

Preservation Seminar:

Standards & Guidelines for Treatment of Historic Properties

Aloha! We will begin shortly.

Today we will be using the Chat function to receive your input. Please enter your name and location to check in.



Preservation Seminar: Standards & Guidelines for Treatment of Historic Properties

Historic Hawai'i Foundation National Park Service Department of the Interior Office of Native Hawaiian Relations





A statewide non-profit advocacy organization, **Historic Hawai'i Foundation** encourages the preservation of historic buildings, sites, structures, objects and districts relating to the history of Hawai'i.

We help people save Hawai'i's historic places.

www.HistoricHawaii.org



The **National Park Service** preserves unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.





The Office of Native Hawaiian Relations was established by Congress in January 2004 to carry out the Secretary of the Interior's responsibilities for Native Hawaiians and the Hawaiian Home Lands Trust.

The Office serves as the liaison with the Native Hawaiian community and coordinates with the Department and its bureaus on actions that affect Native Hawaiian resources, rights, and lands.







Fung Associates, Inc. (FAI) is an award winning design firm with projects encompassing architecture, master planning, interiors, sustainable design, and historic preservation. FAI is also a leader in the preservation, study, and treatment of Hawaii's wide range of architecture, particularly the mid-century Modern Movement.

Founded in 1998, FAI has rapidly established itself as a firm with local sensitivity and global network. Our service area includes Hawaii, California, the Pacific Rim, and Asia.





Creating Great Communities for All

The American Institute of Certified Planners (AICP) is the APA's professional institute providing recognized leadership nationwide in the certification of professional planners, ethics, professional development, planning education, and the standards of planning practice.



ABOUT THIS COURSE

Treatment Types

Standards and guidelines for Rehabilitation

Character-defining features

Special considerations and issues



Interaction

Chat Box: use the <u>chat</u> to ask a question at any time.

Interactive Polling:

use your mouse to
select your answer to
multiple choice
questions.



Knowledge Check 1

Please indicate your level of experience with applying treatments, standards and guidelines for historic properties.

- No experience
- 1-3 years
- 4-7 years
- 8-15 years
- More than 15 years

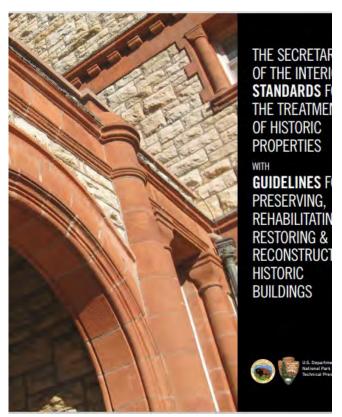


THE SECRETARY OF THE INTERIOR'S STANDARDS AND GUIDELINES FOR ARCHAEOLOGY AND HISTORIC Preservation



Guidelines on Flood Adaptation for Rehabilitating Historic Buildings







What are the Secretary of the Interior's Standards and Guidelines?

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

The <u>Guidelines</u> offer general design and technical recommendations to assist in applying the Standards to a specific property.

Together, they provide a framework and guidance for decision-making about work or changes to a historic property.



