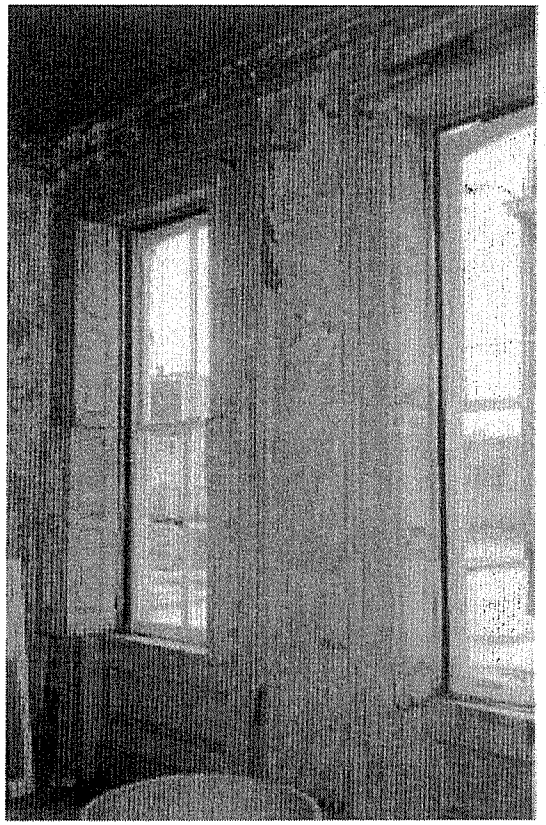
*Recommended*

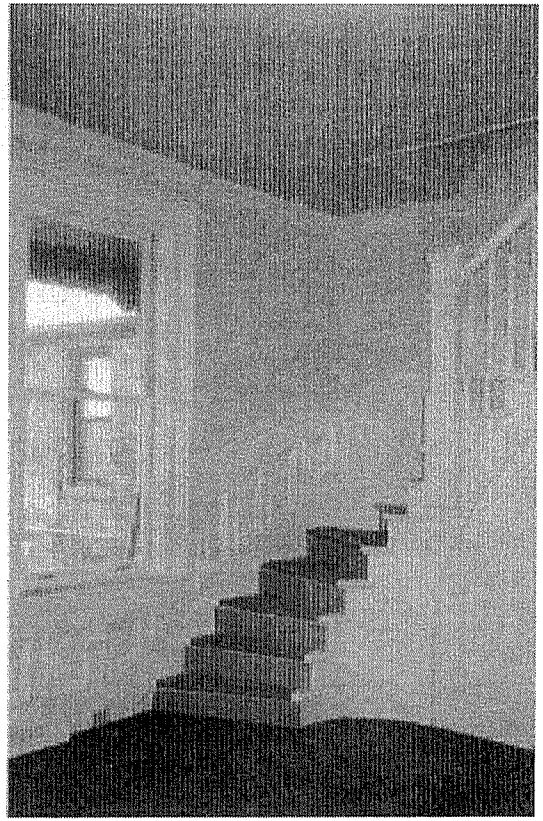
***Replacing*** in kind an entire interior feature or finish that is too deteriorated to repair—if the overall form and detailing are still evident—using the physical evidence as a model for reproduction. Examples could include wainscoting, a tin ceiling, or interior stairs. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered.

*Not Recommended*

Removing a character-defining feature or finish that is unrepairable and not replacing it; or replacing it with a new feature or finish that does not convey the same visual appearance.



*a*



*b*

*Rehabilitating historic dwelling units often includes some level of lead-paint hazard abatement. Whenever lead-base paint begins to peel, chip, craze, or otherwise comes loose (a), it should be removed in a manner that protects the worker as well as the immediate environment. In this example (b), the deteriorating lead-paint was removed throughout the apartment building and a compatible primer and finish paint applied. Photos: Sharon C. Park, AIA.*

*The following work is highlighted to indicate that it represents the particularly complex technical or design aspects of* **Rehabilitation** *projects and should only be considered after the preservation concerns listed above have been addressed.*

| *Recommended* | *Not Recommended* |
|---|---|
| **Design for the Replacement of Missing Historic Features** | |
| Designing and installing a new interior feature or finish if the historic feature or finish is completely missing. This could include missing partitions, stairs, elevators, lighting fixtures, and wall coverings; or even entire rooms if all historic spaces, features, and finishes are missing or have been destroyed by inappropriate "renovations." The design may be a restoration based on historical, pictorial, and physical documentation; or be a new design that is compatible with the historic character of the building, district, or neighborhood. | Creating a false historical appearance because the replaced feature is based on insufficient physical, historical, and pictorial documentation or on information derived from another building.<br><br>Introducing a new interior feature or finish that is incompatible with the scale, design, materials, color, and texture of the surviving interior features and finishes. |
| **Alterations/Additions for the New Use** | |
| Accommodating service functions such as bathrooms, mechanical equipment, and office machines required by the building's new use in secondary spaces such as first floor service areas or on upper floors. | Dividing rooms, lowering ceilings, and damaging or obscuring character-defining features such as fireplaces, niches, stairways or alcoves, so that a new use can be accommodated in the building. |
| Reusing decorative material or features that have had to be removed during the rehabilitation work including wall and baseboard trim, door molding, panelled doors, and simple wainscoting; and relocating such material or features in areas appropriate to their historic placement. | Discarding historic material when it can be reused within the rehabilitation project or relocating it in historically inappropriate areas. |
| Installing permanent partitions in secondary spaces; removable partitions that do not destroy the sense of space should be installed when the new use requires the subdivision of character-defining interior space. | Installing permanent partitions that damage or obscure character-defining spaces, features, or finishes. |
| Enclosing an interior stairway where required by code so that its character is retained. In many cases, glazed fire-rated walls may be used. | Enclosing an interior stairway with fire-rated construction so that the stairwell space or any character-defining features are destroyed. |

| *Recommended* | *Not Recommended* |
| --- | --- |
| Placing new code-required stairways or elevators in secondary and service areas of the historic building. | Radically changing, damaging, or destroying character-defining spaces, features, or finishes when adding new code-required stairways and elevators. |
| Creating an atrium or a light well to provide natural light when required for the new use in a manner that preserves character-defining interior spaces, features, and finishes as well as the structural system. | Destroying character-defining interior spaces, features, or finishes; or damaging the structural system in order to create an atrium or light well. |
| Adding a new floor if required for the new use in a manner that preserves character-defining structural features, and interior spaces, features, and finishes. | Inserting a new floor within a building that alters or destroys the fenestration; radically changes a character-defining interior space; or obscures, damages, or destroys decorative detailing. |

## Building Interior

### Mechanical Systems: Heating, Air Conditioning, Electrical, and Plumbing

| *Recommended* | *Not Recommended* |
|---|---|
| ***Identifying, retaining, and preserving*** visible features of early mechanical systems that are important in defining the overall historic character of the building, such as radiators, vents, fans, grilles, plumbing fixtures, switchplates, and lights. | Removing or radically changing features of mechanical systems that are important in defining the overall historic character of the building so that, as a result, the character is diminished. |
| ***Protecting and maintaining*** mechanical, plumbing, and electrical systems and their features through cyclical cleaning and other appropriate measures. | Failing to provide adequate protection of materials on a cyclical basis so that deterioration of mechanical systems and their visible features results. |
| Preventing accelerated deterioration of mechanical systems by providing adequate ventilation of attics, crawlspaces, and cellars so that moisture problems are avoided. | Enclosing mechanical systems in areas that are not adequately ventilated so that deterioration of the systems results. |
| Improving the energy efficiency of existing mechanical systems to help reduce the need for elaborate new equipment. Consideration should be given to installing storm windows, insulating attic crawl space, or adding awnings, if appropriate. | Installing unnecessary air conditioning or climate control systems which can add excessive moisture to the building. This additional moisture can either condense inside, damaging interior surfaces, or pass through interior walls to the exterior, potentially damaging adjacent materials as it migrates. |
| ***Repairing*** mechanical systems by augmenting or upgrading system parts, such as installing new pipes and ducts; rewiring; or adding new compressors or boilers. | Replacing a mechanical system or its functional parts when it could be upgraded and retained. |
| ***Replacing*** in kind—or with compatible substitute material—those visible features of mechanical systems that are either extensively deteriorated or are prototypes such as ceiling fans, switchplates, radiators, grilles, or plumbing fixtures. | Installing a visible replacement feature that does not convey the same visual appearance. |

*The following work is highlighted to indicate that it represents the particularly complex technical or design aspects of* **Rehabilitation** *projects and should only be considered after the preservation concerns listed above have been addressed.*

| *Recommended* | *Not Recommended* |
|---|---|
| **Alterations/Additions for the New Use** | |
| Installing a completely new mechanical system if required for the new use so that it causes the least alteration possible to the building's floor plan, the exterior elevations, and the least damage to the historic building material. | Installing a new mechanical system so that character-defining structural or interior features are radically changed, 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, historic structural members or finished surfaces are weakened or cracked. |
| Installing the vertical runs of ducts, pipes, and cables in closets, service rooms, and wall cavities. | Installing vertical runs of ducts, pipes, and cables in places where they will obscure character-defining features. |
| | Concealing mechanical equipment in walls or ceilings in a manner that requires the removal of historic building material. |
| | Installing a "dropped" acoustical ceiling to hide mechanical equipment when this destroys the proportions of character-defining interior spaces. |
| Installing air conditioning units if required by the new use in such a manner that historic features are not damaged or obscured and excessive moisture is not generated that will accelerate deterioration of historic materials. | Cutting through features such as masonry walls in order to install air conditioning units. |
| Installing heating/air conditioning units in the window frames in such a manner that the sash and frames are protected. Window installations should be considered only when all other viable heating/cooling systems would result in significant damage to historic materials. | Radically changing the appearance of the historic building or damaging or destroying windows by installing heating/air conditioning units in historic window frames. |

## Building Site

*Recommended*

***Identifying, retaining, and preserving*** buildings and their features as well as features of the site that are important in defining its overall historic character. Site features may include circulation systems such as walks, paths, roads, or parking; vegetation such as trees, shrubs, fields, or herbaceous plant material; landforms such as terracing, berms or grading; furnishings such as lights, fences, or benches; decorative elements such as sculpture, statuary or monuments; water features including fountains, streams, pools, or lakes; and subsurface archeological features which are important in defining the history of the site.

Retaining the historic relationship between buildings and the landscape.

***Protecting and maintaining*** buildings and the site by providing proper drainage to assure that water does not erode foundation walls; drain toward the building; or damage or erode the landscape.

Minimizing disturbance of terrain around buildings or elsewhere on the site, thus reducing the possibility of destroying or damaging important landscape features or archeological resources.

*Not Recommended*

Removing or radically changing buildings and their features or site features which are important in defining the overall historic character of the property so that, as a result, the character is diminished.

Removing or relocating buildings or landscape features, thus destroying the historic relationship between buildings and the landscape.

Removing or relocating historic buildings on a site or in a complex of related historic structures—such as a mill complex or farm—thus diminishing the historic character of the site or complex.

