window from the restoration period when repair of materials and limited replacement in kind are appropriate.<br><br>Removing a window from the restoration period that is unrepairable and not replacing it, or replacing it with a new window that does not match. |

# WINDOWS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Replacing*** in kind an entire window from the restoration period that is too deteriorated to repair (if the overall form and detailing are still evident) using the physical evidence as a model to reproduce the feature or when the replacement can be based on historic documentation. If using the same kind of material is not feasible, then a compatible substitute material may be considered. The new work may be unobtrusively dated to guide future research and treatment. | Removing a window from the restoration period that is unrepairable and not replacing it, or replacing it with a new window that does not match.<br><br>Using substitute material for the replacement that does not convey the same appearance of the surviving components of the window from the restoration period or that is physically incompatible. |
| *The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic masonry features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing window features from the restoration period using all new materials.* | |
| **Removing Existing Features from Other Historic Periods** | |
| Removing windows or window features from other historic period, such as the glazing pattern or inappropriate shutters. | Failing to remove a window or window feature from another period, thereby confusing the depiction of the building's appearance from the restoration period. |
| Documenting window features dating from other periods prior to their alteration or removal. If possible, selected examples of these features or materials should be stored for future research. | Failing to document window features from other historic periods that are removed from the building so that a valuable portion of the historic record is lost. |
| **Recreating Missing Features from the Restoration Period** | |
| Recreating a missing window or window feature that existed during the restoration period based on documentary and physical evidence; for example, duplicating a hoodmold or shutter. | Constructing a window feature that was part of the original design for the building but was never actually built, or constructing a feature which was thought to have existed during the restoration period but cannot be documented. |

## ENTRANCES AND PORCHES

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Identifying, retaining, and preserving*** entrances and porches from the restoration period and their functional and decorative features. The materials themselves (including wood, masonry, and metal) are important, as are their features, such as doors, transoms, pilasters, columns, balustrades, stairs, roofs, and projecting canopies. | Altering entrances and porch features from the restoration period.<br><br>Failing to document entrance and porch features from the restoration period, which may result in their loss.<br><br>Applying paint or other coatings to restoration-period entrance and porch features, or removing them, if such treatments cannot be documented to the restoration period.<br><br>Changing the type of paint or coating or the color of restoration-period entrance and porch features, unless the work can be substantiated by historical documentation.<br><br>Stripping entrances and porches of sound material from the restoration period, such as wood, cast iron, tile, or brick. |
| ***Protecting and maintaining*** the masonry, wood, and metals which comprise entrances and porches from the restoration period through appropriate surface treatments, such as cleaning, rust removal, paint removal, and reapplication of protective coatings. | Failing to protect and maintain materials from the restoration period on a cyclical basis so that deterioration of the entrance or porch results. |
| Protecting entrances and porches against arson and vandalism before work begins by covering them and by installing alarm systems keyed into local protection agencies. | Leaving entrances and porches unprotected and subject to vandalism before work begins, thereby also allowing the interior to be damaged if it can be accessed through unprotected entrances. |
| Protecting entrance and porch features from the restoration period when working on other features of the building. | Failing to protect entrances and porches from the restoration period when working on other features of the building. |
| Evaluating the overall condition of entrances and porches from the restoration period to determine whether more than protection and maintenance, such as repairs to entrance and porch features, will be necessary. | Failing to undertake adequate measures to ensure the protection of entrance and porch features from the restoration period. |

## ENTRANCES AND PORCHES

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Repairing*** entrances and porches from the restoration period by reinforcing them or replacing deteriorated materials using recognized preservation methods. Repair may include the limited replacement in kind or with a compatible substitute material of those extensively deteriorated or missing components of features when there are surviving prototypes (such as balustrades, columns, and stairs) or when the replacement can be based on physical or historic documentation. The new work should match the old in material, design, scale, color, and finish. | Replacing an entire entrance or porch feature from the restoration period when the repair of materials and limited replacement of deteriorated or missing components are feasible. |


[10] (a) The entrance of this house had been altered over the years, including removal of the porch floor and steps. (b) This photograph shows the house after the porch and steps were restored to their historic appearance.

## ENTRANCES AND PORCHES

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Replacing*** in kind an entire entrance or porch from the restoration period that is too deteriorated to repair (if the overall form and detailing are still evident) using the physical evidence as a model to reproduce the feature or when the replacement can be based on historic documentation. If using the same kind of material is not feasible, then a compatible substitute material may be considered. The new work may be unobtrusively dated to guide future research and treatment. | Removing an entrance or porch feature from the restoration period that is unrepairable and not replacing it, or replacing with a new entrance or porch that does not match.<br><br>Using a substitute material for the replacement that does not convey the same appearance of the surviving components of restoration-period entrance or porch features or that is otherwise incompatible. |
| *The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic entrances and porches or their features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing entrances and porches or their features from the restoration period using all new materials.* | |
| **Removing Existing Features from Other Historic Periods** | |
| Removing entrances and porches and their features from other historic periods, such as a porch railing. | Failing to remove an entrance or porch feature from another period, thereby confusing the depiction of the building's appearance from the restoration period. |
| Documenting entrance and porch features dating from other periods prior to their alteration or removal. If possible, selected examples of these features or materials should be stored for future research. | Failing to document entrance and porch features from other historic periods that are removed from the building so that a valuable portion of the historic record is lost. |
| **Recreating Missing Features from the Restoration Period** | |
| Recreating a missing entrance or porch or its features that existed during the restoration period based on documentary and physical evidence; for example, duplicating a transom or porch column. | Constructing an entrance or porch feature that was part of the original design for the building but was never actually built, or constructing a feature which was thought to have existed during the restoration period but cannot be documented. |

# STOREFRONTS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Identifying, retaining, and preserving*** storefronts from the restoration period and their functional and decorative features. The storefront materials (including wood, masonry, metals, ceramic tile, clear glass, and pigmented structural glass) and the configuration of the storefront are significant, as are its features, such as display windows, base panels, bulkheads, signs, doors, transoms, kick plates, corner posts, piers, and entablatures. | Altering storefronts and their features from the restoration period.<br><br>Failing to document storefront features from the restoration period, which may result in their loss.<br><br>Applying paint or other coatings to restoration-period storefront features, or removing them, if such treatments cannot be documented to the restoration period.<br><br>Changing the type of paint or coating or the color of restoration-period storefront features, unless the work can be substantiated by historical documentation.<br><br>Stripping storefronts of material from the restoration period, such as wood, cast iron, ceramic tile, pigmented structural glass, or masonry. |
| ***Protecting and maintaining*** masonry, wood, glass, ceramic tile, and metals which comprise storefronts from the restoration period through appropriate surface treatments, such as cleaning, paint removal, and reapplication of protective coatings. | Failing to protect and maintain storefront materials from the restoration period on a cyclical basis so that deterioration of storefront features results.<br><br>Replacing storefront windows from the restoration period rather than maintaining all the components of the window system. |
| Protecting storefronts against arson and vandalism before work begins by covering windows and doors and by installing alarm systems keyed into local protection agencies. | Leaving the storefront unprotected and subject to vandalism before work begins, thereby also allowing the interior to be damaged if it can be accessed through unprotected entrances. |
| Protecting restoration-period storefront features when working on other features of the building. | Failing to protect the restoration-period storefront when working on other features of the building. |
| Evaluating the overall condition of the storefront from the restoration period to determine whether more than protection and maintenance, such as repairs to storefront features, will be necessary. | Failing to undertake adequate measures to ensure the protection of storefront features from the restoration period. |




[11] (a) Some of the materials on the front of this historic building had been previously replaced, but the façade retained its essential distinctive features and design. (b) A vintage postcard of the building (far left) provided sufficient documentation to restore the façade to its historic 1945 appearance, using spandrel glass as a replacement for the original Carrara glass (c). *Photo (b): Courtesy Kelsey & Associates.*