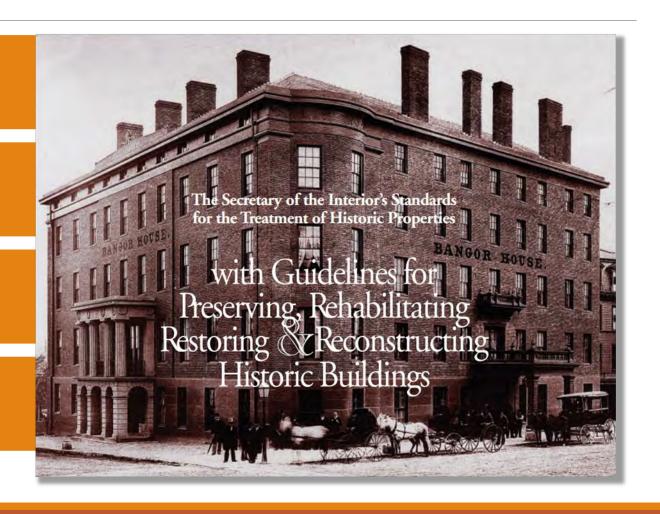
TREATMENT TYPES

Preservation

Rehabilitation

Restoration

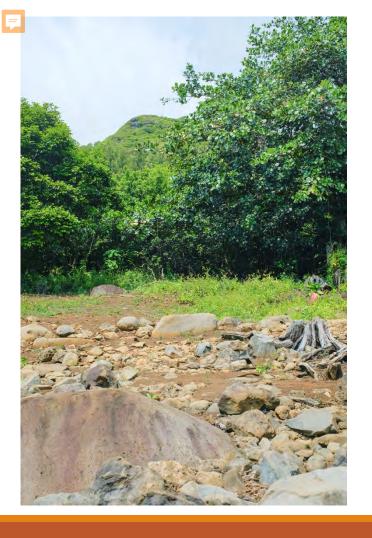
Reconstruction

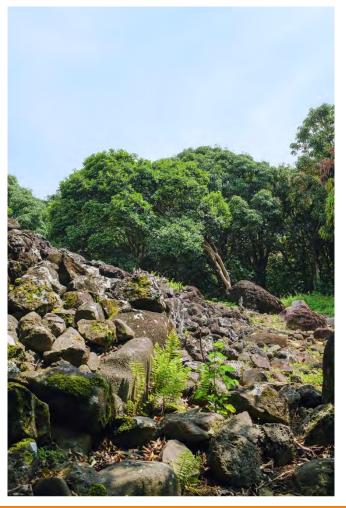




TREATMENT Type: Preservation

Places a high premium on the retention of all historic fabric through conservation, maintenance and repair.







Maunawila Heiau, Hauʻula, Oʻahu. Photos by Ryan Masuda

Preservation Example: Maunawila Heiau



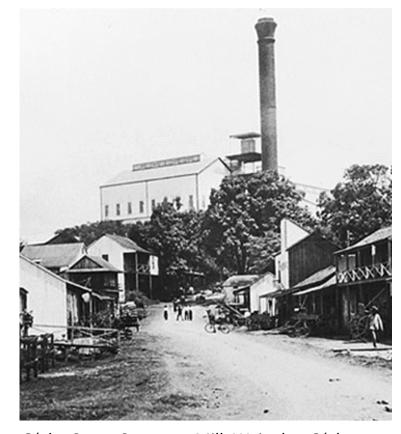
Preservation Example: Mānoa Home

F

TREATMENT TYPE: REHABILITATION

The act or process of returning a property to a state of utility through repair or alteration which makes possible an efficient contemporary use while preserving those portions or features of the property which are significant to its historical and cultural values.









Oʻahu Sugar Company Mill, Waipahu, Oʻahu

Rehabilitation Example: Waipahu Sugar Mill YMCA







Center: exterior before rehabilitation. Above right: interior before rehabilitation. Left: exterior after rehabilitation. Below: interior after rehabilitation.



Historic Home, Oʻahu. Courtesy photos.

Rehabilitation Example: 'Āina Haina Home





Photo by NPS.

Rehabilitation Example: Kaloko Loko I'a



TREATMENT TYPE: RESTORATION

Focuses on the retention of materials from the most significant time in a property's history, while permitting removal of materials from other periods.

Restoration Example: Hāpaiali'i Heiau







Hāpaiali'i Heiau, Keahou, Hawai'i Island.
Photos courtesy Kamehameha Investment Corp.









H.N. Greenwell Store, Kealakekua, Hawai'i Island. Photos courtesy Kona Historical Society.

Restoration Example: H.N. Greenwell Store



TREATMENT TYPE: RECONSTRUCTION

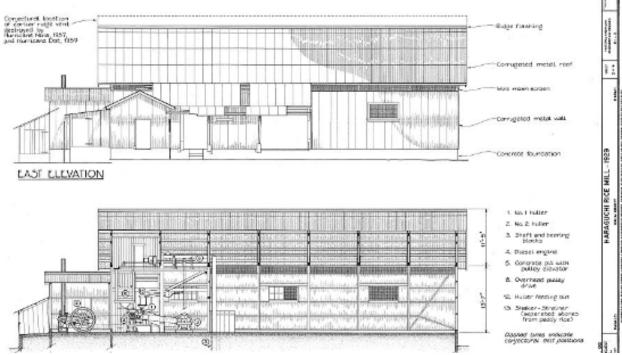
The <u>re-creation</u>
of a non-surviving
site, building, structure or object
in all new materials.



Reconstruction Example: Haraguchi Rice Mill

Haraguchi Rice Mill, Hanalei, Kaua'i. Historic American Buildings Survey







Knowledge Check 2

The Treatments for Historic Properties only apply to buildings.

True or False?



Knowledge Check 2

The Treatments for Historic Properties only apply to buildings:

FALSE

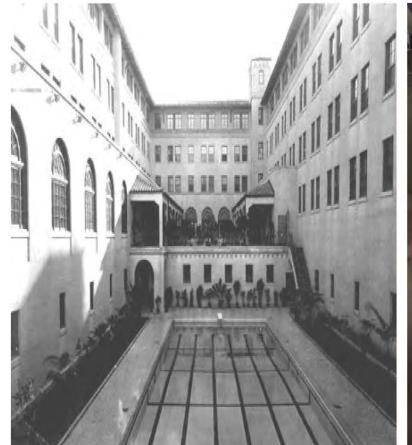
The treatments apply to all historic property types, including buildings, structures, sites, objects and districts.