Moving buildings onto the site, thus creating a false historical appearance.

Radically changing the grade level of the site. For example, changing the grade adjacent to a building to permit development of a formerly below-grade area that would drastically change the historic relationship of the building to its site.

Failing to maintain adequate site drainage so that buildings and site features are damaged or destroyed; or alternatively, changing the site grading so that water no longer drains properly.

Introducing heavy machinery into areas where it may disturb or damage important landscape features or archeological resources.

| *Recommended* | *Not Recommended* |
| --- | --- |
| Surveying and documenting areas where the terrain will be altered to determine the potential impact to important landscape features or archeological resources. | Failing to survey the building site prior to the beginning of rehabilitation work which results in damage to, or destruction of, important landscape features or archeological resources. |
| Protecting, e.g., preserving in place important archeological resources. | Leaving known archeological material unprotected so that it is damaged during rehabilitation work. |
| Planning and carrying out any necessary investigation using professional archeologists and modern archeological methods when preservation in place is not feasible. | Permitting unqualified personnel to perform data recovery on archeological resources so that improper methodology results in the loss of important archeological material. |
| Preserving important landscape features, including ongoing maintenance of historic plant material. | Allowing important landscape features to be lost or damaged due to a lack of maintenance. |
| Protecting the building and landscape features against arson and vandalism before rehabilitation work begins, i.e., erecting protective fencing and installing alarm systems that are keyed into local protection agencies. | Permitting the property to remain unprotected so that the building and landscape features or archeological resources are damaged or destroyed. |
| | Removing or destroying features from the building or site such as wood siding, iron fencing, masonry balustrades, or plant material. |
| Providing continued protection of historic building materials and plant features through appropriate cleaning, rust removal, limited paint removal, and re-application of protective coating systems; and pruning and vegetation management. | Failing to provide adequate protection of materials on a cyclical basis so that deterioration of building and site features results. |
| Evaluating the overall condition of the materials and features of the property to determine whether more than protection and maintenance are required, that is, if repairs to building and site features will be necessary. | Failing to undertake adequate measures to assure the protection of building and site features. |

| *Recommended* | *Not Recommended* |
| --- | --- |
| ***Repairing*** features of the building and site by reinforcing historic materials. | Replacing an entire feature of the building or site such as a fence, walkway, or driveway when repair of materials and limited compatible replacement of deteriorated or missing parts are appropriate. |
| | Using a substitute material for the replacement part that does not convey the visual appearance of the surviving parts of the building or site feature or that is physically or chemically incompatible. |
| ***Replacing*** in kind an entire feature of the building or site that is too deteriorated to repair if the overall form and detailing are still evident. Physical evidence from the deteriorated feature should be used as a model to guide the new work. This could include an entrance or porch, walkway, or fountain. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered. | Removing a feature of the building or site that is unrepairable and not replacing it; or replacing it with a new feature that does not convey the same visual appearance. |
| Replacing deteriorated or damaged landscape features in kind. | Adding conjectural landscape features to the site such as period reproduction lamps, fences, fountains, or vegetation that are historically inappropriate, thus creating a false sense of historic development. |

*The following work is highlighted to indicate that it represents the particularly complex technical or design aspects of* **Rehabilitation** *project work and should only be considered after the preservation concerns listed above have been addressed.*

| *Recommended* | *Not Recommended* |
|---|---|
| **Design for the Replacement of Missing Historic Features** | |
| Designing and constructing a new feature of a building or site when the historic feature is completely missing, such as an outbuilding, terrace, or driveway. It may be based on historical, pictorial, and physical documentation; or be a new design that is compatible with the historic character of the building and site. | Creating a false historical appearance because the replaced feature is based on insufficient historical, pictorial, and physical documentation.<br><br>Introducing a new building or site feature that is out of scale or of an otherwise inappropriate design.<br><br>Introducing a new landscape feature, including plant material, that is visually incompatible with the site, or that alters or destroys the historic site patterns or vistas. |
| **Alterations/Additions for the New Use** | |
| Designing new onsite parking, loading docks, or ramps when required by the new use so that they are as unobtrusive as possible and assure the preservation of the historic relationship between the building or buildings and the landscape. | Locating any new construction on the building site in a location which contains important landscape features or open space, for example removing a lawn and walkway and installing a parking lot. |
| Designing new exterior additions to historic buildings or adjacent new construction which is compatible with the historic character of the site and which preserves the historic relationship between the building or buildings and the landscape. | Placing parking facilities directly adjacent to historic buildings where automobiles may cause damage to the buildings or landscape features, or be intrusive to the building site.<br><br>Introducing new construction onto the building site which is visually incompatible in terms of size, scale, design, materials, color, and texture; which destroys historic relationships on the site; or which damages or destroys important landscape features. |
| Removing non-significant buildings, additions, or site features which detract from the historic character of the site. | Removing a historic building in a complex of buildings; or removing a building feature, or a landscape feature which is important in defining the historic character of the site. |

## Setting (District/Neighborhood)

*Recommended*

***Identifying retaining, and preserving*** building and landscape features which are important in defining the historic character of the setting. Such features can include roads and streets, furnishings such as lights or benches, vegetation, gardens and yards, adjacent open space such as fields, parks, commons or woodlands, and important views or visual relationships.

Retaining the historic relationship between buildings and landscape features of the setting. For example, preserving the relationship between a town common and its adjacent historic houses, municipal buildings, historic roads, and landscape features.

***Protecting and maintaining*** historic building materials and plant features through appropriate cleaning, rust removal, limited paint removal, and reapplication of protective coating systems; and pruning and vegetation management.

Protecting building and landscape features such as lighting or trees, against arson and vandalism before rehabilitation work begins by erecting protective fencing and installing alarm systems that are keyed into local protection agencies.

Evaluating the overall condition of the building and landscape features to determine whether more than protection and maintenance are required, that is, if repairs to features will be necessary.

*Not Recommended*

Removing or radically changing those features of the setting which are important in defining the historic character.

Destroying the relationship between the buildings and landscape features within the setting by widening existing streets, changing landscape materials or constructing inappropriately located new streets or parking.

Removing or relocating historic buildings or landscape features, thus destroying their historic relationship within the setting.

Failing to provide adequate protection of materials on a cyclical basis which results in the deterioration of building and landscape features.

Permitting the building and setting to remain unprotected so that interior or exterior features are damaged.

Stripping or removing features from buildings or the setting such as wood siding, iron fencing, terra cotta balusters, or plant material.

Failing to undertake adequate measures to assure the protection of building and landscape features.

*Recommended*

Repairing features of the building and landscape by reinforcing the historic materials. Repair will also generally include the 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 balustrades or paving materials.

***Replacing*** in kind an entire feature of the building or landscape that is too deteriorated to repair— when the overall form and detailing are still evident —using the physical evidence as a model to guide the new work. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered.

*Not Recommended*

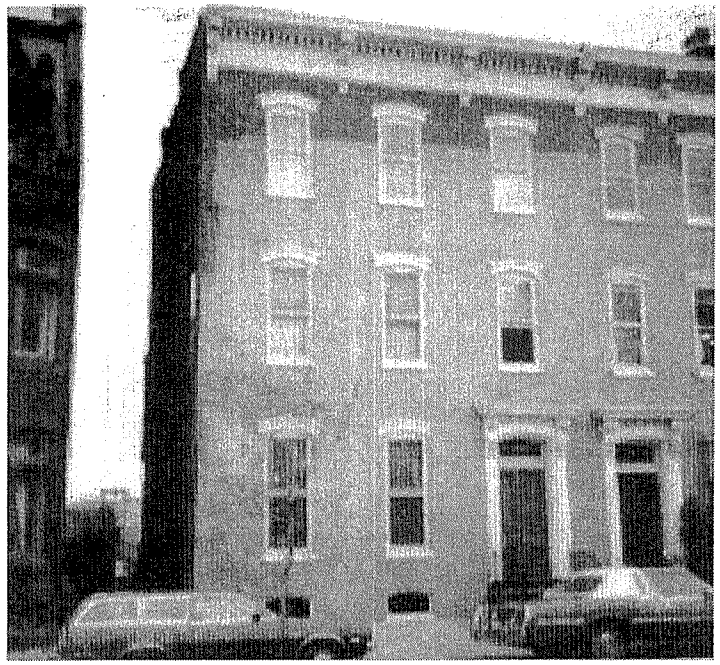
Replacing an entire feature of the building or landscape when repair of materials and limited replacement of deteriorated or missing parts are appropriate.

Using a substitute material for the replacement part that does not convey the visual appearance of the surviving parts of the building or landscape, or that is physically, chemically, or ecologically incompatible.

Removing a feature of the building or landscape that is unrepairable and not replacing it; or replacing it with a new feature that does not convey the same visual appearance.

*The following work is highlighted to indicate that it represents the particularly complex technical or design aspects of* **Rehabilitation** *projects and should only be considered after the preservation concerns listed above have been addressed.*

| *Recommended* | *Not Recommended* |
|---|---|
| **Design for the Replacement of Missing Historic Features** | |
| Designing and constructing a new feature of the building or landscape when the historic feature is completely missing, such as row house steps, a porch, a streetlight, or terrace. It may be a restoration based on documentary or physical evidence; or be a new design that is compatible with the historic character of the setting. | Creating a false historical appearance because the replaced feature is based on insufficient documentary or physical evidence.<br><br>Introducing a new building or landscape feature that is out of scale or otherwise inappropriate to the setting's historic character, e.g., replacing picket fencing with chain link fencing. |
| **Alterations/Additions for the New Use** | |
| Designing required new parking so that it is as unobtrusive as possible, thus minimizing the effect on the historic character of the setting. "Shared" parking should also be planned so that several businesses can utilize one parking area as opposed to introducing random, multiple lots. | Placing parking facilities directly adjacent to historic buildings which result in damage to historic landscape features, such as the removal of plant material, relocation of paths and walkways, or blocking of alleys. |
| Designing and constructing new additions to historic buildings when required by the new use. New work should be compatible with the historic character of the setting in terms of size, scale design, material, color, and texture. | Introducing new construction into historic districts that is visually incompatible or that destroys historic relationships within the setting. |
| Removing nonsignificant buildings, additions or landscape features which detract from the historic character of the setting. | Removing a historic building, building feature, or landscape feature that is important in defining the historic character of the setting. |