# STOREFRONTS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Repairing*** storefronts from the restoration period by reinforcing them or replacing deteriorated materials using recognized preservation methods. Repair may include the limited replacement in kind or with compatible substitute materials of those extensively deteriorated or missing components of features when there are surviving prototypes (such as transoms, pilasters, or signs) or when the replacement can be based on physical or historic documentation. The new work should match the old in material, design, scale, color, and finish. | Replacing an entire storefront from the restoration period when repair of materials and limited replacement of deteriorated or missing components are feasible. |
| ***Replacing*** in kind an entire storefront from the restoration period that is too deteriorated to repair (if the overall form and detailing are still evident) using the physical evidence as a model to reproduce the feature or when the replacement can be based on historic documentation. If using the same kind of material is not feasible, then a compatible substitute material may be considered. The new work may be unobtrusively dated to guide future research and treatment. | Removing a storefront from the restoration period that is unrepairable and not replacing it, or replacing it with a new storefront that does not match.<br><br>Using a substitute material for the replacement that does not convey the same appearance of the surviving components of the restoration-period storefront or that is physically incompatible. |
| *The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic entrances and porches or their features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing storefronts or their features from the restoration period using all new materials.* | |
| **Removing Existing Features from Other Historic Periods** | |
| Removing storefronts and their features from other historic periods, such as later cladding or signage. | Failing to remove a storefront feature from another period, thereby confusing the depiction of the building's appearance from the restoration period. |
| Documenting storefront features dating from other periods prior to their alteration or removal. If possible, selected examples of these features or materials should be stored for future research. | Failing to document storefront features from other historic periods that are removed from the building so that a valuable portion of the historic record is lost. |
| **Recreating Missing Features from the Restoration Period** | |
| Recreating a missing storefront or storefront feature that existed during the restoration period based on documentary and physical evidence; for example, duplicating a display window or transom. | Constructing a storefront feature that was part of the original design for the building but was never actually built, or constructing a feature which was thought to have existed during the restoration period but which cannot be documented. |

## CURTAIN WALLS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Identifying, retaining, and preserving*** curtain wall systems from the restoration period and their components. The design of the curtain wall is significant, as are its component materials (metal stick framing and panel materials, such as clear or spandrel glass, stone, terra cotta, metal, and fiber-reinforced plastic), appearance (e.g., glazing color or tint, transparency, and reflectivity), and whether the glazing is fixed, operable, or louvered glass panels. How a curtain wall is engineered and fabricated, and the fact that it expands and contracts at a different rate from the building's structural system, are important to understand when undertaking the restoration of a curtain wall system. | Altering curtain wall components from the restoration period.<br><br>Failing to document curtain wall systems from the restoration period, which may result in their loss.<br><br>Replacing curtain wall features from the restoration period instead of repairing or replacing only the deteriorated components. |
| ***Protecting and maintaining*** curtain walls and their components from the restoration period through appropriate surface treatments, such as cleaning, paint removal, and reapplication of protective coating system; and by making them watertight and ensuring that sealants and gaskets are in good condition. | Failing to protect and maintain curtain wall components from the restoration period on a cyclical basis so that deterioration of the curtain wall results. |
| Protecting ground-level curtain walls from the restoration period from vandalism before work begins by covering them, while ensuring adequate ventilation, and by installing alarm systems keyed into local protection agencies. | Leaving ground-level curtain walls from the restoration period unprotected and subject to vandalism before work begins, thereby also allowing the interior to be damaged if it can be accessed through unprotected glazing. |
| Protecting restoration-period curtain wall components when working on other features of the building. | Failing to protect curtain wall components from the restoration period when working on other features of the building. |
| Installing impact-resistant glazing, when required by safety codes or necessary for security, with color, transparency, and reflectivity as close as possible to the original in a curtain wall system from the restoration period so that it is compatible with the historic curtain walls and does not damage them or negatively impact their character. | Installing impact-resistant glazing, when required by safety codes or necessary for security, that is not compatible with the historic curtain walls and damages them or negatively impacts their character. |
| Evaluating the overall condition of the curtain wall system from the restoration period and its individual components to determine whether more than protection and maintenance, such as repairs to curtain wall features, will be necessary. | Failing to undertake adequate measures to ensure the protection of curtain wall features from the restoration period. |

# CURTAIN WALLS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Repairing*** curtain walls from the restoration period by reinforcing them or replacing deteriorated materials, including replacing deteriorated or missing sealants or gaskets, when necessary, to seal any gaps between system components. Repair may include the limited replacement in kind or with a compatible substitute material of those extensively deteriorated or missing components of curtain walls where there are surviving prototypes or when the replacement can be based on physical or historic documentation. The new work should match the old in material, design, scale, color, and finish. | Replacing an entire curtain wall from the restoration period when repair of materials and limited replacement of deteriorated or missing components are feasible. |

[12] This historic curtain wall features a distinctive variety of panel types which must be repaired or replicated in a restoration project if any are damaged or missing.

## CURTAIN WALLS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Replacing*** in kind an entire curtain wall from the restoration period that is too deteriorated to repair (if the overall form and detailing are still evident) using the physical evidence as a model to reproduce the feature or when the replacement can be based on historic documentation. If using the same kind of material is not feasible, then a compatible substitute material may be considered. The new work may be unobtrusively dated to guide future research and treatment. | Removing a curtain wall feature from the restoration period that is unrepairable and not replacing it, or replacing it with a new curtain wall feature that does not match.<br><br>Using a substitute material for the replacement that does not convey the same appearance of the surviving components of the restoration-period curtain wall or that is physically incompatible. |
| *The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic entrances and porches or their features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing curtain walls or their features from the restoration period using all new materials.* | |
| **Removing Existing Features from Other Historic Periods** | |
| Removing curtain wall components from other historic periods. | Failing to remove a curtain wall component from another period, thereby confusing the depiction of the building's appearance from the restoration period |
| Documenting curtain wall components dating from other periods prior to their alteration or removal. If possible, selected examples of these components or materials should be stored for future research. | Failing to document curtain wall components from other historic periods that are removed from the building so that a valuable portion of the historic record is lost. |
| **Recreating Missing Features from the Restoration Period** | |
| Recreating a missing curtain wall component that existed during the restoration period based on documentary and physical evidence. | Constructing a curtain wall component that was part of the original design for the building but was never actually built, or constructing a feature which was thought to have existed during the restoration period but which cannot be documented. |

## STRUCTURAL SYSTEMS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Identifying, retaining, and preserving*** structural systems and features from the restoration period. This includes the materials that comprise the structural system (i.e., wood, metal, and masonry), the type of system, and its features, such as posts and beams, trusses, summer beams, vigas, cast-iron or masonry columns, above-grade stone foundation walls, or load-bearing masonry walls. | Altering visible features of structural systems from the restoration period.<br><br>Failing to document structural systems from the restoration period, which may result in their loss.<br><br>Overloading the structural system from the restoration period, or installing equipment or mechanical systems which could damage the structure.<br><br>Replacing a load-bearing masonry wall from the restoration period that could be augmented and retained.<br><br>Leaving known structural problems untreated, such as deflected beams, cracked and bowed walls, or racked structural members. |
| Protecting and maintaining the structural system from the restoration period by keeping gutters and downspouts clear and roofing in good repair; and by ensuring that wood structural members are free from insect infestation. | Failing to protect and maintain exterior materials and features from the restoration period on a cyclical basis so that deterioration of the structural system results.<br><br>Using treatments or products that may retain moisture, which accelerates deterioration of structural members. |
| Evaluating the overall condition of the structural system from the restoration period to determine whether more than protection and maintenance, such as repairs to structural features, will be necessary. | Failing to undertake adequate measures to ensure the protection of the structural system from the restoration period. |

## STRUCTURAL SYSTEMS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Repairing*** structural systems from the restoration period by reinforcing them by augmenting or upgrading individual components or features in a manner that is consistent with the restoration period. For example, weakened structural members, such as floor framing, can be paired with a new member, braced, or otherwise supplemented and reinforced. The new work should match the old in material, design, scale, color, and finish. | Upgrading the building structurally in a manner that diminishes the restoration-period character of the exterior (such as installing strapping channels or removing a decorative masonry cornice) or that damages interior features or spaces.<br><br>Replacing a component of the restoration-period structural system when it could be repaired or augmented and retained.<br><br>Installing a visible or exposed structural replacement feature that does not match the restoration-period feature (e.g., replacing an exposed wood summer beam with a steel beam).<br><br>Using substitute material that does not equal the load-bearing capabilities of the restoration-period structural component; does not convey the same appearance of the restoration-period component, if it is visible; or is physically incompatible. |
| ***Replacing*** in kind or with a compatible substitute material large portions or entire features of the structural system from the restoration period that are either extensively damaged or deteriorated or that are missing when there are surviving prototypes, such as cast-iron columns, trusses, or sections of load-bearing walls, or when the replacement can be based on historic documentation. Substitute material must be structurally sufficient, physically compatible with the rest of the system, and, where visible, must have the same form, design, and appearance as the restoration-period feature. The new work may be unobtrusively dated to guide future research and treatment. | |

# STRUCTURAL SYSTEMS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| *The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing visible historic structural features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing visible structural features from the restoration period using all new materials.* | |
| **Removing Existing Features from Other Historic Periods** | |
| Removing visually-intrusive structural features from other historic periods, such as a non-matching column. | Failing to remove or alter a visually-intrusive structural feature from another period, thereby confusing the depiction of the building's appearance from the restoration period. |
| Documenting structural features dating from other periods prior to their alteration or removal. If possible, selected examples of these features or materials should be stored to facilitate future research. | Failing to document structural features from other historic periods that are removed from the building so that a valuable portion of the historic record is lost. |
| **Recreating Missing Features from the Restoration Period** | |
| Recreating a missing, visible structural feature that existed during the restoration period based on documentary and physical evidence; for example, duplicating a viga or cast-iron column. | Constructing a visible structural feature that was part of the original design for the building but was never actually built, or constructing a feature which was thought to have existed during the restoration period but cannot be documented. |