TREATMENT TYPES

Rehabilitation

1. A property should 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.

BEFORE AFTER





Hawai'i State Art Museum in the Hawai'i Capital Historic District, Honolulu, O'ahu. Originally the Armed Services YMCA, the building was adapted to house an art museum and state offices.

Photos courtesy Group 70.



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

Wo Fat Building, Chinatown, Oʻahu. Rehabilitation plans include retaining distinctive roof lines, removing window fill to restore spatial relationships. Photo by HHF. Rendering courtesy Mighty Wo Fat LLC.







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.

Cathedral of St. Andrew, Honolulu, Oʻahu. Photo by Don Hibbard





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



Occidental Insurance Building, Honolulu, Oʻahu. Photo courtesy Fung Associates, Inc.



5. <u>Distinctive features</u>, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

Hāna Buddhist Temple, Hāna, Maui.

The rehabilitation retained, repaired and reconstructed distinctive elements.

Photos courtesy Hāna Buddhist Temple Preservation Association.







6. Deteriorated <u>historic features shall be</u> 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.



Ali'iōlani Hale, Honolulu, O'ahu. Damaged plaster on columns were repaired with in-kind materials.

Photo courtesy State of Hawai'i Judiciary.



7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

Regular cleaning with soap and water is part of the conservation plan for the statue of Kamehameha I in Kea'au, Hawai'i Island.

Photos courtesy North Kohala Community Resource Center.





8. Significant

archaeological

resources affected
by a project shall be
protected and
preserved. If
disturbed,
mitigation measures
shall be
undertaken.

Preservation areas of portions of the Kōloa Field System, Kōloa, Kaua'i, are surrounded by a golf course and other resort development.

Photo by HHF.





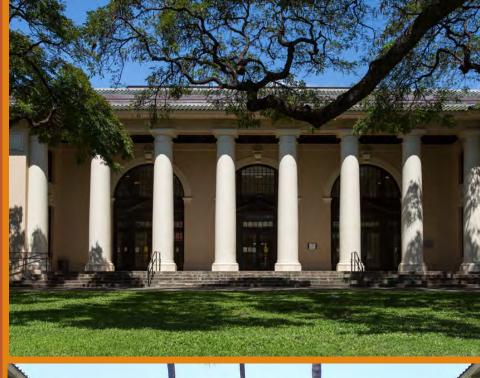
9. New <u>additions shall not destroy historic</u> <u>materials</u> that characterize the property. The new work shall be differentiated from the old to protect the historic integrity of the property and its environment.

Hawai'i State Library, Capital Historic District, Honolulu, O'ahu.

Exterior by Whitfield & Kerr (1913): photo by Don Hibbard (top)

Addition, Children's Library, Reading Room, Interior Courtyard by Dickey & Rothwell (1927): photo by Joel Bradshaw (bottom)

Expansion by Aotani & Associates (1991)





F

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





Vietnam pavilion addition to the Honolulu Memorial at National Memorial Cemetery of the Pacific.

Photos courtesy American Battle Monuments Commission.



Knowledge Check 3

Graffiti has been painted on an unpainted brick wall in the Chinatown Historic District. The appropriate treatment is:

- A. High pressure power wash
- B. Microabrasive methods with water, soap and sponges
- C. Chemical removal systems
- D. Paint over it
- E. None of these



Knowledge Check 3





Final Report September 16, 2015 WJE No. 2015.0903



Prepared for: Fung Associates, Inc. 1833 Kalakaua Avenue, Suite 1006 Honolulu, Hawall 96814

Prepared by: Wise, Janney, Elstner Associates, Inc 1441 Kapiolani Boulevard, Sulte 1700 Honolulu, Hawali 96814 808.591.2728 tel | 808.591.2620 fax Graffiti has been painted on an unpainted brick wall the Chinatown Historic District. The appropriate treatment is:

B. Microabrasive methods with water, soap and sponges

Standard #7 states that "chemical or physical treatments will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used."

Power washing and chemical systems can damage the brick, removing the hard top layer and exposing the softer inner layer. The bricks may then turn powdery and fail.

For additional information on pre-treatment and removal options, see

https://historichawaii.org/2015/08/24/how-can-i-prevent-or-remove-graffiti-from-historic-buildings/



CHARACTER-DEFINING FEATURES



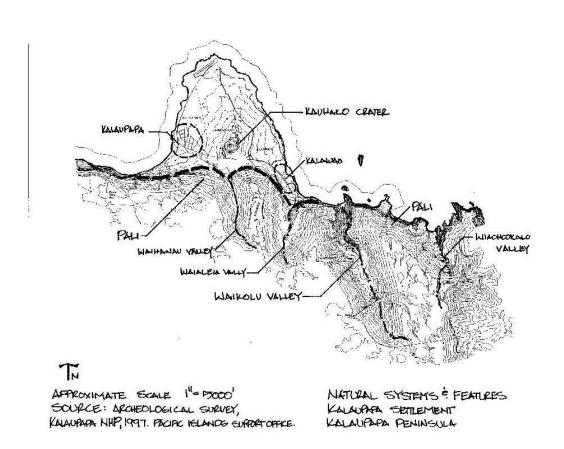
Character Defining Features Landscape Characteristics — Natural Systems & Features





Kalaupapa Peninsula, Moloka'i. Photos by NPS.

