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

For

06 EARTHQUAKE CENTENNIAL CONFERENCE

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Earthquakes Do Not Believe in Historic Preservation
Avoid the Pitfalls

Architectural Resources Group
Architects, Planners, And Conservators, Inc.
Society for the Protection of Ancient Building's Manifesto
The first attempt to establish a coherent and logically defensible philosophy for building conservation written in 1877.

The Manifesto consists principally of a plea to "put protection in place of restoration", and only the last two paragraphs commend a philosophy of care.
The Venice Charter


- Stresses the importance of setting, respect for original fabric,
- Precise documentation of any intervention,
- The significance of contributions from all periods to the building's character, and
- The maintenance of historic buildings for a socially useful purpose.

It outlines the basic doctrine of what is now accepted to be an appropriate approach to dealing in philosophical terms with historic buildings.

ARTICLE 13.
Additions cannot be allowed except in so far as they do not detract from the interesting parts of the building, its traditional setting, the balance of its composition and its relation with its surroundings.

Stresses the need for appropriate use of mass, scale, rhythm and appearance, and the avoidance of imitation.

The Secretary of the Interior’s Standards, 1976 - 1995

Do No Harm!

Ten statements of philosophy regarding historic buildings and sites
The Secretary of the Interior’s Standards

The Standards (Department of Interior regulations, 36 CFR 67) pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and the interior, related landscape features and the building's site and environment as well as attached, adjacent, or related new construction. The Standards are to be applied to specific rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility.

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

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

3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

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

5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
The Standards continued

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

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

8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
The Standards continued

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

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

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10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Additions & New Construction

Place functions services and new structural elements in interior spaces, which are not character-defining, rather than installing a new addition or adding exterior structure.
Place functions and services required for the new use in interior spaces, which are not character-defining, rather than installing a new addition.

Construct 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.
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Construct 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.

Locate the attached exterior addition at the rear or on an inconspicuous side of a historic building; and limit its size and scale in relationship to the historic building.
Place functions and services required for the new use in interior spaces, which are not character-defining, rather than installing a new addition.

Construct 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.

Locate the attached exterior addition at the rear or on an inconspicuous side of a historic building; and limit its size and scale in relationship to the historic building.

Place new additions such as balconies and new structure on non-character-defining elevations and limit and size and scale in relationship to the historic building.
Place functions and services required for the new use in interior spaces, which are not character-defining, rather than installing a new addition.

Construct 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.

Locate the attached exterior addition at the rear or on an inconspicuous side of a historic building; and limit its size and scale in relationship to the historic building.

Place new additions such as balconies and greenhouses on non-character-defining elevations and limit and size and scale in relationship to the historic building.

Design new additions and insert new structure in a manner that makes clear what is historic and what is new.
Place functions and services required for the new use in interior spaces, which are not character-defining, rather than installing a new addition.

Construct 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.

Locate the attached exterior addition at the rear or on an inconspicuous side of a historic building; and limit its size and scale in relationship to the historic building.

Place new additions such as balconies and greenhouses on non-character-defining elevations and limit and size and scale in relationship to the historic building.

Design new additions in a manner that makes clear what is historic and what is new.

Consider the attached exterior addition or new structural elements both in terms of the new use and the appearance of other buildings in 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, new elements should always be clearly differentiated from the historic building and be compatible in terms of mass, materials, relationship of solids to voids, and color.
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.

Design additional stories, when required for the new use, that are set back from the wall plane and are as inconspicuous as possible when viewed from the street.
Requirements for Use of Federal Funds for Upgrades of Historic Properties - Historic Preservation Act of 1966

Step 1: Identification and Evaluation
Step 2: Assess Effects
Step 3: Consultation
Step 4: Council Comments
Step 5: Proceeding with the Understanding
Requirements for Use of Federal Funds for Upgrades of Historic Properties

The Standards do not address the historic importance of the resource relative to additions or new construction. All resources are treated the same.
Small historic church in Kauai, HI constructed of Lava.

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Adobe building in Tucson, AZ that contributes to a local historic district

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How not to add on to the front of an historic building.
Inappropriate Addition to front and side of church.

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Wonderful Georgetown residence that has been added on to over the years.