## MECHANICAL SYSTEMS:
## HEATING, AIR CONDITIONING, ELECTRICAL, AND PLUMBING

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Identifying, retaining, and preserving*** visible features of mechanical systems from the restoration period, such as radiators, vents, fans, grilles, and plumbing and lighting fixtures. | Altering visible features of mechanical systems from the restoration period.<br><br>Failing to document visible features of mechanical systems from the restoration period, which may result in their loss. |
| ***Protecting and maintaining*** functioning mechanical, plumbing, and electrical systems and their features from the restoration period through cyclical maintenance. | Failing to protect and maintain functioning mechanical, plumbing, and electrical systems from the restoration period on a cyclical basis so that their deterioration results. |
| Improving the energy efficiency of functioning mechanical systems to help reduce the need for a new system by installing storm windows and insulating attics and crawl spaces, if appropriate. | |
| ***Repairing*** functioning mechanical systems by augmenting or upgrading system components (such as installing new pipes and ducts), rewiring, or adding new compressors or boilers. | Replacing a functioning mechanical system or its components when it could be upgraded and retained. |
| ***Replacing*** in kind or with a compatible substitute material those extensively deteriorated or missing visible features of restoration-period mechanical systems when there are prototypes, such as ceiling fans, radiators, grilles, or lighting fixtures. | Installing a visible replacement feature that does not convey the same appearance as the restoration-period feature. |
| Installing a new mechanical system, if required, in a manner that results in the least alteration possible to the building's appearance from the restoration period. | Installing a new mechanical system in a manner that the appearance of visible structural or interior features from the restoration period is significantly changed, or the features are damaged or destroyed. |
| Providing adequate structural support for new mechanical equipment. | Failing to consider the weight and design of new mechanical equipment so that, as a result, restoration-period structural members or finished surfaces are weakened or cracked. |

# MECHANICAL SYSTEMS:
## HEATING, AIR CONDITIONING, ELECTRICAL, AND PLUMBING

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Installing new mechanical and electrical systems and ducts, pipes, and cables in closets, services areas, and wall cavities to preserve the restoration-period character of the interior space. | Installing ducts, pipes, and cables where they will obscure features from the restoration period.<br><br>Concealing mechanical equipment in walls or ceilings in a manner that results in extensive loss or damage or otherwise obscures restoration-period building materials and features. |
| Installing air conditioning units, if needed, in such a manner that features from the restoration period are not damaged or obscured, and so that excessive moisture is not generated that will accelerate deterioration of materials from the restoration period. | |
| *The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing visible features of the mechanical system that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing visible features of the mechanical system from the restoration period using all new materials..* | |
| **Removing Existing Features from Other Historic Periods** | |
| Removing mechanical systems and their visible features from other periods, such as a later elevator. | Failing to remove or alter a visually-intrusive structural feature from another period, thereby confusing the depiction of the building's appearance from the restoration period. |
| Documenting mechanical systems and features from other periods prior to their alteration or removal. If possible, selected examples of these features should be stored for future research. | Failing to document structural features from other historic periods that are removed from the building so that a valuable portion of the historic record is lost. |
| **Recreating Missing Features from the Restoration Period** | |
| Recreating a missing feature of the mechanical system that existed during the restoration period based on documentary and physical evidence; for example, duplicating a heating vent or lighting fixture. | Constructing a mechanical system or feature that was part of the original design for the building but was never actually built, or constructing a feature which was thought to have existed during the restoration period but cannot be documented. |

## INTERIOR SPACES, FEATURES, AND FINISHES

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Identifying, retaining, and preserving*** a floor plan and interior spaces, features, and finishes from the restoration period. Significant spatial characteristics include the size, configuration, proportion, and relationship of rooms and corridors; the relationship of features to spaces; and the spaces themselves, such as lobbies, lodge halls, entrance halls, parlors, theaters, auditoriums, gymnasiums, and industrial and commercial interiors. Color, texture, and pattern are important characteristics of features and finishes, which can include such elements as columns, plaster walls and ceilings, flooring, trim, fireplaces and mantels, paneling, light fixtures, hardware, decorative radiators, ornamental grilles and registers, windows, doors, and transoms; plaster, paint, wallpaper and wall coverings, and special finishes, such as marbleizing and graining; and utilitarian (painted or unpainted) features, including wood, metal, or concrete exposed columns, beams, and trusses and exposed load-bearing brick, concrete, and wood walls. | Altering a floor plan, interior spaces (including individual rooms), features, or finishes from the restoration period.<br><br>Failing to document interior spaces, features, and finishes from the restoration period, which may result in their loss.<br><br>Applying paint, plaster, or other coatings to surfaces that have been unfinished historically, if the work cannot be documented.<br><br>Changing the type of finish or the color, such as painting a historically-varnished wood feature from the restoration period, or removing paint from a historically-painted feature from the restoration period and staining and varnishing it, unless the work can be substantiated by physical or historic documentation.<br><br>Stripping paint to bare wood rather than repainting, or not reapplying documented grained or marbled finishes from the restoration period to features, such as doors and paneling.<br><br>Removing restoration-period interior features (such as mantels, woodwork, doors, windows, light fixtures, or radiators) or other decorative materials from the restoration period. |
| ***Protecting and maintaining*** interior spaces, and materials, features, and finishes from the restoration period through appropriate surface treatments, such as cleaning, paint removal, and reapplication of protective coating systems. | Failing to protect interior features and finishes from the restoration period when working on the interior. |
| Protecting interior features and finishes from the restoration period against arson and vandalism before project work begins by covering broken windows and boarding open doorways, while ensuring adequate ventilation, and by installing fire alarm systems keyed into local protection agencies. | Leaving the building unprotected with broken windows and open doorways before restoration begins so that the interior features and finishes from the restoration period can be damaged by exposure to weather and vandalism. |