CHARACTER DEFINING FEATURES LANDSCAPE CHARACTERISTICS — NATURAL SYSTEMS & FEATURES





Kalaupapa Peninsula from the Pali Trail, camera facing northeast, photo from NHL Nomination update (photo credit T. Scott Williams)

Character Defining Features Landscape Characteristics — Topography & Spatial Organization





Kalaupapa Peninsula (photo credits NPS)

CHARACTER DEFINING FEATURES LANDSCAPE CHARACTERISTICS — SPATIAL ORGANIZATION & BUILDING CLUSTERS











Kalaupapa NHL beach house cluster (photo & map by NPS, Gilbert)

CHARACTER DEFINING FEATURES LANDSCAPE CHARACTERISTICS — BUILDING CLUSTERS



Beretania Street view, including St. Francis Church, photo from NHL Nomination update (photo credit T. Scott Williams)

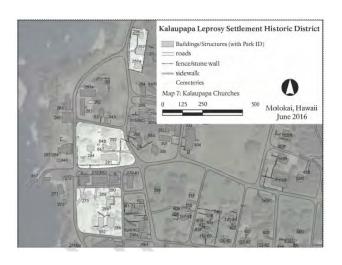
Character Defining Features Landscape Characteristics — Building Clusters



Staff Row building cluster, map from NHL Nomination NPS

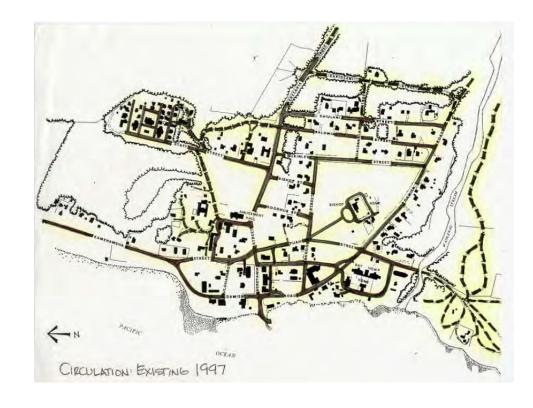


Bay View Home building cluster, map from NHL Nomination NPS



Kaluapapa churches cluster, map from NHL Nomination NPS

CHARACTER DEFINING FEATURES LANDSCAPE CHARACTERISTICS — CIRCULATION



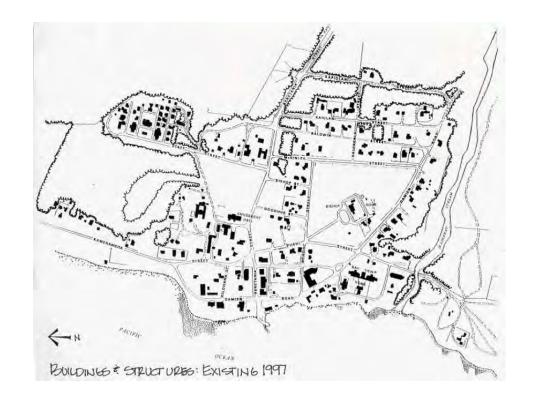




Kalaupapa NHL, Damien Rd. (photos by NPS/Gilbert, Map by NPS/Greene)

CHARACTER DEFINING FEATURES LANDSCAPE CHARACTERISTICS —

BUILDINGS & STRUCTURES



Kalaupapa NHL, Residences, top; St Philomena Church middle left; Staff residence middle right; Old Baldwin Home stone wall and gate, bottom left; reservoir, bottom right (photos NPS/Gilbert, Map by NPS/Greene)













CHARACTER DEFINING FEATURES LANDSCAPE CHARACTERISTICS — SMALL SCALE FEATURES







Kalaupapa NHL, Kauhako Crater Cross, St Philomena Church Sun Dial (photos NPS/Gilbert, Map by NPS/Greene) Mormon Beach Steps photo from NHL Nomination update (photo credit T. Scott Williams

Character Defining Features Buildings — Setting and Site





Huialoha Church, Kaupō, Maui. Photos by NPS.

BUILDING CHARACTER DEFINING FEATURES — OVERALL SHAPE AND FORM







Druid Heights, Golden Gate National Recreation Area, California (left); Huialoha Church, Kaupō, Maui (center); Sea Ranch Chapel, Sea Ranch, California (right). Photos by NPS.