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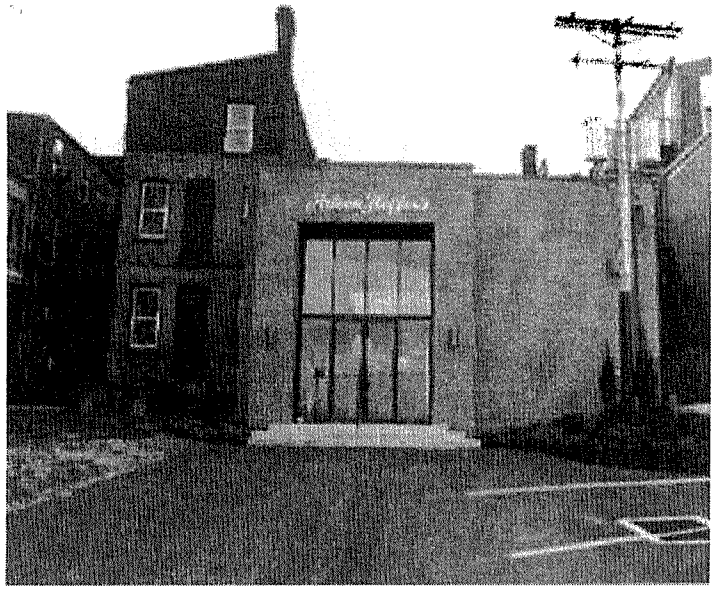


*c*

*b*

*If a rear elevation of a historic building is distinctive and highly visible in the neighborhood, altering it may not meet the Standards. (a and b) This 3-story brick rowhouse featured a second story gallery and brick kitchen wing characteristic of other residences in the district which backed onto a connecting roadway. (c) In the rehabilitation, the wing and gallery were demolished and a large addition constructed that severely impacted the building's historic form and character.*

*Although the work in these sections is quite often an important aspect of rehabilitation projects, it is usually not part of the overall process of preserving character-defining features (maintenance, repair, replacement); rather, such work is assessed for its potential negative impact on the building's historic character. For this reason, particular care must be taken not to obscure, radically change, damage, or destroy character-defining features in the process of rehabilitation work.*

## Energy Efficiency

| *Recommended* | *Not Recommended* |
|---|---|
| **Masonry/Wood/Architectural Metals** | |
| Installing thermal insulation in attics and in unheated cellars and crawlspaces to increase the efficiency of the existing mechanical systems. | Applying thermal insulation with a high moisture content in wall cavities which may damage historic fabric. |
| Installing insulating material on the inside of masonry walls to increase energy efficiency where there is no character-defining interior molding around the windows or other interior architectural detailing. | Installing wall insulation without considering its effect on interior molding or other architectural detailing. |
| **Windows** | |
| Utilizing the inherent energy conserving features of a building by maintaining windows and louvered blinds in good operable condition for natural ventilation. | Removing historic shading devices rather than keeping them in an operable condition. |
| Improving thermal efficiency with weatherstripping, storm windows, caulking, interior shades, and if historically appropriate, blinds and awnings. | Replacing historic multi-paned sash with new thermal sash utilizing false muntins. |
| Installing interior storm windows with air-tight gaskets, ventilating holes, and/or removable clips to ensure proper maintenance and to avoid condensation damage to historic windows. | Installing interior storm windows that allow moisture to accumulate and damage the window. |
| Installing exterior storm windows which do not damage or obscure the windows and frames. | Installing new exterior storm windows which are inappropriate in size or color. |
| | Replacing windows or transoms with fixed thermal glazing or permitting windows and transoms to remain inoperable rather than utilizing them for their energy conserving potential. |

| *Recommended* | *Not Recommended* |
| --- | --- |
| **Entrances and Porches** | |
| Maintaining porches and double vestibule entrances so that they can retain heat or block the sun and provide natural ventilation. | Changing the historic appearance of the building by enclosing porches. |
| **Interior Features** | |
| Retaining historic interior shutters and transoms for their inherent energy conserving features. | Removing historic interior features which play an energy conserving role. |
| **Mechanical Systems** | |
| Improving energy efficiency of existing mechanical systems by installing insulation in attics and basements. | Replacing existing mechanical systems that could be repaired for continued use. |
| **Building Site** | |
| Retaining plant materials, trees, and landscape features which perform passive solar energy functions such as sun shading and wind breaks. | Removing plant materials, trees, and landscape features that perform passive solar energy functions. |
| **Setting (District/Neighborhood)** | |
| Maintaining those existing landscape features which moderate the effects of the climate on the setting such as deciduous trees, evergreen wind-blocks, and lakes or ponds. | Stripping the setting of landscape features and landforms so that effects of the wind, rain, and sun result in accelerated deterioration of the historic building. |
| **New Additions to Historic Buildings** | |
| Placing a new addition that may be necessary to increase energy efficiency on non-character-defining elevations. | Designing a new addition which obscures, damages, or destroys character-defining features. |

## New Additions to Historic Buildings

*Recommended*

Placing functions and services required for the new use in non-character-defining interior spaces rather than constructing a new addition.

Constructing a new addition so that there is the least possible loss of historic materials and so that character-defining features are not obscured, damaged, or destroyed.

Designing a new addition in a manner that makes clear what is historic and what is new.

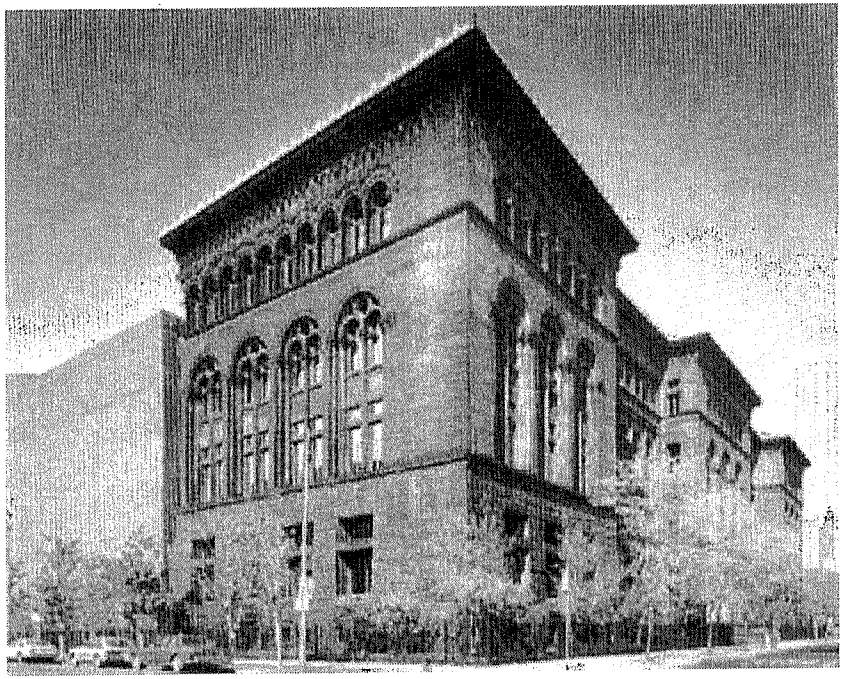
*Not Recommended*

Expanding the size of the historic building by constructing a new addition when the new use could be met by altering non-character-defining interior spaces.

Attaching a new addition so that the character-defining features of the historic building are obscured, damaged, or destroyed.

Duplicating the exact form, material, style, and detailing of the historic building in a new addition so that the new work appears to be part of the historic building.

Imitating a historic style or period of architecture in a new addition.



*Rehabilitation, like Preservation, acknowledges a building's change over time; the retention and repair of existing historic materials and features is thus always recommended. However, unlike Preservation, the dual goal of Rehabilitation is to—respectfully—add to or alter a building in order to meet new use requirements. This downtown Chicago library was expanded in 1981 when additional space was required with light and humidity control for the rare book collection. The compatible 10-story wing was linked to the historic block on side and rear elevations. Its simple design is compatible with the historic form, features, and detailing; old and new are clearly differentiated. Photo: Dave Clifton.*

| *Recommended* | *Not Recommended* |
| --- | --- |
| Considering the design for an attached exterior addition in terms of its relationship to the historic building as well as the historic district or neighborhood. Design for the new work may be contemporary or may reference design motifs from the historic building. In either case, it should always be clearly differentiated from the historic building and be compatible in terms of mass, materials, relationship of solids to voids, and color. | Designing and constructing new additions that result in the diminution or loss of the historic character of the resource, including its design, materials, workmanship, location, or setting. |
| Placing a new addition on a non-character-defining elevation and limiting the size and scale in relationship to the historic building. | Designing a new addition that obscures, damages, or destroys character-defining features of the historic building. |
| Designing a rooftop addition when required for the new use, that is set back from the wall plane and as inconspicuous as possible when viewed from the street. | Constructing a rooftop addition so that the historic appearance of the building is radically changed. |

## Accessibility Considerations

*Recommended*

Identifying the historic building's character-defining spaces, features, and finishes so that accessibility code-required work will not result in their damage or loss.

Complying with barrier-free access requirements, in such a manner that character-defining spaces, features, and finishes are preserved.

Working with local disability groups, access specialists, and historic preservation specialists to determine the most appropriate solution to access problems.

Providing barrier-free access that promotes independence for the disabled person to the highest degree practicable, while preserving significant historic features.

Designing new or additional means of access that are compatible with the historic building and its setting.

*Not Recommended*

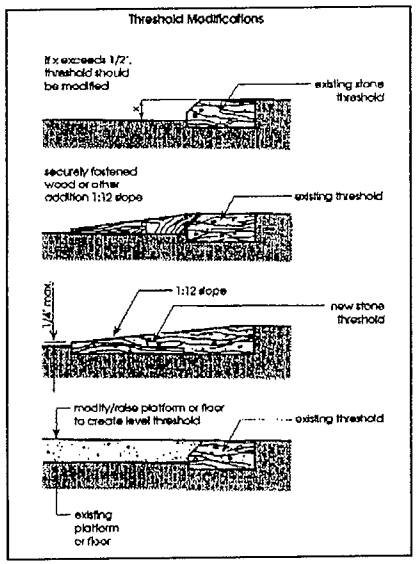
Undertaking code-required alterations before identifying those spaces, features, or finishes which are character-defining and must therefore be preserved.

Altering, damaging, or destroying character-defining features in attempting to comply with accessibility requirements.

Making changes to buildings without first seeking expert advice from access specialists and historic preservationists, to determine solutions.

Making access modifications that do not provide a reasonable balance between independent, safe access and preservation of historic features.

Designing new or additional means of access without considering the impact on the historic building and its setting.




*Making a building accessible to the public is a requirement under the Americans with Disabilities Act of 1990, whatever the treatment. Full, partial, or alternative approaches to accessibility depends upon the historical significance of a building and the ability to make changes. In these examples, thresholds that exceed allowable heights were modified several ways to increase accessibility, without jeopardizing the historic character. Drawing: Uniform Federal Accessibility Standard (UFAS) Retrofit Manual.*

## Health and Safety Considerations

*Recommended*

Identifying the historic building's character-defining spaces, features, and finishes so that code-required work will not result in their damage or loss.

Complying with health and safety codes, including seismic code requirements, in such a manner that character-defining spaces, features, and finishes are preserved.

Removing toxic building materials only after thorough testing has been conducted and only after less invasive abatement methods have been shown to be inadequate.

Providing workers with appropriate personal protective equipment for hazards found in the worksite.

Working with local code officials to investigate systems, methods, or devices of equivalent or superior effectiveness and safety to those prescribed by code so that unnecessary alterations can be avoided.

Upgrading historic stairways and elevators to meet health and safety codes in a manner that assures their preservation, i.e., so that they are not damaged or obscured.