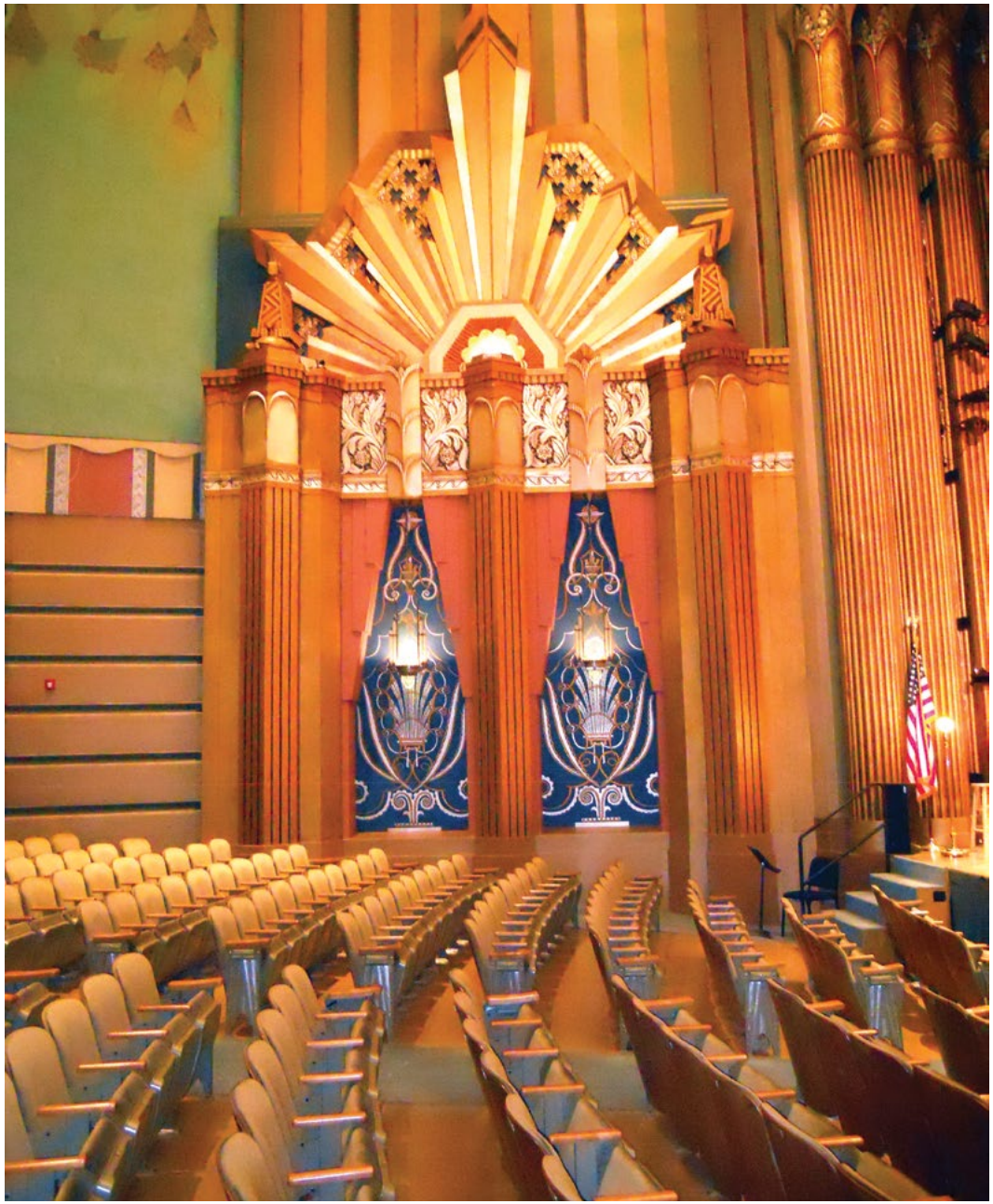
## INTERIOR SPACES, FEATURES, AND FINISHES

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Protecting interior features from the restoration period (such as a staircase, mantel, flooring, or decorative finishes) from damage during project work by covering them with plywood, heavy canvas, or plastic sheeting. | Failing to protect interior features and finishes from the restoration period when working on the interior. |
| Removing damaged or deteriorated paint and finishes from the restoration period only to the next sound layer, using the gentlest method possible, prior to repainting or refinishing using compatible paint or other coating systems based on historical documentation. | Using potentially damaging methods, such as open-flame torches or abrasive techniques, to remove paint or other coatings.<br><br>Removing paint that is firmly adhered to interior surfaces. |
| Repainting with colors that are documented to the building's restoration period. | Using paint colors that are inappropriate to the building's restoration period. |


[13] (a) In the 1990s the Missing Soldier's Office—established by Clara Barton at the end of the Civil War—was discovered still extant on the third floor of a building in Washington, DC, that was slated for demolition. The office was restored to its historic appearance using physical and documentary evidence. The original numeral '9' is still on the door to the office, and wall paper was reproduced from scraps found on the walls (b-d).

## INTERIOR SPACES, FEATURES, AND FINISHES

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Using abrasive cleaning methods only on the interior of industrial or warehouse buildings with utilitarian, unplastered masonry walls from the restoration period and where wood features are not finished, molded, beaded, or worked by hand. Low-pressure abrasive cleaning (e.g., sandblasting or other media blasting) should only be considered if test patches show no surface damage and after gentler methods have proven ineffective. | Using abrasive methods anywhere but utilitarian and industrial interior spaces or when there are other methods that are less likely to damage the surface of the material. |
| Evaluating the overall condition of interior materials, features, and finishes from the restoration period to determine whether more than protection and maintenance, such as repairs to features and finishes, will be necessary. | Failing to undertake adequate measures to ensure the protection of interior materials, features, and finishes from the restoration period. |
| ***Repairing*** Interior features and finishes from the restoration period by patching, splicing, consolidating, or otherwise reinforcing the materials using recognized preservation methods. Repair may include the limited replacement in kind or with a compatible substitute material of those extensively deteriorated or missing components of interior features when there are surviving prototypes (such as stairs, balustrades, wood paneling, columns, decorative wall finishes, or pressed-metal or plaster ceilings) or when the replacement can be based on physical or historic documentation. The new work should match the old in material, design, scale, color, and finish. | Replacing an interior feature from the restoration period or a finish when repair of materials and limited replacement of deteriorated or missing components are feasible. |



[14] When the 1931 Fox Theater in Spokane, WA, was rehabilitated as a performing arts center, the auditorium was restored to its original Art Deco splendor.

## INTERIOR SPACES, FEATURES, AND FINISHES

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Replacing*** in kind an entire interior feature from the restoration period that is too deteriorated to repair (if the overall form and detailing are still evident) using the physical evidence as a model to reproduce the feature or when the replacement can be based on historic documentation. Examples could include wainscoting, window and door surrounds, or interior stairs. If using the same kind of material is not feasible, then a compatible substitute material may be considered. The new work may be unobtrusively dated to guide future research and treatment. | Removing a feature or finish from the restoration period that is unrepairable and not replacing it, or replacing it with a new feature or finish that does not match.<br><br>Using a substitute material for the replacement that does not convey the same appearance of the surviving components of the restoration-period interior feature or finish or that is physically incompatible. |
| *The following* Restoration *work is highlighted to indicate that it involves the removal or alteration of existing historic interior spaces, features, and finishes that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing interior spaces, features, and finishes from the restoration period using all new materials.* | |
| **Removing Existing Features from Other Historic Periods** | |
| Removing or altering interior spaces, features, or finishes from other historic periods, such as a dropped ceiling or wood paneling. | Failing to remove an interior space, feature, or finish from another historic period, thereby confusing the depiction of the building's appearance from the restoration period. |
| Documenting materials and features dating from other periods prior to their alteration or removal. If possible, selected examples of these features or materials should be stored for future research. | Failing to document interior spaces, features, and finishes from other periods that are removed from the building so that a valuable portion of the historic record is lost. |
| **Recreating Missing Features from the Restoration Period** | |
| Recreating an interior space or a missing feature or finish from the restoration period based on documentary and physical evidence; for example, duplicating a mantel or a staircase. | Creating an interior space, adding a feature, or applying a finish that was part of the original design for the building but was never actually built, or adding a feature which was thought to have existed during the restoration period but cannot be documented. |

## BUILDING SITE

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Identifying, retaining, and preserving*** features of the building site from the restoration period. Site features may include walls, fences, or steps; circulation systems, such as walks, paths, or roads; vegetation, such as trees, shrubs, grass, orchards, hedges, windbreaks, or gardens; landforms, such as hills, terracing, or berms; furnishings and fixtures, such as light posts or benches; decorative elements, such as sculpture, statuary, or monuments; water features, such as fountains, streams, pools, lakes, irrigation ditches; and subsurface archeological resources, other cultural or religious features, or burial grounds which are also important to the restoration period of the site. | Altering buildings and their features or site features from the restoration period.<br><br>Failing to document building and site features from the restoration period, which may result in their loss. |
| Reestablishing the relationship between buildings and the landscape on the site that existed during the restoration period. | Retaining non-restoration period buildings or landscape features on the site, thereby confusing the depiction of the restoration-period appearance of the site. |
| ***Protecting and maintaining*** buildings and site features from the restoration period by providing proper drainage to ensure that water does not erode foundation walls, drain toward a building, or damage or erode the landscape. | Failing to ensure that site drainage is adequate so that buildings and site features from the restoration period are damaged or destroyed. Or, alternatively, changing the site grading so that water does not drain properly. |
| Minimizing disturbance of the terrain around buildings or elsewhere on the site, thereby reducing the possibility of destroying or damaging important landscape features from the restoration period or archeological resources, other cultural or religious features, or burial grounds. | Using heavy machinery or equipment in areas where it may disturb or damage important landscape features from the restoration period or archeological resources, other cultural or religious features, or burial grounds. |

[15] (a) Cherry Hill House and Farm (c. 1845) in Falls Church, VA, was the site of encampments during the Civil War. Outbuildings on the property, such as the corn crib (b) in the foreground which was the source of provisions for the soldiers, are important in interpreting its role during the war.