Building Character Defining Features — Openings, Projections and Recesses





Wai'oli Mission Hall, Hanalei, Kaua'i (right); Agbauani Village, 40 Acres NHL, California (right). Photos by NPS.

Building Character Defining Features — Features and Exterior Materials

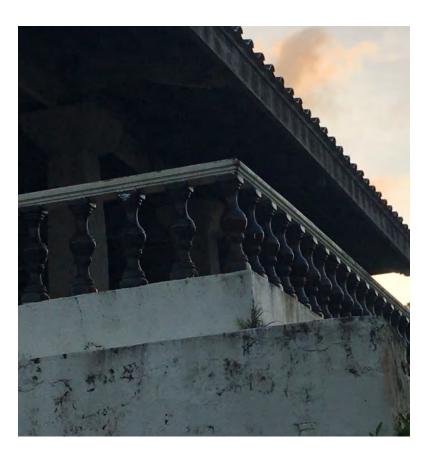






Building Character Defining Features — Details and Craftsmanship



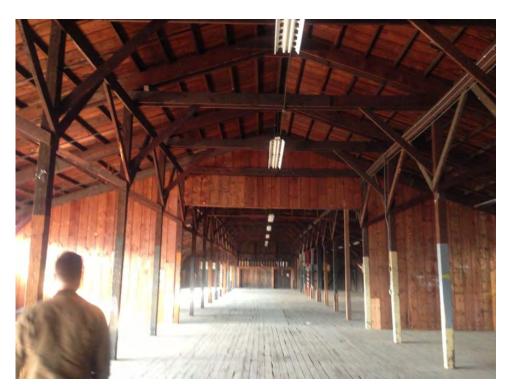




Wai'oli Mission Hall, Hanalei, Kaua'i (left); Plaza de Espana, Hagatna, Guam (center); Hāmākua Jodo Mission, Hāmākua, Hawai'i Island (right). Photos by NPS.

Building Character Defining Features — Interior Spaces





Huialoha Church, Maui (left); Warehouse Building, The Presidio, San Francisco, California (right). Photos by NPS.

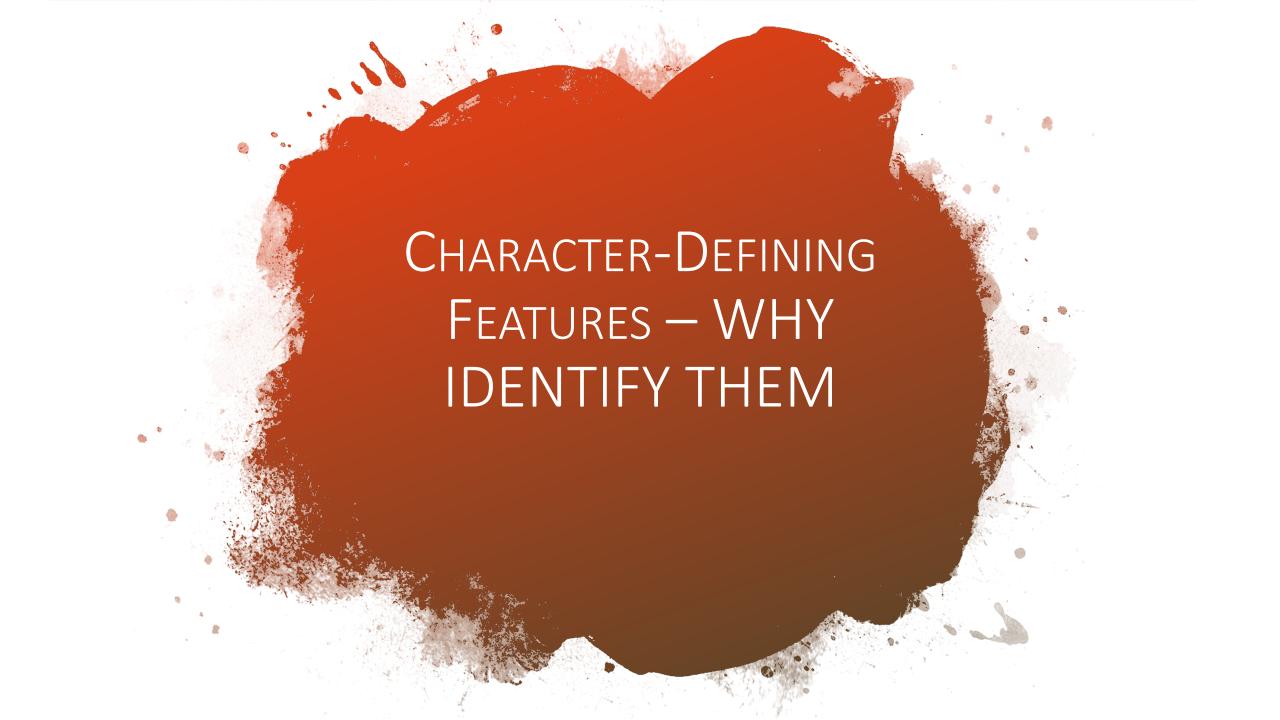
Building Character Defining Features — Interior Spaces Details







Hakalau Jodo Mission, Hakalau, Hawai'i Island (right); Huialoha Church, Kaupō, Maui (center); Druid Heights, California (right). Photos by NPS.