Installing sensitively designed fire suppression systems, such as sprinkler systems that result in retention of historic features and finishes.

Applying fire-retardant coatings, such as intumescent paints, which expand during fire to add thermal protection to steel.

Adding a new stairway or elevator to meet health and safety codes in a manner that preserves adjacent character-defining features and spaces.

Placing a code-required stairway or elevator that cannot be accommodated within the historic building in a new exterior addition. Such an addition should be on an inconspicuous elevation.

*Not Recommended*

Undertaking code-required alterations to a building or site before identifying those spaces, features, or finishes which are character-defining and must therefore be preserved.

Altering, damaging, or destroying character-defining spaces, features, and finishes while making modifications to a building or site to comply with safety codes.

Destroying historic interior features and finishes without careful testing and without considering less invasive abatement methods.

Removing unhealthful building materials without regard to personal and environmental safety.

Making changes to historic buildings without first exploring equivalent health and safety systems, methods, or devices that may be less damaging to historic spaces, features, and finishes.

Damaging or obscuring historic stairways and elevators or altering adjacent spaces in the process of doing work to meet code requirements.

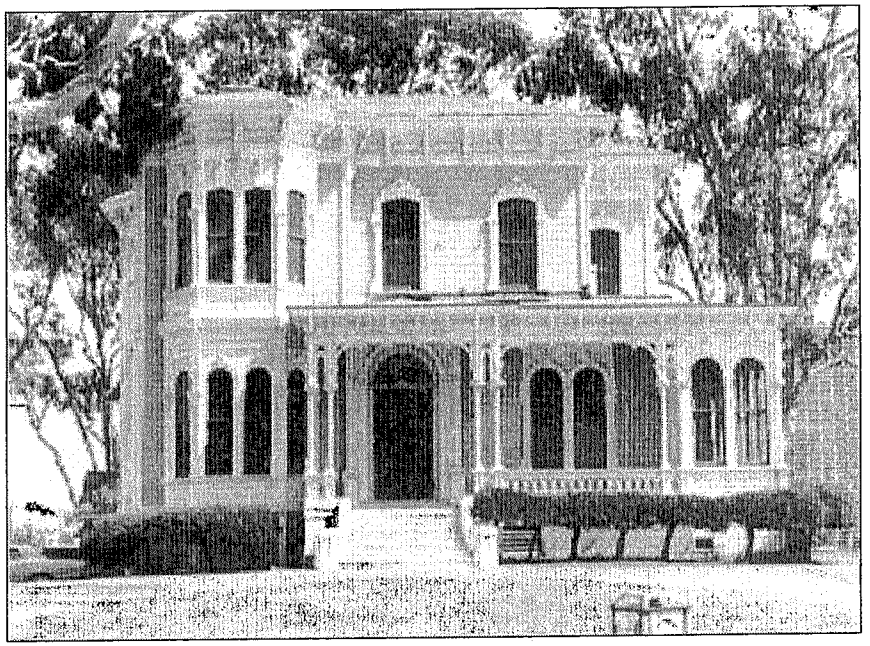
Covering character-defining wood features with fire-resistant sheathing which results in altering their visual appearance.

Using fire-retardant coatings if they damage or obscure character-defining features.

Radically changing, damaging, or destroying character-defining spaces, features, or finishes when adding a new code-required stairway or elevator.

Constructing a new addition to accommodate code-required stairs and elevators on character-defining elevations highly visible from the street; or where it obscures, damages, or destroys character-defining features.

# Standards for Restoration & Guidelines for Restoring Historic Buildings



***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 which reflects the property's 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

Rather than maintaining and preserving a building as it has evolved over time, the expressed goal of the **Standards for Restoration and Guidelines for Restoring Historic Buildings** is to make the building appear as it did at a particular—and most significant—time in its history. First, those materials and features from the "restoration period" are identified, based on thorough historical research. Next, features from the restoration period are maintained, protected, repaired (i.e., stabilized, consolidated, and conserved), and replaced, if necessary. As opposed to other treatments, the scope of work in **Restoration** can include removal of features from other periods; missing features from the restoration period may be replaced, based on documentary and physical evidence, using traditional materials or compatible substitute materials. The final guidance emphasizes that only those designs that can be documented as having been built should be re-created 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 existing architectural materials and features that are significant to the restoration period as established by historical research and documentation. Thus, guidance on *identifying, retaining, and preserving* features from the restoration period is always given first. The historic building's appearance may be defined by the form and detailing of its exterior materials, such as masonry, wood, and metal; exterior features, such as roofs, porches, and windows; interior materials, such as plaster and paint; and interior features, such as moldings and stairways, room configuration and spatial relationships, as well as structural and mechanical systems; and the building's site and setting.

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

After identifying those existing materials and features from the restoration period that must be retained in the process of **Restoration** work, then *protecting and maintaining* them is addressed. Protection generally involves the least degree of intervention and is preparatory to other work. For example, protection includes the maintenance of historic material through treatments such as rust removal, caulking, limited paint removal, and re-application of protective coatings; the cyclical cleaning of roof gutter systems; or installation of fencing, alarm systems and other temporary protective measures. Although a historic building will usually require more extensive work, an overall evaluation of its physical condition should always begin at this level.

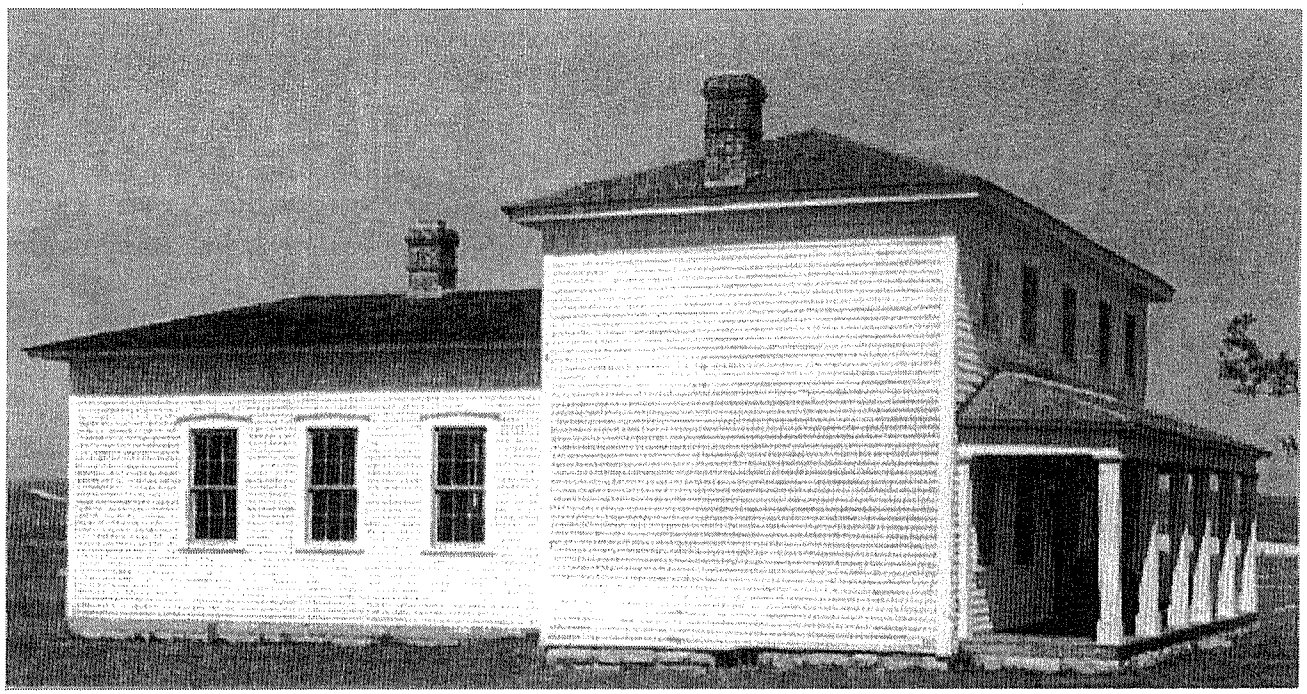
### Repair (Stabilize, Consolidate, and Conserve) Materials and Features from the Restoration Period

Next, when the physical condition of restoration period features requires additional work, *repairing* by *stabilizing, consolidating, and conserving* is recommended. **Restoration** guidance focuses upon the preservation of those materials and features that are significant to the period. Consequently, guidance for repairing a historic material, such as masonry, again begins with the least degree of intervention possible, such as strengthening fragile materials through consolidation, when appropriate, and repointing with mortar of an appropriate strength. Repairing masonry as well as wood and architectural metals includes

patching, splicing, or otherwise reinforcing them using recognized preservation methods. Similarly, portions of a historic structural system could be reinforced using contemporary material such as steel rods. In **Restoration**, repair may also include the limited replacement in kind—or with compatible substitute material—of extensively deteriorated or missing parts of existing features when there are surviving prototypes to use as a model. Examples could include terra-cotta brackets, wood balusters, or cast iron fencing.

**Replace Extensively Deteriorated Features from the Restoration Period**

In **Restoration**, ***replacing*** an entire feature from the restoration period (i.e., a cornice, balustrade, column, or stairway) 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. All new work should be unobtrusively dated to guide future research and treatment.



*In a project at Fort Hays, Kansas, the wood frame officers' quarters were restored to the late 1860s—their period of significance. This included replacing a missing kitchen ell, chimneys, porch columns, and cornice, and closing a later window opening in the main block. The building and others in the museum complex is used to interpret frontier history.*

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

### Remove Existing Features from Other Historic Periods

Most buildings represent continuing occupancies and 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, work is included to remove or alter existing historic features that do not represent the restoration period. This could include features such as windows, entrances and doors, roof dormers, or landscape features. Prior to altering or removing materials, features, spaces, and finishes that characterize other historical periods, they should be documented to guide future research and treatment.

### Re-Create Missing Features from the Restoration Period

Most **Restoration** projects involve re-creating features that were significant to the building at a particular time, but are now missing. Examples could include a stone balustrade, a porch, or cast iron storefront. Each missing feature should be substantiated by documentary and physical evidence. Without sufficient documentation for these "re-creations," an accurate depiction cannot be achieved. Combining features that never existed together historically can also create a false sense of history. Using traditional materials to depict lost features is always the preferred approach; however, using compatible substitute material is an acceptable alternative in **Restoration** because, as emphasized, the goal of this treatment is to replicate the "appearance" of the historic building at a particular time, not to retain and preserve all historic materials as they have evolved over time.

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

### Energy Efficiency/Accessibility Considerations/ Health and Safety Code Considerations

These sections of the **Restoration** guidance address work done to meet accessibility requirements and health and safety code requirements; or limited retrofitting measures to improve energy efficiency. Although this work is quite often an important aspect of restoration projects, it is usually not part of the overall process of protecting, stabilizing, conserving, or repairing features from the restoration period; rather, such work is assessed for its potential negative impact on the building's historic appearance. For this reason, particular care must be taken not to obscure, damage, or destroy historic materials or features from the restoration period in the process of undertaking work to meet code and energy requirements.