# BUILDING SITE

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Surveying and documenting areas of the site where the terrain will be altered during restoration work to determine the potential impact to important landscape features from the restoration period or archeological resources, other cultural or religious features, or burial grounds from the restoration period. | Failing to survey the building site prior to beginning restoration work, which can result in damaging or destroying landscape features from the restoration period, or archeological resources, other cultural or religious features, or burial grounds. |
| Protecting (e.g., preserving in place) important site features, archeological resources, other cultural or religious features, or burial grounds. | Failing to protect site features from the restoration period, or archeological resources, other cultural or religious features, or burial grounds when working on the site. |
| Planning and carrying out any necessary investigation before restoration of the site begins, using professional archeologists and methods, when preservation in place is not feasible. | Allowing unqualified personnel to perform data recovery on archeological resources, which can result in damage or loss of important archeological material. |
| Preserving important landscape features from the restoration period through regularly-scheduled site maintenance of historic plant material. | Allowing important landscape features from the restoration period to be lost or damaged due to lack of site maintenance. |
| Protecting the building site and landscape features from the restoration period against arson and vandalism before restoration work begins by erecting temporary fencing and by installing alarm systems keyed into local protection agencies. | Leaving the property unprotected and subject to vandalism before work begins so that the building site and landscape features from the restoration period, or archeological resources, other cultural or religious features, or burial grounds can be damaged or destroyed.<br><br>Removing site features from the restoration period, such as fencing, paths or walkways, masonry balustrades, or plant material. |
| Installing protective fencing, bollards, and stanchions on a building site, when necessary for security, that are as unobtrusive as possible. | Installing protective fencing, bollards, and stanchions on a building site, when necessary for security, without taking into consideration their location and visibility so that they negatively impact the restoration-period character of the site. |

## BUILDING SITE

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Providing continued protection and maintenance of buildings and landscape features from the restoration-period of the site through appropriate grounds and landscape management. | Failing to protect and maintain materials and features from the restoration period on a cyclical basis so that deterioration of the site results. |
| Protecting buildings and site features from the restoration period when working on the site. | Failing to protect buildings and landscape features from the restoration period when working on the site or failing to repair damaged or deteriorated site features. |
| Evaluating the overall condition of materials and features from the restoration period to determine whether more than protection and maintenance, such as repairs to site features, will be necessary. | Failing to undertake adequate measures to ensure the protection of site features from the restoration period. |
| ***Repairing*** site features from the restoration period which have been damaged, are deteriorated, or have missing components to reestablish the whole feature and to ensure retention of the integrity of the historic materials. Repair may include limited replacement in kind or with a compatible substitute material of those extensively deteriorated or missing components of site features when there are surviving prototypes, such as paving, railing, or individual plants within a group (e.g., a hedge), or when the replacement can be based on physical or historic documentation. | Replacing an entire site feature from the restoration period (such as a fence, walkway, or drive) when repair of materials and limited replacement of deteriorated or missing components are feasible. |
| ***Replacing*** in kind an entire restoration-period feature of the site that is too deteriorated to repair (if the overall form and detailing are still evident) using the physical evidence as a model to reproduce the feature or when the replacement can be based on historic documentation. Examples could include a walkway or fountain, a land form or plant materials. If using the same kind of material is not feasible, then a compatible substitute material may be used. The new work may be unobtrusively dated to guide future research and treatment. | Removing a site feature from the restoration period that is unrepairable and not replacing it, or replacing it with a new feature that does not match.<br><br>Using a substitute material for the replacement that does not convey the same appearance of the surviving site feature from the restoration period or that is physically incompatible.<br><br>Adding conjectural landscape features to the site (such as period reproduction light fixtures, fences, fountains, or vegetation) that cannot be documented, thereby confusing the depiction of the restoration-period appearance of the building site. |

## BUILDING SITE

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| *The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing visible features of the building site that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing visible features of the mechanical system from the restoration period using all new materials.* | |
| **Removing Existing Features from Other Historic Periods** | |
| Removing site features from other historic periods, such as an outbuilding, paved road, or overgrown trees. | Failing to remove a site feature from another historic period, thereby confusing the depiction of the site's appearance from the restoration period. |
| Documenting features of the building site dating from other periods prior to their removal. | Failing to document site features from other periods that are removed during restoration so that a valuable portion of the historic record is lost. |
| **Recreating Missing Features from the Restoration Period** | |
| Recreating a missing site feature from the restoration period based on documentary and physical evidence; for example, duplicating a no-longer extant terrace, gazebo, fencing, or a hedge. | Constructing a feature of the building or site that was part of the original design but was never actually built, or constructing a feature which was thought to have existed during the restoration period but cannot be documented. |

[16] Archeological investigation of the property was undertaken to ensure accuracy of the restoration of Montpelier. Photo: Courtesy of The Montpelier Foundation.

## SETTING (DISTRICT / NEIGHBORHOOD)

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Identifying, retaining, and preserving*** building and landscape features from the restoration period in the setting. These features can include circulation systems, such as roads and streets; furnishings and fixtures, such as light posts or benches; vegetation, gardens, and yards; adjacent open space, such as fields, parks, commons, or woodlands; and important views or visual relationships. | Altering restoration-period building and landscape features in the setting.<br><br>Failing to document restoration-period buildings and landscape features in the setting, which may result in their loss. |
| Retaining or reestablishing the relationship between buildings and landscape features in the setting that existed during the restoration period. | Retaining non-restoration period buildings or landscape features in the setting, thereby confusing the depiction of the restoration-period appearance of the setting. |

(a)

[17 a-b] The cobblestone street, brick sidewalks, and stone stoops of these houses are important restoration-period features of the late 18th- through the 19th-century restoration period of this historic district.

## SETTING (DISTRICT / NEIGHBORHOOD)

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Protecting and maintaining*** features from the restoration period in the setting through regularly-scheduled maintenance and grounds and landscape management. | Failing to protect and maintain materials in the setting on a cyclical basis so that deterioration of buildings and landscape features results.<br><br>Removing restoration-period building or landscape features in the setting, such as porches, fencing, walkways, or plant material. |
| Installing protective fencing, bollards, and stanchions in a setting, when necessary for security, that are as unobtrusive as possible. | Installing protective fencing, bollards, and stanchions in a setting, when necessary for security, without taking into consideration their location and visibility so that they negatively impact the historic character of the setting. |

(b)

## SETTING (DISTRICT / NEIGHBORHOOD)

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Protecting buildings and landscape features from the restoration period when undertaking work in the setting. | Failing to protect buildings and landscape features from the restoration period when working in the setting. |
| Evaluating the overall condition of restoration-period materials and features in the setting to determine whether more than protection and maintenance, such as repairs to materials and features, will be necessary. | Failing to undertake adequate measures to ensure the protection of materials and features in the setting from the restoration period. |
| ***Repairing*** restoration-period features in the setting by reinforcing the historic materials. Repair may include the replacement in kind or with a compatible substitute material of those extensively deteriorated or missing components of features from the restoration period when there are surviving prototypes, such as porch balustrades, paving materials, or trees. | Replacing an entire building or landscape feature from the restoration period in the setting when repair of materials and limited replacement of deteriorated or missing components are feasible. |
| ***Replacing*** in kind an entire restoration-period building or landscape feature in the setting that is too deteriorated to repair (if the overall form and detailing are still evident) using the physical evidence as a model to reproduce the feature or when the replacement can be based on historic documentation. If using the same kind of material is not feasible, then a compatible substitute material may be considered. The new work may be dated to guide future research and treatment. | Removing a restoration-period feature of the building or landscape in the setting that is unrepairable and not replacing it, or replacing it with a new feature that does not match.<br><br>Using a substitute material for the replacement that does not convey the same appearance of the surviving restoration-period building or landscape feature in the setting or that is physically or ecologically incompatible. |

## SETTING (DISTRICT / NEIGHBORHOOD)

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| *The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic features of the setting that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing restoration-period features of the setting using all new materials.* | |
| **Removing Existing Features from Other Historic Periods** | |
| Removing features of the building or landscape in the setting from other historic periods, such as a road, sidewalk, or fence. | Failing to remove a feature of the building or landscape in the setting from another period, thereby confusing the depiction of the setting's appearance from the restoration period. |
| Documenting features of the building or landscape in the setting dating from other periods prior to their removal. | Failing to document features of the building or landscape features in the setting from other periods that are removed during restoration so that a valuable portion of the historic record is lost. |
| **Recreating Missing Features from the Restoration Period** | |
| Recreating a missing feature of the building or landscape in the setting that existed during the restoration period based on documentary and physical evidence; for example, duplicating a non-longer extant path or park bench. | Constructing a feature of the building or landscape that was part of the original design for the setting but was never actually built, or constructing a feature which was thought to have existed during the restoration period but cannot be documented. |

## CODE-REQUIRED WORK

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| *Sensitive solutions to meeting accessibility and life-safety code requirements are an important part of protecting the restoration-period of the building and site. Thus, work that must be done to meet use-specific code requirements in the treatment* **Restoration** *must also be assessed for its potential impact on the restoration-period of the historic building and site.* | |
| **Accessibility** | |
| Identifying the restoration-period exterior features, interior spaces, features, and finishes, and features of the site and setting which may be affected by accessibility code-required work. | Undertaking accessibility code-required alterations before identifying the exterior features, interior spaces, features, and finishes, and features of the site and setting from the restoration period and, therefore, must be preserved. |
| Complying with barrier-free access requirements in such a manner that the restoration-period exterior features, interior spaces, features, and finishes, and features of the site and setting are preserved or impacted as little as possible. | Altering, damaging, or destroying the exterior features, interior spaces, features, and finishes, or features of the site and setting from the restoration period while complying with accessibility requirements. |
| Working with specialists in accessibility and historic preservation to determine the most sensitive solutions to comply with access requirements in a restoration project. | Making changes to historic buildings and their sites without first consulting with specialists in accessibility and historic preservation to determine the most appropriate solutions to comply with accessibility requirements in a manner that will preserve the character of the restoration period. |
| Providing barrier-free access that promotes independence for the user while preserving significant features from the restoration period. | Making access modifications that do not provide independent, safe access while preserving restoration-period features. |
| Finding solutions to meet accessibility requirements that minimize the impact of any necessary alteration on the restoration period of the building, its site, and setting, such as compatible ramps, paths, and lifts. | Making modifications for accessibility without considering the impact on the restoration period of the building, its site, or setting. |
| Using relevant sections of existing codes regarding accessibility for historic buildings that provide alternative means of code compliance when code-required work would otherwise negatively impact the restoration-period character of the property. | |