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Detail showing changes over time to the building.
Expansion of a Gold-Rush-Era commercial building in Angels Camp, CA.

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How not to apply new dark tinted windows to an historic building.

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A potential Tax Act project denied due to window alterations.
Solar heating is generally a good idea if installed so it doesn’t impact the historic building.

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This won't meet the Standards.
San Juan Capistrano Depot converted to a restaurant.
No addition needed as space was found by converting the arcade to an inside dining area.
The small area of glass doesn’t fool anybody into thinking that it is sky up there.
Left building houses offices & rehearsal spaces, right the entry and lobby.
Greek Revival Bank building serves as the Lobby for the theater.
Warehouse has been converted into a state-of-the-art theater facility.

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A small bank in West Virginia with addition to the right.
Detail of joint between the original building on the left and new wing on the right.

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The historic Hotel Utah in Salt Lake City.

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New addition to the rear. Façade is from original molds for terra cotta.

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New addition is to the left with sunroom above.

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Columbus, OH
Auditorium with addition to the left.

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Detail of addition that is clearly modern yet works with the design of the original building.
Connection between the new wing on the left and the original building to the right.
Note subtle difference in detailing between the new and the old.
Making a glazed connection set back from the front façade, works here in Salt Lake City.
Primary historic preservation resource is the Secretary’s Standards.

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National Park Service technical publications on specific issues.
Tax Act Information provides economic advantages when working on historic buildings.

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STRUCTURAL DESIGN FOR HISTORIC BUILDINGS

- Primary Concern – Building Safety
- Other Requirements
  - Architectural and other building systems
  - Budget and Schedule
  - Green Design
- Secretary Interior Standards sets goals for minimizing impact of retrofit.
- Tool to implement goals – State Historic Building Code (SHBC)
Evaluation

- Seismic Evaluation of Existing Buildings, SEI/ASCE 31-03 (ASCE 31-3)
Upgrade

• California Historical Building Code, 2001 Edition (CHBC 2001)
• California Building Code, 1995 Edition (CBC 95)
• San Francisco Building Code, 2001 Edition plus Amendments (SFBC 2001)
• Uniform Building Code, 1997 Edition (UBC 97)
• Prestandard and Commentary for the Seismic Rehabilitation of Buildings (FEMA 356)
California Historical Building Code

“The purpose of this code is to provide regulations for preservation, relocation or reconstruction of buildings or structures designated as qualified historical buildings or properties... Such regulations are intended to provide alternative solutions for the preservation of qualified historical buildings or properties, to provide access for persons with disabilities, to provide a cost effective approach to preservation, and to provide for the reasonable safety of the occupants or users...”
STRUCTURAL REGULATIONS

GENERAL

- SHBC is state law, permitting design based on real values of archaic materials, and solutions based on engineering principles and judgment rather than on prescriptive formulas
- Gravity loads
- Complete load path

LATERAL

- 0.75 x 95 CBC Seismic Forces
- Evaluate details under increased loads
- Consider ductility and strength reserves of the system and materials for ultimate capacity
- Evaluate non-complying details
- Possible detail failures and life safety threats shall be strengthened
- Complete and continuous load path
- Coherent structure
- Parapets and exterior ornamentation
- Nonstructural elements
- Partitions, corridor ceilings, and stairways
Materials

- Exercise judgment for archaic materials
- Allowable values for some existing materials
- Testing procedures
- However, the CHBC does not specifically recommend any procedure nor does it recommend a target performance for the retrofit of existing structures
Understand Existing Conditions

Establish original architect/engineer’s intent.

Undertake thorough existing conditions investigation - exploratory testing.

Develop understanding of existing structural systems.
Old U.S. Mint, 1868.
Old U.S. Mint, 1868. Use of bond iron in brick and stone masonry.
Mark Hopkins Mansion
Wall with integral iron bars

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Mark Hopkins Hotel, San Francisco, 1923

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Existing Conditions Survey

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Measurement and Repair of Rivets

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TENNEBAUM-MANHEIM ENGINEERS

INSTRUCTIONS FOR USE OF GAGES & REPAIR:

1. USE CIRCUMFERENCE GAGE FIRST.
   IF GAGE TOUCHES BASE METAL, USE REPAIR WASHER.
   IF GAGE DOES NOT TOUCH, USE HEIGHT GAGE.