***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.*

## Building Exterior

### Masonry: Brick, stone, 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 architraves, door pediments, steps, and columns; and details such as tooling and bonding patterns, coatings, and color. | Altering masonry features from the restoration period. |
| | Failing to properly document masonry features from the restoration period which may result in their loss. |
| | Applying paint or other coatings such as stucco to masonry or removing paint or stucco from masonry if such treatments cannot be documented to the restoration period. |
| | Changing the type or color of the paint or coating unless the work can be substantiated by historical documentation. |
| ***Protecting and maintaining*** masonry from the restoration period by providing proper drainage so that water does not stand on flat, horizontal surfaces or accumulate in curved decorative features. | Failing to evaluate and treat the various causes of mortar joint deterioration such as leaking roofs or gutters, differential settlement of the building, capillary action, or extreme weather exposure. |
| Cleaning masonry only when necessary to halt deterioration or remove heavy soiling. | Cleaning masonry surfaces when they are not heavily soiled, thus needlessly introducing chemicals or moisture into historic materials. |
| Carrying out masonry surface cleaning tests after it has been determined that such cleaning is appropriate. Tests should be observed over a sufficient period of time so that both the immediate and the long range effects are known to enable selection of the gentlest method possible. | Cleaning masonry surfaces without testing or without sufficient time for the testing results to be of value. |

*Recommended*

Cleaning masonry surfaces with the gentlest method possible, such as low pressure water and detergents, using natural bristle brushes.

Inspecting painted masonry surfaces to determine whether repainting is necessary.

Removing damaged or deteriorated paint only to the next sound layer using the gentlest method possible (e.g., hand-scraping) prior to repainting.

Applying compatible paint coating systems following proper surface preparation.

Repainting with colors that are documented to the restoration period of the building.

Evaluating the existing condition of the masonry to determine whether more than protection and maintenance are required, that is, if repairs to masonry features from the restoration period will be necessary.

***Repairing, stabilizing and conserving*** fragile masonry from the restoration period by well-tested consolidants, when appropriate. Repairs should be physically and visually compatible and identifiable upon close inspection for future research.

*Not Recommended*

Sandblasting brick or stone surfaces using dry or wet grit or other abrasives. These methods of cleaning permanently erode the surface of the material and accelerate deterioration.

Using a cleaning method that involves water or liquid chemical solutions when there is any possibility of freezing temperatures.

Cleaning with chemical products that will damage masonry, such as using acid on limestone or marble, or leaving chemicals on masonry surfaces.

Applying high pressure water cleaning methods that will damage historic masonry and the mortar joints.

Removing paint that is firmly adhering to, and thus protecting, masonry surfaces.

Using methods of removing paint which are destructive to masonry, such as sandblasting, application of caustic solutions, or high pressure waterblasting.

Failing to follow manufacturers' product and application instructions when repainting masonry.

Using new paint colors that are not documented to the restoration period of the building.

Failing to undertake adequate measures to assure the protection of masonry features from the restoration period.

Removing masonry from the restoration period that could be stabilized, repaired and conserved; or using untested consolidants and untrained personnel, thus causing further damage to fragile historic materials.

| *Recommended* | *Not Recommended* |
| --- | --- |
| Repairing masonry walls and other masonry features by repointing the mortar joints where there is evidence of deterioration such as disintegrating mortar, cracks in mortar joints, loose bricks, damp walls, or damaged plasterwork. | Removing nondeteriorated mortar from sound joints, then repointing the entire building to achieve a uniform appearance. |
| Removing deteriorated mortar by carefully hand-raking the joints to avoid damaging the masonry. | Using electric saws and hammers rather than hand tools to remove deteriorated mortar from joints prior to repointing. |
| Duplicating and, if necessary, reproducing period mortar in strength, composition, color, and texture. | Repointing with mortar of high portland cement content (unless it is the content of the historic mortar). This can often create a bond that is stronger than the historic material and can cause damage as a result of the differing coefficient of expansion and the differing porosity of the material and the mortar. |
| | Repointing with a synthetic caulking compound. |
| | Using a "scrub" coating technique to repoint instead of traditional repointing methods. |
| Duplicating and, if necessary, reproducing period mortar joints in width and in joint profile. | Changing the width or joint profile when repointing. |
| Repairing stucco by removing the damaged material and patching with new stucco that duplicates stucco of the restoration period in strength, composition, color, and texture. | Removing sound stucco; or repairing with new stucco that is stronger than the historic material or does not convey the same visual appearance. |
| Using mud plaster as a surface coating over unfired, unstabilized adobe because the mud plaster will bond to the adobe. | Applying cement stucco to unfired, unstabilized adobe. Because the cement stucco will not bond properly, moisture can become entrapped between materials, resulting in accelerated deterioration of the adobe. |
| Cutting damaged concrete back to remove the source of deterioration (often corrosion on metal reinforcement bars). The new patch must be applied carefully so it will bond satisfactorily with, and match, the historic concrete. | Patching concrete without removing the source of deterioration. |

*Recommended*

Repairing masonry features from the restoration period by patching, piecing-in, or otherwise reinforcing the masonry using recognized preservation methods. Repair may also include the limited replacement in kind—or with compatible substitute material—of those extensively deteriorated or missing parts of masonry features from the restoration period when there are surviving prototypes such as terra-cotta brackets or stone balusters. The new work should be unobtrusively dated to guide future research and treatment.

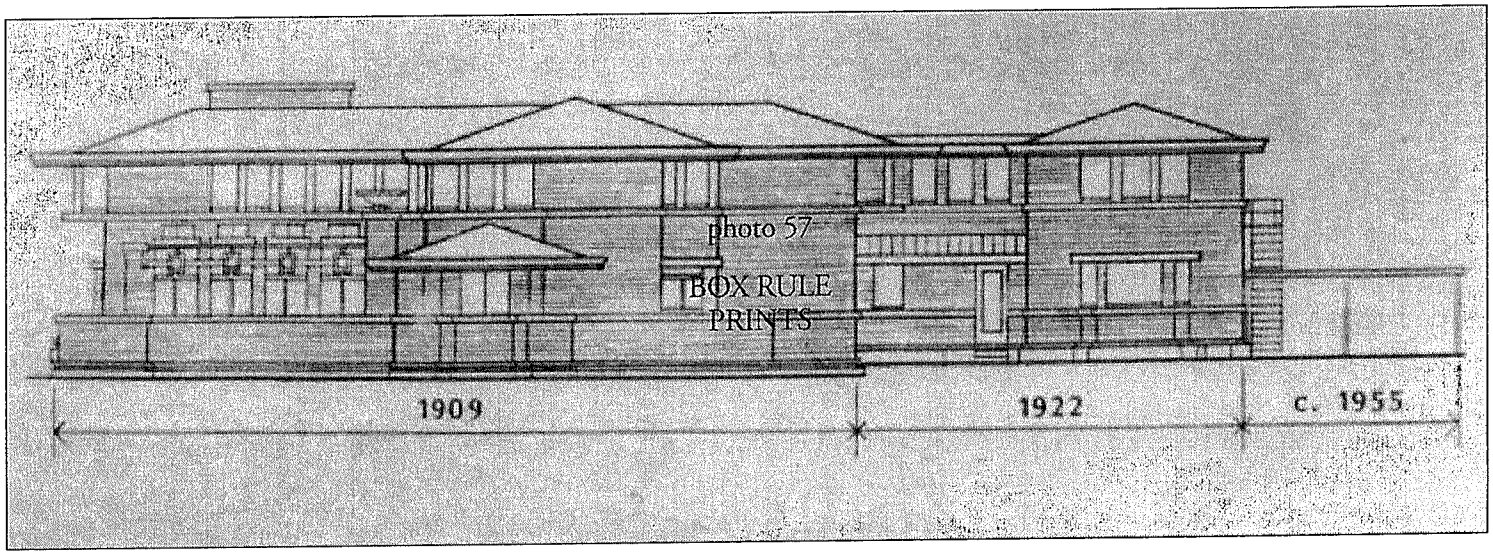
Applying new or non-historic surface treatments such as water-repellent coatings to masonry only after repointing and only if masonry repairs have failed to arrest water penetration problems.

*Not Recommended*

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 parts are appropriate.

Using a substitute material for the replacement part that does not convey the visual appearance of the surviving parts of the masonry feature or that is physically or chemically incompatible.

Applying waterproof, water repellent, or non-historic coatings such as stucco to masonry as a substitute for repointing and masonry repairs. Coatings are frequently unnecessary, expensive, and may change the appearance of historic masonry as well as accelerate its deterioration.




*The Meyer May House in Grand Rapids, Michigan, was designed by Frank Lloyd Wright and built in 1909. In 1922, May added to the house for an expanding family. After the May occupancy, the house was altered for use as apartments, with a carport added in 1955. In the 1980s restoration, the Wright's original design was deemed more significant than May's later changes, and, as a result, the additions were removed and the house returned to its 1909 appearance. Drawing: Martha L. Werenfels, AIA.*

| *Recommended* | *Not Recommended* |
|---|---|
| ***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 large sections of a wall, a cornice, balustrade, column, or stairway. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered. The new work should be unobtrusively dated to guide future research and treatment. | Removing a masonry feature from the restoration period that is unrepairable and not replacing it. |

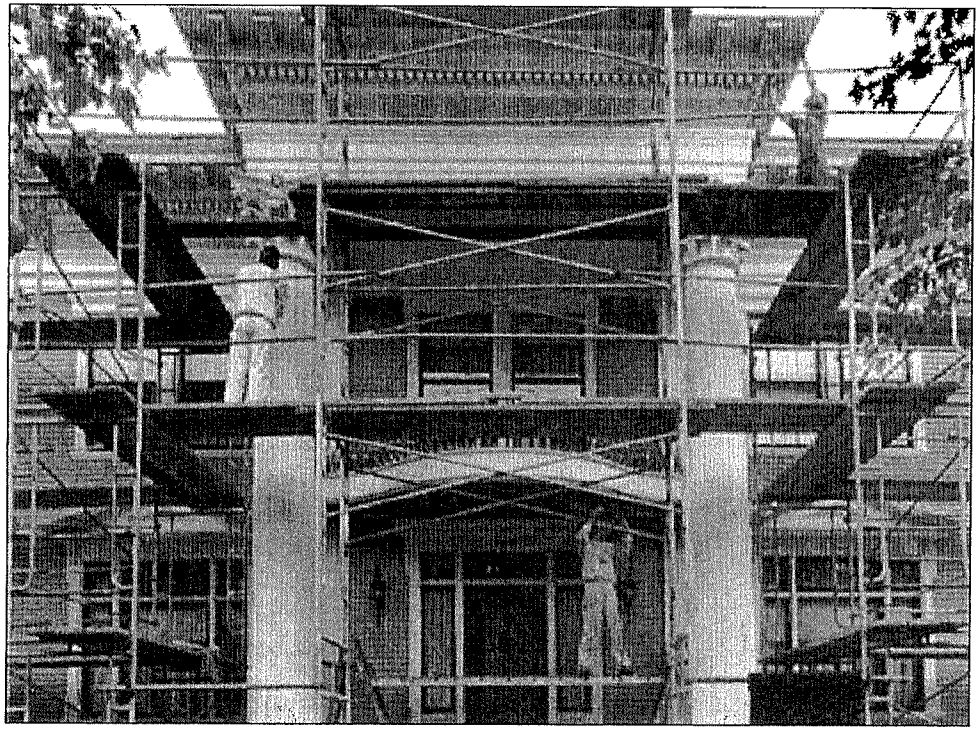
*The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic masonry features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing masonry features from the restoration period using all new materials.*

| *Recommended* | *Not Recommended* |
|---|---|
| **Removing Existing Features from Other Historic Periods** | |
| Removing or altering masonry features from other historic periods such as a later doorway, porch, or steps. | Failing to remove a masonry feature from another period, thus confusing the depiction of the building's significance. |
| 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 to facilitate 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. |
| **Re-creating Missing Features from the Restoration Period** | |
| Re-creating a missing masonry feature that existed during the restoration period based on physical or documentary evidence; for example, duplicating a terra-cotta bracket or stone balustrade. | Constructing a masonry 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 for which there is insufficient documentation. |