## CODE-REQUIRED WORK

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Minimizing the visual impact of accessibility ramps by installing them on secondary elevations when it does not compromise accessibility or by screening them with plantings. | |
| Adding a gradual slope or grade to the sidewalk, if appropriate, to access the entrance rather than installing a ramp that would be more intrusive to the historic character of the restoration period of the building and the district. | |

[18 a-b] The historic Chapel of Our Lady in Cold Spring, NY, is situated on a rocky promontory overlooking the Hudson River. Installing an accessible ramp would greatly compromise the character of the building and the site. However, an audio-visual program available in a separate building—located where it would not impact the character of the site, such as this small pavilion at the rear of the property—could provide visitors otherwise unable to access the Chapel an opportunity to experience the site.

## CODE-REQUIRED WORK

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Installing a lift as inconspicuously as possible when it is necessary to locate it on a primary elevation of the historic building. | |
| Considering placing accessible facilities needed for visitors to the restored property (e.g., restrooms) in a separate building, such as a visitor center, that is located away from the historic structure rather than in the historic building if their installation would negatively impact character-defining spaces, features, or finishes from the restoration period. | Installing accessible facilities inside or on the exterior of the historic building that are incompatible with the character of the restoration period or would damage or destroy character-defining spaces, features, or finishes from the restoration period. |
| Devising non-permanent or temporary adaptive treatments that meet accessibility requirements to preserve the restoration-period character of the building, its site, and setting. | |
| Developing and providing virtual tours to help interpret the restored property when it is not feasible or it is physically impossible to make the building or its site accessible without damaging or obscuring character-defining building and landscape features in the setting from the restoration period. | |
| **LIFE SAFETY** | |
| Identifying the restoration-period exterior features, interior spaces, features, and finishes, and features of the site and setting which may be affected by life-safety code-required work. | Undertaking life-safety code-required alterations before identifying the exterior features, interior spaces, features, and finishes, and features of the site and setting from the restoration period and, therefore, must be preserved. |
| Complying with life-safety codes (including requirements for impact-resistant glazing, security, and seismic retrofit) in such a manner that the restoration-period exterior features, interior spaces, features, and finishes, and features of the site and setting are preserved or impacted as little as possible. | Altering, damaging, or destroying the restoration-period exterior features, interior spaces, features, and finishes, or features of the site and setting from the restoration period while making modifications to a building, its site, or setting to comply with life-safety code requirements. |
| Removing building materials from the restoration period only after testing has been conducted to identify hazardous materials, and using only the least damaging abatement methods. | Removing building materials from the restoration period without testing first to identify any hazardous materials, or using potentially-damaging methods of abatement without considering less-invasive methods of abatement. |

## CODE-REQUIRED WORK

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Providing workers with appropriate personal equipment for protection from hazards on the worksite. | Removing hazardous or toxic materials without regard for workers' health and safety or environmentally-sensitive disposal of the materials. |
| Working with code officials and historic preservation specialists to investigate systems, methods, or devices to make the building compliant with life-safety codes to ensure that necessary alterations will be compatible with the restoration-period character of the building. | Making life-safety code-required changes to the building without consulting code officials and historic preservation specialists, with the result that alterations negatively impact the restoration-period character of the building. |
| Using relevant sections of existing codes regarding life safety for historic buildings that provide alternative means of compliance when life-safety code-required work would otherwise negatively impact the restoration-period character of the building. | |
| Upgrading restoration-period stairways and elevators to meet life-safety codes so that they are not damaged or their historic character is not negatively impacted. | Damaging or making inappropriate alterations to historic stairways or elevators or to adjacent features, spaces, or finishes from the restoration period while complying with life-safety code requirements. |
| Installing sensitively-designed fire-suppression systems, such as sprinklers, so that historic features and finishes from the restoration period are preserved. | Covering wood features from the restoration period with fire-retardant sheathing, which results in altering their appearance. |
| Applying fire-retardant coatings when appropriate, such as intumescent paint, to protect steel structural systems from the restoration period. | Using fire-retardant coatings if they will damage or obscure character-defining features from the restoration period. |

## RESILIENCE TO NATURAL HAZARDS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| *Resilience to natural hazards should be addressed as part of a* **Restoration** *project. A historic building may have existing characteristics or features from the restoration period that help address or minimize the impacts of natural hazards. These should be used to best advantage and should be taken into consideration early in the planning stages of a restoration project before proposing any additional treatments. When new adaptive treatments are needed they should be carried out in a manner that will have the least impact on the restoration-period character of the building, its site, and setting.* | |
| Identifying the vulnerabilities of the restoration-period property to the impacts of natural hazards (such as wildfires, hurricanes, or tornadoes) using the most current climate information and data available. | Failing to identify and periodically reevaluate the potential vulnerability of the restoration-period building, its site, and setting to the impacts of natural hazards. |
| Assessing the potential impacts of known vulnerabilities on restoration-period features of the building, its site, and setting; and reevaluating and reassessing potential impacts on a regular basis. | |

[19] The 1951 Mies van der Rohe-designed Farnsworth House, Plano, IL, was built close to the Fox River, which is increasingly prone to floods. To preserve the house in its original location, historic preservation architects and engineers continue to explore ways to protect it from the flooding, including a possible system that would lift the house above the flood waters and lower it back to the ground. *Photo: Courtesy Farnsworth, A Site of the National Trust for Historic Preservation.*

## RESILIENCE TO NATURAL HAZARDS

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Documenting the restoration-period character of the property as a record and guide for future repair work, should it be necessary, and storing the documentation in a weatherproof location. | Failing to document the restoration-period character of the property with the result that such information is not available in the future to guide repair or reconstruction work, should it be necessary. |
| Ensuring that historic resources inventories and maps are accurate, up to date, and accessible in an emergency. | |
| Maintaining the restoration-period building, its site, and setting in good repair, and regularly monitoring their condition. | Failing to regularly monitor and maintain the restoration-period property and the building systems in good repair. |
| Using and maintaining existing characteristics and features of the restoration-period building, its site, setting, and larger environment (such as shutters for storm protection or a site wall that keeps out flood waters) that may help to avoid or minimize the impacts of natural hazards. | Allowing loss, damage, or destruction to occur to the restoration-period building, its site, or setting by failing to evaluate potential future impacts of natural hazards or to plan and implement adaptive measures, when necessary to address possible threats. |
| Undertaking work to prevent or minimize the loss, damage, or destruction of the historic property while retaining and preserving significant features and the overall restoration-period character of the building, its site, and setting. | Carrying out adaptive measures intended to address the impacts of natural hazards that are unnecessarily invasive or will otherwise adversely impact the restoration-period character of the building, its site, or setting. |
| Ensuring that, when planning work to adapt for natural hazards, all feasible alternatives are considered, and that the options requiring the least alteration to the restoration-period character of the property are considered first. | Implementing local and regional traditions (such as elevating residential buildings at risk of flooding or reducing flammable vegetation around structures in fire-prone areas) for adapting buildings and sites in response to specific natural hazards which would negatively impact the restoration-period character of the property. |
| Using special exemptions and variances when adaptive treatments to protect buildings from known hazards would otherwise negatively impact the restoration-period character of the building, its site, or setting. | |

## Sustainability

Sustainability should be addressed as part of a **Restoration** project. Existing energy-efficient features from the restoration period should be retained and restored while those that are no longer extant but which were important in defining the restoration-period character of the building should be recreated. New sustainability treatments should only be undertaken if they will not impact the restoration-period character of the building.