CHARACTER-DEFINING FEATURES — WHY IDENTIFY THEM



Druid Heights, Golden Gate National Recreation Area, California

Hakalau Jodo Mission, Hawai'i Island

CHARACTER-DEFINING FEATURES — WHY IDENTIFY THEM

Preservation

Rehabilitation

Restoration

Reconstruction







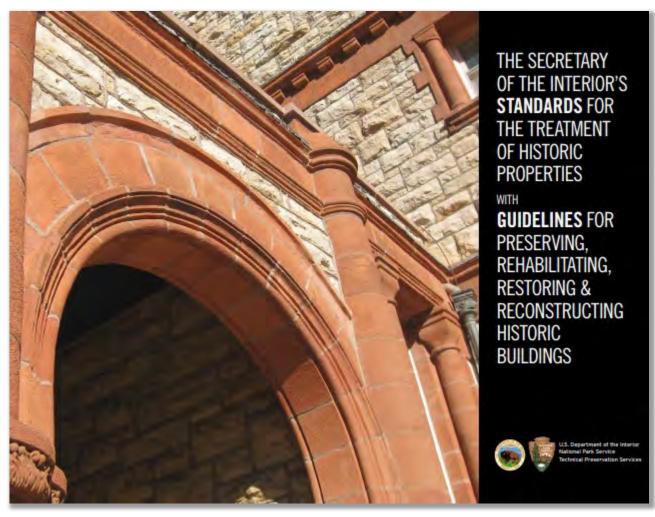








SECRETARY OF THE INTERIOR'S STANDARDS AND GUIDELINES





SECRETARY OF THE INTERIOR'S STANDARDS AND GUIDELINES



REHABILITATION

GUIDELINES FOR REHABILITATING HISTORIC BUILDINGS.

INTRODUCTION

In Rehabilitation, historic building materials and character-defining features are protected and maintained as they are in the treatment Preservation. However, greater latitude is given in the Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings to replace extensively deteriorated, damaged, or missing features using either the same material or compatible substitute materials. Of the four treatments, only Rehabilitation allows alterations and the construction of a new addition, if necessary for a continuing or new use for the historic building.

Identify, Retain, and Preserve Historic Materials and Features

The guidance for the treatment Rehabilitation begins with recommendations to identify the form and detailing of those architectural materials and features that are important in defining the building's historic character and which must be retained to preserve that character. Therefore, guidance on identifying, retaining, and preserving character-defining features is always given first.

Protect and Maintain Historic Materials and

After identifying those materials and features that are important and must be retained in the process of Rehabilitation work, then protecting and maintaining them are addressed. Protection generally involves the least degree of intervention and is preparatory to other work. Protection includes the maintenance of historic materials and features as well as ensuring that the property is protected before and replaced to match the historic feature based on physical or his-

during rehabilitation work. A historic building undergoing rehabilitation will often require more extensive work. Thus, an overall evaluation of its physical condition should always begin at this level.

Repair Historic Materials and Features

Next, when the physical condition of character-defining materials and features warrants additional work, repairing is recommended. Rehabilitation guidance for the repair of historic materials, such as masonry, again begins with the least degree of intervention possible, In rehabilitation, repairing also includes the limited replacement in kind or with a compatible substitute material of extensively deteriorated or missing components of features when there are surviving prototypes features that can be substantiated by documentary and physical evidence. Although using the same kind of material is always the preferred option, a substitute material may be an acceptable alternative if the form, design, and scale, as well as the substitute material itself, can effectively replicate the appearance of the

Replace Deteriorated Historic Materials and

Following repair in the hierarchy, Rehabilitation guidance is provided for replacing an entire character-defining feature with new material because the level of deterioration or damage of materials precludes repair. If the missing feature is character defining or if it is critical to the survival of the building (e.g., a roof), it should be

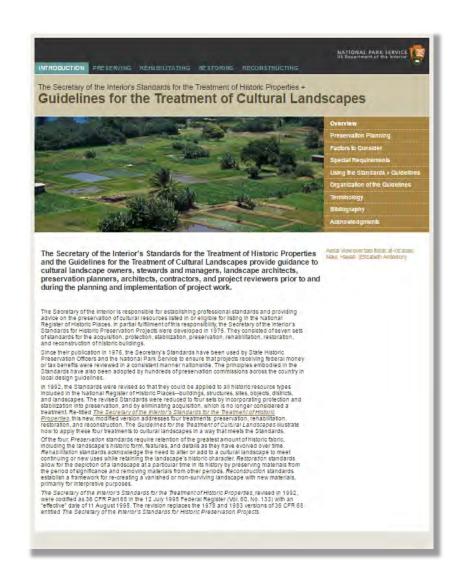
U.S. Department of the Interior National Park Service Cultural Resources, Partnerships & Science Washington, D.C.