## Building Exterior

### Wood: Clapboard, weatherboard, shingles, and other wooden siding and decorative elements

| *Recommended* | *Not Recommended* |
|---|---|
| *Identifying, retaining, and preserving* wood features from the restoration period such as siding, cornices, brackets, window architraves, and doorway pediments; and their paints, finishes, and color. | Altering wood features from the restoration period. |
| | Failing to properly document wood features from the restoration period which may result in their loss. |
| | Applying paint or other coatings to wood or removing paint from wood if such treatments cannot be documented to the restoration period. |
| | Changing the type or color of the paint or coating unless the work can be substantiated by historical documentation. |
| *Protecting and maintaining* wood features from the restoration period by providing proper drainage so that water is not allowed to stand on flat, horizontal surfaces or accumulate in decorative features. | Failing to identify, evaluate, and treat the causes of wood deterioration, including 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 fungus infestation. |
| Applying chemical preservatives to wood features such as beam ends or outriggers that are exposed to decay hazards and are traditionally unpainted. | Using chemical preservatives such as creosote which, unless they were used historically, can change the appearance of wood features. |
| Retaining coatings such as paint that help protect the wood from moisture and ultraviolet light. Paint removal should be considered only where there is paint surface deterioration and as part of an overall maintenance program which involves repainting or applying other appropriate protective coatings. | Stripping paint or other coatings to reveal bare wood, thus exposing historically coated surfaces to the effects of accelerated weathering. |
| Inspecting painted wood surfaces to determine whether repainting is necessary or if cleaning is all that is required. | Removing paint that is firmly adhering to, and thus, protecting wood surfaces. |
| Removing damaged or deteriorated paint to the next sound layer using the gentlest method possible (handscraping and handsanding), then repainting. | Using destructive paint removal methods such as propane or butane torches, sandblasting or waterblasting. These methods can irreversibly damage historic woodwork. |



*Ongoing work at this house focuses on the maintenance and repair of exterior wood features from the restoration period. After scraping and sanding, the wood was painted in colors documented to the Restoration period. Photo: ©Mary Randlett, 1992.*

*Recommended*

Using with care electric hot-air guns on decorative wood features and electric heat plates on flat wood surfaces when paint is so deteriorated that total removal is necessary prior to repainting.

Using chemical strippers primarily to supplement other methods such as handscraping, handsanding and the above-recommended thermal devices. Detachable wooden elements such as shutters, doors, and columns may—with the proper safeguards—be chemically dip-stripped.

*Not Recommended*

Using thermal devices improperly so that the historic woodwork is scorched.

Failing to neutralize the wood thoroughly after using chemicals so that new paint does not adhere.

Allowing detachable wood features to soak too long in a caustic solution so that the wood grain is raised and the surface roughened.

*Recommended*

Applying compatible paint coating systems following proper surface preparation.

Repainting with colors that are documented to the restoration period of the building.

Evaluating the existing condition of the wood to determine whether more than protection and maintenance are required, that is, if repairs to wood features from the restoration period will be necessary.

***Repairing, stabilizing, and conserving*** fragile wood from the restoration period using well-tested consolidants, when appropriate. Repairs should be physically and visually compatible and identifiable upon close inspection for future research.

Repairing wood features from the restoration period by patching, piecing-in, or otherwise reinforcing the wood using recognized preservation methods. Repair may also include the limited replacement in kind—or with compatible substitute material—of those extensively deteriorated or missing parts of features from the restoration period where there are surviving prototypes such as brackets, molding, or sections of siding. The new work should be unobtrusively dated to guide future research and treatment.

***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. Examples of wood features include a cornice, entablature or balustrade. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered. The new work should be unobtrusively dated to guide future research and treatment.

*Not Recommended*

Failing to follow manufacturers' product and application instructions when repainting exterior woodwork.

Using new colors that are not documented to the restoration period of the building.

Failing to undertake adequate measures to assure the protection of wood features from the restoration period.

Removing wood from the restoration period that could be stabilized and conserved; or using untested consolidants and untrained personnel, thus causing further damage to fragile historic materials.

Replacing an entire wood feature from the restoration period such as a cornice or wall when repair of the wood and limited replacement of deteriorated or missing parts are appropriate.

Using substitute material for the replacement part that does not convey the visual appearance of the surviving parts of the wood feature or that is physically or chemically incompatible.

Removing a wood feature from the restoration period that is unrepairable and not replacing it.

*The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic wood 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.*

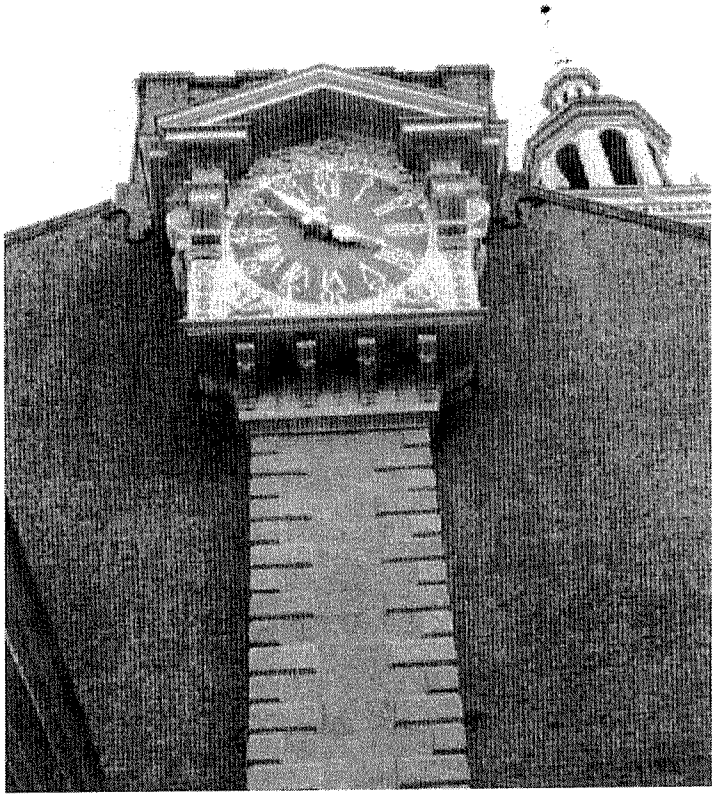
| *Recommended* | *Not Recommended* |
|---|---|
| **Removing Existing Features from Other Historic Periods** | |
| Removing or altering wood features from other historic periods such as a later doorway, porch, or steps. | Failing to remove a wood feature from another period, thus confusing the depiction of the building's significance. |
| 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 to facilitate 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. |
| **Re-creating Missing Features from the Restoration Period** | |
| Re-creating a missing wood feature that existed during the restoration period based on physical or documentary evidence; for example, duplicating a roof dormer or porch. | Constructing a wood 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 for which there is insufficient documentation. |

## Building Exterior

**Architectural Metals: Cast iron, steel pressed tin, copper, aluminum, and zinc**

| *Recommended* | *Not Recommended* |
|---|---|
| *Identifying, retaining, and preserving* architectural metal features from the restoration period such as columns, capitals, window hoods, or stairways; and their finishes and colors. Identification is also critical to differentiate between metals prior to work. Each metal has unique properties and thus requires different treatments. | Altering architectural metal features from the restoration period. |
| | Failing to properly document architectural metal features from the restoration period which may result in their loss. |
| | Changing the type of finish, historic color, or accent scheme unless the work can be substantiated by historical documentation. |
| *Protecting and maintaining* restoration period architectural metals 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, evaluate, and treat the causes of corrosion, such as moisture from leaking roofs or gutters. |
| Cleaning architectural metals, when appropriate, to remove corrosion prior to repainting or applying other appropriate protective coatings. | Exposing metals which were intended to be protected from the environment. |
| | Applying paint or other coatings to metals such as copper, bronze, or stainless steel that were meant to be exposed. |
| Identifying the particular type of metal prior to any cleaning procedure and then testing to assure that the gentlest cleaning method possible is selected or determining that cleaning is inappropriate for the particular metal. | Using cleaning methods which alter or damage the historic color, texture, and finish of the metal; or cleaning when it is inappropriate for the metal. |
| | Removing the patina of historic metal. The patina may be a protective coating on some metals, such as bronze or copper, as well as a significant historic finish. |
| Cleaning soft metals such as lead, tin, copper, terneplate, and zinc with appropriate chemical methods because their finishes can be easily abraded by blasting methods. | Cleaning soft metals such as lead, tin, copper, terneplate, and zinc with grit blasting which will abrade the surface of the metal. |

| *Recommended* | *Not Recommended* |
| --- | --- |
| Using the gentlest cleaning methods for cast iron, wrought iron, and steel—hard metals—in order to remove paint buildup and corrosion. If handscraping and wire brushing have proven ineffective, low pressure grit blasting may be used as long as it does not abrade or damage the surface. | Failing to employ gentler methods prior to abrasively cleaning cast iron, wrought iron or steel; or using high pressure grit blasting. |
| Applying appropriate paint or other coating systems after cleaning in order to decrease the corrosion rate of metals or alloys. | Failing to re-apply protective coating systems to metals or alloys that require them after cleaning so that accelerated corrosion occurs. |
| Repainting with colors that are documented to the restoration period of the building. | Using new colors that are not documented to the restoration period of the building. |
| Applying an appropriate protective coating such as lacquer to an architectural metal feature such as a bronze door which is subject to heavy pedestrian use. | Failing to assess pedestrian use or new access patterns so that architectural metal features are subject to damage by use or inappropriate maintenance such as salting adjacent sidewalks. |
| Evaluating the existing condition of the architectural metals to determine whether more than protection and maintenance are required, that is, if repairs to metal features from the restoration period will be necessary. | Failing to undertake adequate measures to assure the protection of architectural metal features from the restoration period. |
| ***Repairing, stabilizing, and conserving*** fragile architectural metal from the restoration period using well-tested consolidants, when appropriate. Repairs should be physically and visually compatible and identifiable upon close inspection for future research. | Removing architectural metal from the restoration period that could be stabilized and conserved; or using untested consolidants and untrained personnel, thus causing further damage to fragile historic materials. |
| Repairing architectural metal features from the restoration period by patching, splicing, or otherwise reinforcing the metal using recognized preservation methods. Repairs may also include the limited replacement in kind—or with a compatible substitute material—of those extensively deteriorated or missing parts of features from the restoration period when there are surviving prototypes such as porch balusters, column capitals or bases; or porch cresting. The new work should be unobtrusively dated to guide future research and treatment. | Replacing an entire architectural metal feature from the restoration period such as a column or a balustrade when repair of the metal and limited replacement of deteriorated or missing parts are appropriate.<br><br>Using a substitute material for the replacement part that does not convey the visual appearance of the surviving parts of the architectural metal feature or that is physically or chemically incompatible. |



*The Standards for Restoration call for the repair of existing features from the restoration period as well as the re-creation of missing features from the period. In some instances, when missing features are replaced, substitute materials may be considered if they convey the appearance of the historic materials. In this example at Philadelphia's Independence Hall, the clock was re-built in 1972-73 using cast stone and wood with fiberglass and polyester bronze ornamentation. Photo: Lee H. Nelson, FAIA.*

*Recommended*

***Replacing*** in kind an entire architectural 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. Examples could include cast iron porch steps or roof cresting. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered. The new work should be unobtrusively dated to guide future research and treatment.