2. HEIGHT GAGE MUST BE PRECISELY MADE.
   PLACE HEIGHT GAGE AS SHOWN WITH CL GAGE AS CLOSE
   AS POSSIBLE TO CL RIVET, PLACE LONG SIDE OF GAGE
   ON MOST CORRODED AREA.
   IF 1.375 - 3.750 = 3.50", USE REPAIR WASHER.

3. IF AREA SURROUNDING RIVET IS CORRODED, CONTACT
   ENGINEER.

MARK HOPKINS HOTEL
MEASUREMENT AND REPAIR
OF CORRODED RIVETS
Column Repair

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TENNEBAUM-MANHEIM ENGINEERS

West Elevation

South Elevation

Note: 1. For additional repair information see Figure 12.
2. Contractor shall field verify all dimensions prior to fabrication.
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Column Repair

Plan

Notes:
1. Verify all dimensions in field prior to fabrication.
2. (C) COL MUST BE CLEAN, SMOOTH & RUST FREE PRIOR TO WELDING.
3. (N) PLs ARE TO BE THICKNESS & EXTENT SHOWN ON ELEVATIONS. CONTRACTOR MAY SPlice PLs AS REQUIRED.

Legend:
- (N)PL 1/8"
- (N)PL 3/16"
- (N)PL 1/4"
Corner Column Reinforcing

1/2" φ SST threaded rod drilled & epoxied w/ Hilti Hy20 epoxy @ 12" o.c., typ.
Non-shrink grout, typ.
(E) built-up riveted STL col

225° typ.

1/4" φ SST threaded vert. rod, continuous w/ couplers. Grout into each cell in each brick, typ.

1/4" φ SST threaded rods w/ 6" min. embedment into (N) concrete at every fourth course of brick

(N) SST shelf support below

(F) facade brick

Cell in brick, typ.

14 ga. SST wire w/ 3 tight turns, typ.

#4 rebar @ 12" o.c.

(N) concrete

1/2" φ continuous SST threaded rods, typ.

2 Corner Column Plan Detail

Scale: 1-1/2" = 1'-0"

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(N) Non-Shrink Grout

(E) Unreinforced Brick Masonry

Demolish & Rebuild: See A6.1, AT.1, & A6.1 for extent

Demolish and Rebuild after completing all sections above

Corner Column Elevation

Scale: 1/2"=1'-0"

NOTE: See 7/A and Weld In

1/4" SST Threaded Rod, Continuous

(N) SST Shelf Support Locate in Mortar Joint Contractor Shall Coordinate

SST Coupler

Joint @ Window Head Beyond

Temporary Non-Shrink Leveling Grout as Required
Historic Brick Work
Chapter 21

Masonry headers. Where the facing and backing of solid masonry construction are bonded by masonry headers, not less than 4 percent of the wall surface of each face shall be composed of headers extending not less than 3 inches into the backing. The distance between adjacent full-length headers shall not exceed 24 inches either vertically or horizontally.
Olympic Club, San Francisco 1910

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First Church of Christ, Scientist, San Francisco

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Appropriate use of modern materials in seismic upgrades

Establish the type of deficiency.

Develop treatment approach.

Select materials.

Understand physical and chemical compatibility constraints.
University of Redlands
Chapel, Redland, CA
1920s

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MEMORIAL CHAPEL
UNIVERSITY OF REDLANDS

SWD Foam Application Procedure

Application of clear primer to surface:
Surface was vacuumed clean to meet manufacturer’s requirements and was inspected prior to installation by the Architect.

Installation of foam material:
Material installed to a thickness that would encapsulate the black iron with one inch coverage. Precautions were taken to assure that foam would not penetrate plaster ceiling.
MEMORIAL CHAPEL
UNIVERSITY OF REDLANDS

SWD Foam Application Procedure

Installation of final coat:
Apply top coat sealer to foam.
Green Library, Stanford University, Stanford, CA 1919

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Green Library, Stanford University, Sanford, CA

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Green Library, Stanford University, Sanford, CA

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Calvin Simmons Theater, Oakland, CA

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