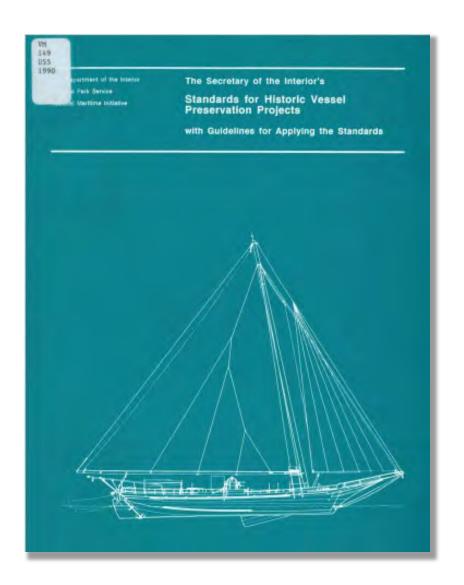
Guidelines on Flood Adaptation Rehabilitating Historic Buildings

Jenifer Eggleston Jennifer Parker Jennifer Wellock

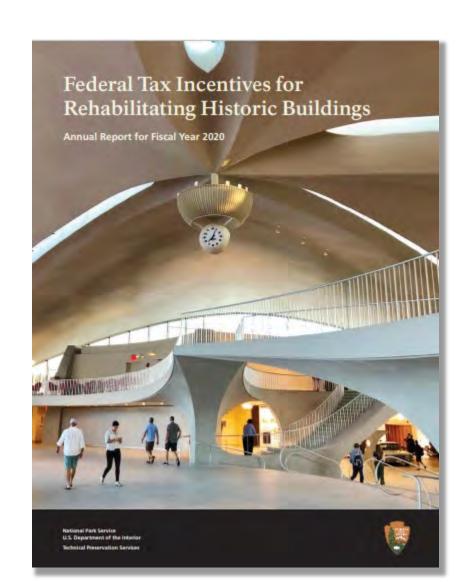
November 2019

SECRETARY OF THE INTERIOR'S STANDARDS AND GUIDELINES





Secretary of the Interior's Standards and Guidelines for Rehabilitation of Historic Buildings



The Secretary of the Interior's Standards for Rehabilitation, codified as 36 CFR 67, are regulatory for the <u>Historic Preservation Tax Incentives program</u>.

The Guidelines for Rehabilitating Historic Buildings and the Guidelines on Sustainability for Rehabilitating Historic Buildings, which assist in applying the Standards, are advisory.

SECRETARY OF THE INTERIOR'S STANDARDS AND Guidelines — Historic Buildings

HISTORICAL OVERVIEW

Stone is one of the more lasting masonry building materials and has been used throughout the history of American building construction. Stones most commonly used in historic buildings in the U.S. are quarried stone, including sandstone, limestone, martile

slate, basalt, and coral stone, and gathered stone, such as river rock, and boulders. Types of considerably in hardness, durabili other qualities. Building stones w laid with mortar, but sometimes t laid without mortar using a dry-st of construction. Brick varies in six permanence, Before 1870, brick d pressed into molds and were ofte fired. The quality of historic brick on the type of clay available and t making technique; by the 1870s, v perfection of an extrusion proces became more uniform and durable tural terra cotta is also a kiln-fire uct popular from the late 19th cer the 1930s. Its use became more w with the development of steel-fra rise office buildings in the early a Glazed ceramic architectural sidis used as cladding in high-rise built what later. Adobe, which consists earthen bricks, was one of the ear ing materials used in the U.S., pri Southwest where it is still popula

> Mortar is used to bond together i units, Historic mortar was genera

soft, consisting primarily of lime and sand with other additives. Portland cement, which creates a more rigid mortar, was first manufactured in the U.S. in the early 1870s, but it was not in common use



The coof-with its form; features such as creating, dormers, cupolas, and chimseys; and the size, color, and patterning of the roofing. material-is an important design element of many historic buildings. with the de-In addition, a weathertight roof is essential to the long-term presersocion of the entire structure. Historic roofing reflects availability of materials, levels of construction technology, climate, and cost.

Throughout all periods of American history, with only minor exception, wood has been used for roofing; despite the early use of many other materials, wood shingles remained the most common roofing material throughout much of the 19th century. Initially the species of downspout wood used would have been specific to a region, but the quality and design of a building were usually the prime determinants in the way. Painted iro wood was used, ranging from wide, lapped boards to small, uniform, with smalle geometrically-shaped shingles.