*Not Recommended*

Removing an architectural metal feature from the restoration period that is unrepairable and not replacing it.

*The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic architectural metal features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing architectural metal features from the restoration period using all new materials.*

| *Recommended* | *Not Recommended* |
|---|---|
| **Removing Existing Features from Other Historic Periods** | |
| Removing or altering architectural metal features from other historic periods such as a later cast iron porch railing or aluminum windows. | Failing to remove an architectural metal feature from another period, thus confusing the depiction of the building's significance. |
| 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 to facilitate future research. | Failing to document architectural metal features from other historic periods that are removed from the building so that a valuable portion of the historic record is lost. |
| **Re-creating Missing Features from the Restoration Period** | |
| Re-creating a missing architectural metal feature that existed during the restoration period based on physical or documentary evidence; for example, duplicating a cast iron storefront or porch. | Constructing an architectural metal 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 for which there is insufficient documentation. |

## Building Exterior

### Roofs

*Recommended*

Identifying, retaining, and preserving roofs and roof features from the restoration period. This includes the roof's shape, such as hipped, gambrel, and mansard; decorative features such as cupolas, cresting, chimneys, and weathervanes; and roofing material such as slate, wood, clay tile, and metal, as well as size, color, and patterning.

***Protecting and maintaining*** a restoration period roof by cleaning the gutters and downspouts and replacing deteriorated flashing. Roof sheathing should also be checked for proper venting to prevent moisture condensation and water penetration; and to insure that materials are free from insect infestation.

Providing adequate anchorage for roofing material to guard against wind damage and moisture penetration.

Protecting a leaking roof with plywood and building paper until it can be properly repaired.

Evaluating the existing condition of materials to determine whether more than protection and maintenance are required, that is, if repairs to roofs and roof features will be necessary.

***Repairing*** a roof from the restoration period by reinforcing the materials which comprise roof features. Repairs will also generally include the limited replacement in kind—or with compatible substitute material—of those extensively deteriorated or missing parts of features when there are surviving prototypes such as cupola louvers, dentils, dormer roofing; or slates, tiles, or wood shingles. The new work should be unobtrusively dated to guide future research and treatment.

*Not Recommended*

Altering roofs and roof features from the restoration period.

Failing to properly document roof features from the restoration period which may result in their loss.

Changing the type or color of roofing materials unless the work can be substantiated by historical documentation.

Failing to clean and maintain gutters and downspouts properly so that water and debris collect and cause damage to roof fasteners, sheathing, and the underlying structure.

Allowing roof fasteners, such as nails and clips, to corrode so that roofing material is subject to accelerated deterioration.

Permitting a leaking roof to remain unprotected so that accelerated deterioration of historic building materials—masonry, wood, plaster, paint and structural members—occurs.

Failing to undertake adequate measures to assure the protection of roofs and roof features from the restoration period.

Replacing an entire roof feature from the restoration period such as a cupola or dormer when the repair of materials and limited replacement of deteriorated or missing parts are appropriate.

Failing to reuse intact slate or tile when only the roofing substrate needs replacement.

Using a substitute material for the replacement part that does not convey the visual appearance of the surviving parts of the roof or that is physically or chemically incompatible.

| *Recommended* | *Not Recommended* |
|---|---|
| ***Replacing*** in kind an entire roof 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 roofing, or a dormer or chimney. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered. The new work should be unobtrusively dated to guide future research and treatment. | Removing a roof feature from the restoration period that is unrepairable, and not replacing it; or failing to document the new work. |

*The following* **Restoration** *work involves the removal or alteration of existing historic roofs and roof 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 in order to create an accurate historic appearance.*

| *Recommended* | *Not Recommended* |
|---|---|
| **Removing Existing Features from Other Historic Periods** | |
| Removing or altering roofs or roof features from other historic periods such as a later dormer or asphalt roofing. | Failing to remove a roof feature from another period, thus confusing the depiction and of the building's significance. |
| 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 to facilitate 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. |
| **Re-creating Missing Features from the Restoration Period** | |
| Re-creating missing roofing material or a roof feature that existed during the restoration period based on physical or documentary evidence; for example, duplicating a dormer or cupola. | Constructing a roof 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 for which there is insufficient documentation. |

## Building Exterior

### Windows

| *Recommended* | *Not Recommended* |
| --- | --- |
| ***Identifying, retaining, and preserving*** windows—and their functional and decorative features—from the restoration period. Such features can include frames, sash, muntins, glazing, sills, heads, hoodmolds, panelled or decorated jambs and moldings, and interior and exterior shutters and blinds. | Altering windows or window features from the restoration period. |
| | Failing to properly document window features from the restoration period which may result in their loss. |
| | Applying paint or other coatings to window features or removing them if such treatments cannot be documented to the restoration period. |
| | Changing the type or color of protective surface coatings on window features unless the work can be substantiated by historical documentation. |
| | Stripping windows of sound material such as wood, cast iron, and bronze. |
| Conducting an indepth survey of the condition of existing windows from the restoration period early in the planning process so that repair and upgrading methods and possible replacement options can be fully explored. | Replacing windows from the restoration period solely because of peeling paint, broken glass, stuck sash, and high air infiltration. These conditions, in themselves, are no indication that windows are beyond repair. |
| ***Protecting and maintaining*** the wood and architectural metals from the restoration period which comprise the window frame, sash, muntins, and surrounds through appropriate surface treatments such as cleaning, rust removal, limited paint removal, and re-application of protective coating systems. | Failing to provide adequate protection of materials on a cyclical basis so that deterioration of the window results. |
| Making windows weathertight by re-caulking, and replacing or installing weatherstripping. These actions also improve thermal efficiency. | Retrofitting or replacing windows from the restoration period rather than maintaining the sash, frame, and glazing. |
| Evaluating the existing condition of materials to determine whether more than protection and maintenance are required, i.e. if repairs to windows and window features will be required. | Failing to undertake adequate measures to assure the protection of window materials from the restoration period. |

*Recommended*

***Repairing*** window frames and sash from the restoration period by patching, splicing, consolidating or otherwise reinforcing. Such repair may also include replacement in kind—or with compatible substitute material—of those extensively deteriorated or missing parts when there are surviving prototypes such as architraves, hoodmolds, sash, sills, and interior or exterior shutters and blinds. The new work should be unobtrusively dated to guide future research and treatment.

***Replacing*** in kind a window feature from the restoration period that is too deteriorated to repair using the same sash and pane configuration and other design details. If using the same kind of material is not technically or economically feasible when replacing windows deteriorated beyond repair, then a compatible substitute material may be considered. The new work should be unobtrusively dated to guide future research and treatment.

*Not Recommended*

Replacing an entire window from the restoration period when repair of materials and limited replacement of deteriorated or missing parts are appropriate.

Failing to reuse serviceable window hardware such as brass sash lifts and sash locks.

Using a substitute material for the replacement part that does not convey the visual appearance of the surviving parts of the window or that is physically or chemically incompatible.

Removing a window feature from the restoration period that is unrepairable and not replacing it; or failing to document the new work.

*The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic windows and window 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.*

| *Recommended* | *Not Recommended* |
|---|---|
| **Removing Existing Features from Other Historic Periods** | |
| Removing or altering windows or window features from other historic periods, such as later single-pane glazing or inappropriate shutters. | Failing to remove a window feature from another period, thus confusing the depiction of the building's significance. |
| 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 to facilitate 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. |
| **Re-creating Missing Features from the Restoration Period** | |
| Re-creating a missing window or window feature that existed during the restoration period based on physical or documentary 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 for which there is insufficient documentation. |

## Building Exterior

### Entrances and Porches

| *Recommended* | *Not Recommended* |
| --- | --- |
| ***Identifying, retaining, and preserving*** entrances and porches from the restoration period—and their functional and decorative features—such as doors, fanlights, sidelights, pilasters, entablatures, columns, balustrades, and stairs. | Altering entrances and porch features from the restoration period. |
| | Failing to properly document entrance and porch features from the restoration period which may result in their loss |
| | Applying paint or other coatings to entrance and porch features or removing them if such treatments cannot be documented to the restoration period. |
| | Changing the type or color of protective surface coatings on entrance and porch features unless the work can be substantiated by historical documentation. |
| | Stripping entrances and porches of sound material such as wood, iron, cast iron, terra cotta, tile and brick. |
| ***Protecting and maintaining*** the masonry, wood, and architectural metals that comprise restoration period entrances and porches through appropriate surface treatments such as cleaning, rust removal, limited paint removal, and re-application of protective coating systems. | Failing to provide adequate protection to materials on a cyclical basis so that deterioration of entrances and porches results. |
| Evaluating the existing condition of materials to determine whether more than protection and maintenance are required, that is, if repairs to entrance and porch features will be necessary. | Failing to undertake adequate measures to assure the protection of historic entrances and porches from the restoration period. |

*Recommended*

***Repairing*** entrances and porches from the restoration period by reinforcing the historic materials. Repairs will also generally include the limited replacement in kind—or with compatible substitute material—of those extensively deteriorated or missing parts of repeated features where there are surviving prototypes such as balustrades, cornices, entablatures, columns, sidelights, and stairs. The new work should be unobtrusively dated to guide future research and treatment.