The topic of sustainability is addressed in detail in *The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings*. Although specifically developed for the treatment Rehabilitation, the Sustainability Guidelines can be used to help guide the other treatments

## STANDARDS FOR RECONSTRUCTION & GUIDELINES FOR RECONSTRUCTING HISTORIC BUILDINGS

# 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.*

## Standards for Reconstruction

1. Reconstruction will be used to depict vanished or non-surviving portions of a property when documentary and physical evidence is available to permit accurate reconstruction with minimal conjecture and such reconstruction is essential to the public understanding of the property.
2. Reconstruction of a landscape, building, structure or object in its historic location will be preceded by a thorough archeological investigation to identify and evaluate those features and artifacts which are essential to an accurate reconstruction. If such resources must be disturbed, mitigation measures will be undertaken.
3. Reconstruction will include measures to preserve any remaining historic materials, features, and spatial relationships.
4. Reconstruction will be based on the accurate duplication of historic features and elements substantiated by documentary or physical evidence rather than on conjectural designs or the availability of different features from other historic properties. A reconstructed property will re-create the appearance of the non-surviving historic property in materials, design, color and texture.
5. A reconstruction will be clearly identified as a contemporary re-creation.
6. Designs that were never executed historically will not be constructed.

# INTRODUCTION

**Reconstruction** is different from the other treatments in that it is undertaken when there are often no visible historic materials extant or only a foundation remains. Whereas the treatment Restoration provides guidance on restoring historic building features, the **Standards for Reconstruction and Guidelines for Reconstructing Historic Buildings** should be followed when it is necessary to recreate a non-surviving building using new material. But, like restoration, reconstruction also involves recreating a historic building which appears as it did at a particular—and at its most significant—time in its history. Because of the potential for historical error in the absence of sound physical evidence, this treatment can be justified only rarely and, thus, is the least frequently undertaken of the four treatments. Reconstructing a historic building should only be considered when there is accurate documentation on which to base it. When only the appearance of the exterior of the building can be documented, it may be appropriate to reconstruct the exterior while designing a very simple, plain interior that does not attempt to appear historic or historically accurate. Signage and interpretative aids should make it clear to visitors that only the exterior of the building is a true reconstruction. Extant historic surface and subsurface materials should also be preserved. Finally, the reconstructed building must be clearly identified as a contemporary recreation.

## Research and Document Historical Significance

The guidance for the treatment **Reconstruction** begins with ***researching and documenting*** the building's historical significance to determine whether its recreation is essential to the public understanding of the property. In some instances, reconstruction may not be necessary if there is a historic building still existing on the site or in a setting that can explain the history of the property. Justifying a reconstruction requires detailed physical and documentary evidence to minimize or eliminate conjecture and to ensure that the reconstruction is as accurate as possible. Only one period of significance is generally identified; a building—as it evolved—is rarely recreated. If research does not provide adequate documentation for an accurate reconstruction, other interpretive methods should be considered, such as an explanatory marker.

## Investigate Archeological Resources

***Investigating*** archeological resources is the next area of guidance in the treatment **Reconstruction**. The purpose of archeological research is to identify any remaining features of the building, site, and setting that are essential to an accurate recreation and must be reconstructed. Archeological resources that are not essential to the reconstruction should be left in place. The archeological findings, together with archival documentation, should be used to replicate the design, materials, and plan of the historic building.

## Identify, Protect, and Preserve Extant Historic Features

Closely aligned with archeological research, recommendations are given for ***identifying, protecting, and preserving*** extant features of the historic building. It is never appropriate to base a **Reconstruction** upon conjectural designs or on features from other buildings. Any remaining historic materials and features should be retained and incorporated into the reconstruction when feasible. Both the historic and new materials should be documented to assist in interpretation.

## Reconstruct Non-Surviving Building and Site

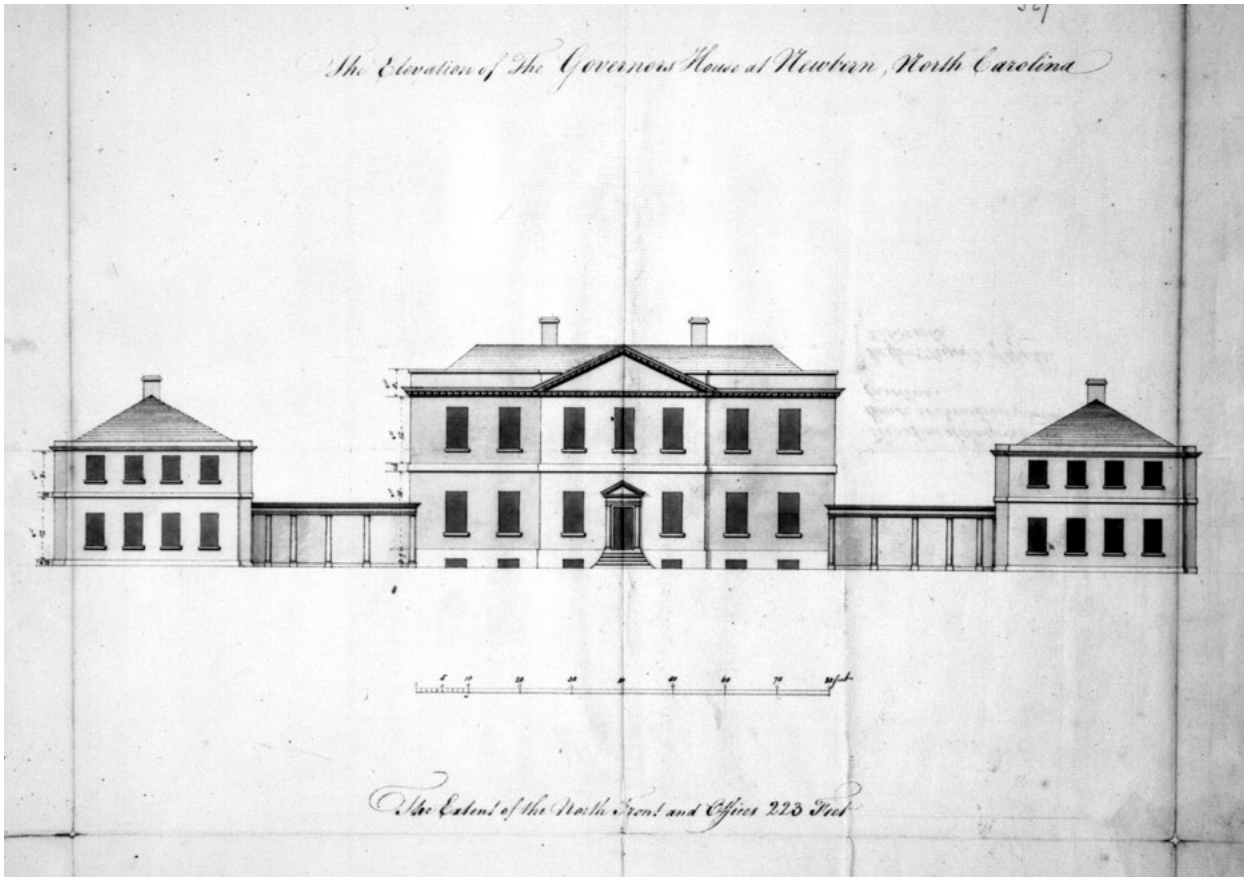
After the research and documentation phases, guidance is given for **Reconstruction** work itself. Exterior and interior features are addressed in general, always emphasizing the need for an accurate depiction (i.e., careful duplication of the appearance of historic materials and features for interpretative purposes). While the use of traditional materials and finishes is always preferred, in some instances substitute materials may be used if they are able to convey the same appearance. Where non-visible features of the building are concerned, such as interior structural systems, contemporary materials and technology may be used. Recreating the features of the building site or setting based on archeological findings should also be an integral part of project work.

## Accessibility and Life Safety, Natural Hazards, and Sustainability

Whereas preservation, rehabilitation, and restoration treatments usually necessitate retrofitting to meet code requirements and to address other issues (including natural hazards and sustainability), in this treatment it is assumed that the **Reconstructed** building will be essentially new construction. Thus, code-required work, treatments to reduce the potential impact of natural hazards, and ensuring that the reconstructed building is as sustainable as possible should be considered during the design phase—when appropriate to the particular Reconstruction project—so as not to negatively impact or detract from the reconstructed appearance of the building, its site, and setting. The fact that the non-surviving building was located in a floodplain or another area especially vulnerable to the impact of natural hazards is crucial to consider when determining whether the building should be reconstructed.

The topic of sustainability is addressed in detail in *The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings*. Although specifically developed for the treatment Rehabilitation, the Guidelines can be used to help guide the other treatments.