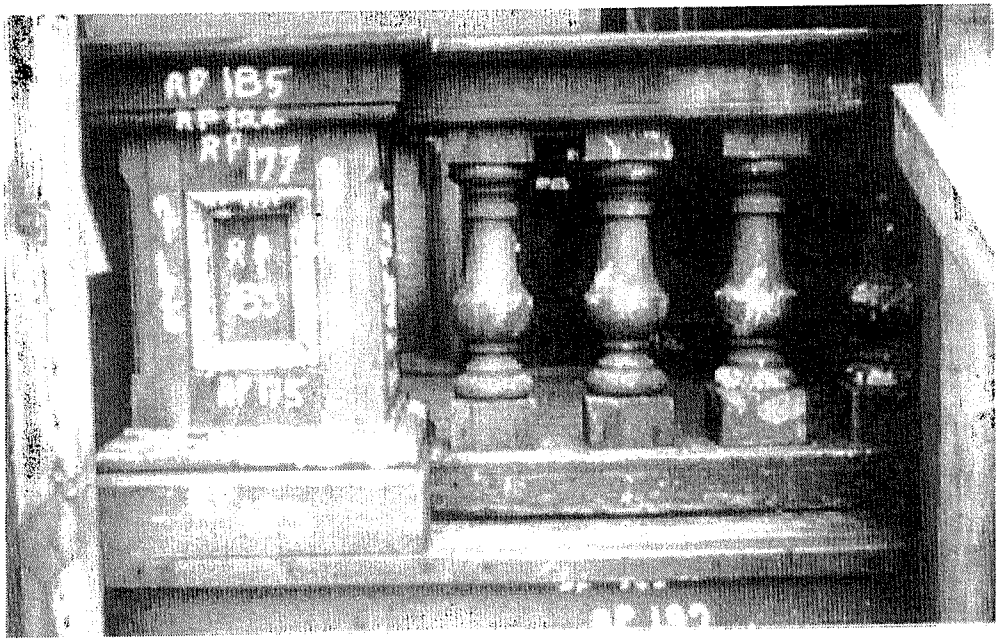
***Replacing*** in kind an entire entrance or porch from the restoration period that is too deteriorated to repair—if the form and detailing are still evident—using the physical evidence as a model to reproduce the feature. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered. The new work should be unobtrusively dated to guide future research and treatment.

*Not Recommended*

Replacing an entire entrance or porch feature from the restoration period when the repair of materials and limited replacement of parts are appropriate.

Using a substitute material for the replacement part that does not convey the visual appearance of the surviving parts of the entrance and porch or that is physically or chemically incompatible.

Removing an entrance or porch feature from the restoration period that is unrepairable and not replacing it; or failing to document the new work.



*Portions of the small porch on an Italianate mansion were carefully numbered prior to Restoration. Some original elements were restored in place, while others had to be removed for repair, then reinstalled. Any element too deteriorated to save was replaced with a new one replicated to match the original design. Photo: Morgan W. Phillips.*

*The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic entrance and porch features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing entrance and porch features from the restoration period using all new materials.*

| *Recommended* | *Not Recommended* |
|---|---|
| **Removing Existing Features from Other Historic Periods** | |
| Removing or altering entrances and porches and their features from other historic periods such as a later porch railing or balustrade. | Failing to remove an entrance or porch feature from another period, thus confusing the depiction of the building's significance. |
| 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 to facilitate future research. | Failing to document entrance or porch features from other historic periods that are removed from the building so that a valuable portion of the historic record is lost. |
| **Re-creating Missing Features from the Restoration Period** | |
| Re-creating a missing entrance or porch or its features that existed during the restoration period based on physical or documentary evidence; for example, duplicating a fanlight 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 for which there is insufficient documentation. |

## Building Exterior

### Storefronts

*Recommended*

***Identifying, retaining, and preserving*** storefronts from the restoration period—and their functional and decorative features—such as display windows, signs, doors, transoms, kick plates, corner posts, and entablatures.

***Protecting and maintaining*** masonry, wood, and architectural metals which comprise restoration period storefronts through appropriate treatments such as cleaning, rust removal, limited paint removal, and reapplication of protective coating systems.

Protecting storefronts against arson and vandalism before restoration work begins by boarding up windows and installing alarm systems that are keyed into local protection agencies.

Evaluating the existing condition of storefront materials to determine whether more than protection and maintenance are required, that is, if repairs to features will be necessary.

*Not Recommended*

Altering storefronts—and their features—from the restoration period.

Failing to properly document storefront features from the restoration period which may result in their loss.

Applying paint or other coatings to storefront features or removing them if such treatments cannot be documented to the restoration period.

Changing the type or color of protective surface coatings on storefront features unless the work can be substantiated by historical documentation.

Failing to provide adequate protection of materials on a cyclical basis so that deterioration of storefront features results.

Permitting entry into the building through unsecured or broken windows and doors so that interior features and finishes are damaged by exposure to weather or vandalism.

Stripping storefronts of historic material from the restoration period such as wood, cast iron, terra cotta, carrara glass, and brick.

Failing to undertake adequate measures to assure the protection of storefront materials from the restoration period.

| *Recommended* | *Not Recommended* |
|---|---|
| ***Repairing*** storefronts from the restoration period by reinforcing the historic materials. Repairs will also generally include the limited replacement in kind—or with compatible substitute materials—of those extensively deteriorated or missing parts of storefronts where there are surviving prototypes such as transoms, kick plates, pilasters, or signs. The new work should be unobtrusively dated to guide future research and treatment. | Replacing an entire storefront feature from the restoration period when repair of materials and limited replacement of its parts are appropriate.<br><br>Using substitute material for the replacement part that does not convey the same visual appearance as the surviving parts of the storefront or that is physically or chemically incompatible. |
| ***Replacing*** in kind a 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. If using the same material is not technically or economically feasible, then compatible substitute materials may be considered. The new work should be unobtrusively dated to guide future research and treatment. | Removing a storefront feature from the restoration period that is unrepairable, and not replacing it; or failing to document the new work. |

*The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic storefront features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing storefront features from the restoration period using all new materials.*

| *Recommended* | *Not Recommended* |
|---|---|
| **Removing Existing Features from Other Historic Periods** | |
| Removing or altering storefronts and their features from other historic periods such as inappropriate cladding or signage. | Failing to remove a storefront feature from another period, thus confusing the depiction of the building's significance. |
| 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 to facilitate 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. |
| **Re-creating Missing Features from the Restoration Period** | |
| Re-creating a missing storefront or storefront feature that existed during the restoration period based on physical or documentary 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 for which there is insufficient documentation. |

## Building Interior

### Structural Systems

*Recommended*

***Identifying, retaining, and preserving*** structural systems from the restoration period—and individual features of systems—such as post and beam systems, trusses, summer beams, vigas, cast iron columns, above-grade stone foundation walls, or loadbearing brick or stone walls.

***Protecting and maintaining*** the structural system by cleaning the roof gutters and downspouts; replacing roof flashing; keeping masonry, wood, and architectural metals in a sound condition; and ensuring that structural members are free from insect infestation.

Examining and evaluating the physical condition of the structural system and its individual features using non-destructive techniques such as X-ray photography.

***Repairing*** the structural system by augmenting or upgrading individual parts 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 be unobtrusively dated to guide future research and treatment.

*Not Recommended*

Altering visible features of structural systems from the restoration period.

Failing to properly document structural systems from the restoration period which may result in their loss.

Overloading the existing structural system; or installing equipment or mechanical systems which could damage the structure.

Replacing a loadbearing masonry wall that could be augmented and retained.

Leaving known structural problems untreated such as deflection of beams, cracking and bowing of walls, or racking of structural members.

Failing to provide proper building maintenance so that deterioration of the structural system results. Causes of deterioration include subsurface ground movement, vegetation growing too close to foundation walls, improper grading, fungal rot, and poor interior ventilation that results in condensation.

Utilizing destructive probing techniques that will damage or destroy structural material.

Upgrading the building structurally in a manner that diminishes the historic character of the exterior, such as installing strapping channels or removing a decorative cornice; or that damages interior features or spaces.

Replacing a structural member or other feature of the structural system when it could be augmented and retained.

| *Recommended* | *Not Recommended* |
|---|---|
| ***Replacing*** in kind—or with substitute material—those portions or features of the structural system that are either extensively deteriorated or are missing when there are surviving prototypes such as cast iron columns, roof rafters or trusses, or sections of loadbearing walls. Substitute material should convey the same form, design, and overall visual appearance as the historic feature; and, at a minimum, be equal to its loadbearing capabilities. The new work should be unobtrusively dated to guide future research and treatment. | Installing a visible replacement feature that does not convey the same visual appearance, e.g., replacing an exposed wood summer beam with a steel beam; or failing to document the new work.<br><br>Using substitute material that does not equal the loadbearing capabilities of the historic material and design or is otherwise physically or chemically incompatible. |

*The following* **Restoration** *work is highlighted to indicate that it involves the removal or alteration of existing historic structural systems and features that would be retained in Preservation and Rehabilitation treatments; and the replacement of missing structural system features from the restoration period using all new materials.*

| *Recommended* | *Not Recommended* |
|---|---|
| **Removing Existing Features from Other Historic Periods** | |
| Removing or altering visually intrusive structural features from other historic periods such as a non-matching column or exposed ceiling beams. | Failing to remove or alter a visually intrusive structural feature from another period, thus confusing the depiction of the building's significance. |
| 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 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. |
| **Re-creating Missing Features from the Restoration Period** | |
| Re-creating a missing structural feature that existed during the restoration period based on physical or documentary evidence; for example, duplicating a viga or cast iron column. | Constructing a 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 for which there is insufficient documentation. |

## Building Interior

### Spaces, Features, and Finishes

*Recommended*

*Not Recommended*

#### Interior Spaces

***Identifying, retaining, and preserving*** a floor plan or interior spaces from the restoration period. This includes the size, configuration, proportion, and relationship of rooms and corridors; the relationship of features to spaces; and the spaces themselves, such as lobbies, reception halls, entrance halls, double parlors, theaters, auditoriums, and important industrial or commercial spaces.

Altering a floor plan or interior spaces—including individual rooms—from the restoration period.

#### Interior Features and Finishes

***Identifying, retaining, and preserving*** interior features and finishes from the restoration period. These include columns, cornices, baseboards, fireplaces and mantels, panelling, light fixtures, hardware, and flooring; and wallpaper, plaster, paint, and finishes such as stencilling, marbling, and graining; and other decorative materials that accent interior features and provide color, texture, and patterning to walls, floors, and ceilings.

Altering features or finishes from the restoration period.

Failing to properly document spaces, features, and finishes from the restoration period which may result in their loss.

Applying paint, plaster, or other finishes to surfaces unless the work can be substantiated historical documentation.

Stripping paint to bare wood rather than repairing or reapplying grained or marbled finishes from the restoration period to features such as doors and panelling.

Changing the type of finish or its color, such as painting a previously varnished wood feature, unless the work can be substantiated by historical documentation.

***Protecting and maintaining*** masonry, wood, and architectural metals that comprise restoration period interior features through appropriate surface treatments such as cleaning, rust removal, limited paint removal, and reapplication of protective coating systems.

Failing to provide adequate protection to materials on a cyclical basis so that deterioration of interior features results.