***Reconstruction as a Treatment.*** *When 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); when no other property with the same associative value has survived; and when sufficient historical documentation exists to ensure an accurate reproduction,* ***Reconstruction*** *may be considered as a treatment. Prior to undertaking work, a documentation plan for Reconstruction should be developed.*




[1 a-b] Tyron Palace, New Bern, NC, was designed by John Hawks in 1767 for Governor William Tyron. It was completed in 1770, but destroyed by fire in 1798. The palace was reconstructed in 1959 based on the original plans, and on its original foundation, which was found 5 feet below the street, with the help of the 1767 drawing. *Photo: Courtesy Tyron Palace, New Bern, NC. Drawing: Courtesy of the State Archives of North Carolina.*

[2] The Saugus Iron Works, Saugus, MA, a National Historic Site, was active from 1646 to about 1670 and was the first integrated iron works in North America. The forge and mill (shown here) are part of the site which was reconstructed based on archeological research and historic documents and opened in 1954. *Photo: Daderot at the English language Wikipedia.*

## OVERVIEW

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Researching and documenting*** the property's historical significance, focusing on documentary and physical evidence which is needed to justify reconstruction of the non-surviving building. | Undertaking a reconstruction based on insufficient research so that, as a result, a historically inaccurate building is created.<br><br>Reconstructing a building unnecessarily when an existing building adequately reflects or explains the history of the property, the historical event, or has the same associative value.<br><br>Executing a design for a building that was never constructed. |
| ***Investigating*** archeological resources to identify and evaluate those features and artifacts which are essential to the design and plan of the building. | Failing to identify and evaluate archeological material prior to reconstruction, or destroying extant historic material not relevant to the reconstruction but which should be preserved in place. |
| Minimizing disturbance of the terrain around buildings or elsewhere on the site, thereby reducing the possibility of destroying or damaging important landscape features, archeological resources, other cultural or religious features, or burial grounds. | Using heavy machinery or equipment in areas where it may disturb or damage important landscape features, archeological resources, cultural or religious features, or burial grounds. |
| ***Identifying, retaining, and preserving*** extant historic features of the building, site, and setting, such as remnants of a foundation, chimney, or walkway. | Beginning reconstruction work without first conducting a detailed site investigation to physically substantiate the documentary evidence.<br><br>Basing a reconstruction on conjectural designs or on features from other historic buildings. |

[3] The Cathedral of Saint Michael the Archangel, built in the early 1840s in Sitka, AK, was devastated by fire in 1966. It was reconstructed using measured drawings done in 1961 by the Historic American Buildings Survey (HABS). While the original cathedral was built of logs covered on the exterior with wood siding, its replacement is a fire-resistant structure with concrete and steel walls that replicates the historic building's appearance. *Photo: Barek at Wikimedia Commons.*

## BUILDING EXTERIOR

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Reconstructing a non-surviving building to depict the documented historic appearance. Although the use of the original building materials (such as masonry, wood, and architectural metals) is preferable, substitute materials may be used as long as they recreate the historic appearance. | Reconstructing features that cannot be documented historically or for which existing documentation is inadequate.<br><br>Using substitute materials that do not convey the appearance of the historic building. |
| Recreating the documented design of exterior features, such as the roof form and its coverings, architectural detailing, windows, entrances and porches, steps and doors, and their historic spatial relationships and proportions. | Omitting a documented exterior feature, or rebuilding a feature but altering its historic design.<br><br>Using inappropriate designs or materials that do not convey the historic appearance. |
| Reproducing the appearance of historic paint colors and finishes based on documentary and physical evidence. | Using paint colors that cannot be documented through research and investigation or using other undocumented finishes. |
| Installing exterior electrical and telephone cables underground or in the least obtrusive location possible, unless they can be documented as having been aboveground historically. | Attaching exterior electrical and telephone cables to the principal elevations of the reconstructed building, unless they can be documented as having been there historically. |
| Using signage to identify the building as a contemporary recreation. | Failing to explain that the building is a reconstruction, thereby confusing the public's understanding of the property. |

[4] The McLean House, where Robert E. Lee surrendered to Ulysses S. Grant, is located on the site of the battlefield—now part of Appomattox Courthouse National Historical Monument (VA). Several years after the end of the Civil War, measured drawings were made of the house before it was dismantled to be moved to Washington, DC, where it was to be reconstructed as a tourist attraction. This scheme never came to fruition, and the dismantled pieces gradually disappeared. The house was accurately reconstructed in 1949 on the original site based on the measured drawings.

## BUILDING INTERIOR

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Recreating*** the appearance of *visible* features of the historic structural system, such as posts and beams, trusses, summer beams, vigas, cast-iron columns, above-grade masonry foundations, or load-bearing brick or stone walls. Contemporary methods and materials may be used for the actual structural system of the reconstructed building. | Changing the documented appearance of visible features of the structural system. |
| Recreating the historic floor plan and interior spaces, including the size, configuration, proportion, and relationship of rooms and corridors; the relationship of features to spaces; and the spaces themselves. | Altering the documented historic floor plan, or relocating an important interior feature, such as a staircase, so that the historic relationship between the feature and the space is inaccurately depicted.<br><br>Reconstructing the historic appearance of the interior without accurate documentation. |
| Duplicating the documented historic appearance of the building's interior features and finishes (including columns, cornices, baseboards, fireplaces and mantels, paneling, light fixtures, hardware, and flooring); plaster, paint, and finishes (such as stenciling or marbleizing); and other decorative or utilitarian materials and features. | Altering the documented appearance of the building's interior features and finishes so that, as a result, an inaccurate depiction of the historic building is created. For example, moving a feature from one area of a room to another, or changing the type or color of the finish. |
| Installing mechanical systems and their components in the least obtrusive way possible so as not to impact the recreated interior spaces, features, or finishes while meeting user needs. | Altering the historic plan or the recreated appearance unnecessarily when installing mechanical systems. |
| Installing ducts, pipes, and cables in closets, service areas, and wall cavities. | Installing ducts, pipes, and cables where they will intrude upon the historic appearance of the building. |

[5] The parlor of the McLean House was reconstructed to its appearance on the occasion of Robert E. Lee's surrender to Ulysses S. Grant in this room on April 9, 1865.

## BUILDING SITE

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| ***Reconstructing*** building site features based on documentary and physical evidence. | Reconstructing building site features without documentary and physical evidence. |
| Inventorying the building site to determine the existence of aboveground remains and subsurface archeological resources, other cultural or religious features, or burial grounds, and using this evidence as corroborating documentation for the reconstruction of related site features. These may include walls, fences, or steps; circulation systems, such as walks, paths, or roads; vegetation, such as trees, shrubs, grass, orchards, hedges, windbreaks, or gardens; landforms, such as hills, terracing, or berms; furnishings and fixtures, such as light posts or benches; decorative elements, such as sculpture, statuary, or monuments; water features, including fountains, streams, pools, lakes, or irrigation ditches. | Giving the building's site an inaccurate appearance by basing the reconstruction on conjectural designs or on features from other sites. |
| Recreating the historic spatial relationship between buildings and related site features. | Changing the historic spatial relationship between buildings and related site features, or reconstructing some site features but not others, thereby confusing the depiction of the reconstructed site. |

[6] This lighthouse on Lake Ponchartrain in New Orleans was reconstructed after the historic 1890 lighthouse was destroyed by Hurricane Katrina.

## SETTING (DISTRICT / NEIGHBORHOOD)

| RECOMMENDED | NOT RECOMMENDED |
|---|---|
| Reconstructing features in the building's historic setting based on documentary and physical evidence. | Reconstructing features in the setting without documentary and physical evidence. |
| Inventorying the setting to determine the existence of above-ground remains and subsurface archeological resources, other cultural or religious features, or burial grounds, and using this evidence as corroborating documentation for the reconstruction of missing features of the historic setting. These may include circulation systems, such as roads and streets; furnishings and fixtures, such as light posts or benches; vegetation, gardens, and yards; adjacent open space, such as fields, parks, commons, or woodlands; and important views or visual relationships. | Giving the building's setting an inaccurate appearance by basing the reconstruction on conjectural designs or on features from other locations. |
| Recreating the historic spatial relationship between buildings and landscape features in the setting. | Changing the historic spatial relationship between buildings and landscape features in the setting by reconstructing some features but not others, thereby confusing the depiction of the reconstructed setting. |

[7] The Muhlenberg Brigade Huts are reconstructions of nine log huts erected in 1777 at Valley Forge during the Revolutionary War. They have been reconstructed on the historic road with logs cut with modern power tools and finished with cement, unlike the original logs which were hand hewn and finished with traditional chinking. *Photo: Rdsmith4 at Wikimedia Commons.*

[8] The Palace of Fine Arts was designed by Bernard Maybeck and built for the 1915 Panama-Pacific Exposition in San Francisco. The pavilion was intended to be temporary and, although it had a steel structure, the exterior was finished only with staff, an impermanent material composed of plaster and fiber. The building was not torn down after the exposition, and it eventually fell into ruin. In 1964, all but the steel structure was demolished, and the building was reconstructed with lightweight poured-in-place concrete. *Photo: KevinIcole at Wikimedia Commons.*

Design: Lloyd Greenberg Design, LLC



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Technical Preservation Services