Clay tile was used at cost in a breited way n the first actilements on the East crust and was marrifactured in America by the mid 17th century. The punish influence in the use of clay roofing tiles is apparent in suidings in the south, southwest, and western assembly o parts of the country. Slate was also an early roofing material, but it was imported until the end of the 18th century when the first slate

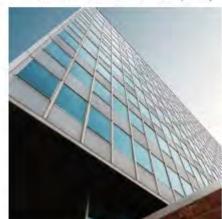
Lead and co by after and in the mid :

and low cor Galvatriand protects m shout metal material be also could b

In the late no a subschip

that is suits

Curtain wall construction was originally based on a steel framework. Today, most cortain wall construction utilizes an extruded alumiman framework, which became popular in the 1930s in the U.S. and came into its own after World War II. A curtain wall is not a structural system and, although it is self supporting, does not carry the weight of the building. Rather, it is an exterior wall hung or attached to the structural system. Curtain wall construction most frequently employs glass, metal punels, thin stone vencer, and other cladding materials, although loovers and vents, like glass panels, can also he set into the metal framework. Newer curtain wall systems may



incorporate rain screens and gloss fiber reinforced concrete panels (GFRC). Because curtain wall construction uses relatively lightweight and less expensive materials, it reduces building costs, which, in part, explains its popularity.

There are essentially two types of curtain wall systems: afick systems and amitized or modular systems. A stick system is a framing system. composed of long metal pieces (sticks) put together individually using sertical pieces (mullions) between floors and horizontal pieces between the vertical members. The framing members may sometimes be assembled in a factory, but the installation and plazing is done on site. A unifind or madular curtain wall system consists of ready-to-hang, pre-assembled modules which already include glazing or other panel infill. These modular units are usually one story in height and approximately five- to six-feet wide. Both types of curtain walls are attached to floor slabs or columns with field-drilled bolts in moted, adjustable anchor brackets.

Glass panels in curtain wall systems can be fixed or operable and can include spandrel glass, clear, or tinted glass. Stone vencer panels may be slate, granite, marble, travertine, or limestone. Metal panels can be aluminum plate, stainless steel, copper, or other non-correseve types of metal. Other materials used in curtain wall systems include composite panels (such as honeycomb composite panels, consisting of two thin sheets of aluminum bonded to a thin plastic layer or rigid. instilation in the middle); architectural term cotta; glassed ceramic tile; and fiber-reinforced plastic (FRP).

provided more options for a flat roof. By the end of the 20th cents liquid and viryl membranes were also installed on that roofs, and synthetic recycled materials were used increasingly for both new and

SECRETARY OF THE INTERIOR'S STANDARDS AND GUIDELINES - HISTORIC BUILDINGS

Special Requirements: Code-Required Work

Sensitive solutions to meeting ende requirements are an important part of protecting the historic character of the huilding. Thus, work that must be done to most accessibility and life-safety requirements must always beassessed for its potential impact on the historic building.

It is often necessary to make modifications to a historic building to make it compliant with accessibility code requirements. Federal rules, regulations, and standards provide guidance on how to make historic buildings accessible. Work must be carefully planned and

exterior and i The goal shot least impact t



When undertaking work on historic buildings, it is also necessary to consider the impact that meeting life-safety codes (public health, occupational health, life safety, electrical, seismic, structural, and building codes) will have on both exterior and interior spaces, features, and finishes. Historic building materials that are hazardous, such as lead paint and asbestos, will require abatement or encapsulation. Some newer life-safety codes are more flooble and allow greater lenioncy for historic buildings when making them code complant. It is also possible that there may be an alternative approach to meeting codes that will be less damaging to the historic building Coordinating with code officials early in project planning will help ensure that code requirements can be met in a historic building without negatively impacting its character.



New Exterior Additions and Related New Construction

A new enterior addition to a historic building should be considered in a rehabilitation project only after determining that requirements for a new or continuing use cannot be successfully met by altering non-significant interior spaces. If the existing building carnot accommodate such requirements in this way, then an exterior addition or, in some instances, separate new construction on a site may be acceptable alternatives.

A new addition must preserve the building's historic character, form, dards can be any architectural style-traditional, contemporary, or significant materials, and features. It must be compatible with the

scale, and design of the historic building while dif-

constructed so that the essential form and integrity of the historic building would remain if the addition were to be removed in the future. There is no formula or prescription for designing a computible new addition or related new construction on a size, nor is there generally only one possible design approach that will meet the

New additions and related new construction that meet the Stana simplified version of the historic building. However, there must be a balance between differentiation and compatibility to maintain the con the historic building, it should also be designed and historic character and the identity of the building being enlarged.

New additions and related new construction that are either identical to the historic building or in extreme contrast to it are not compatible. Placing an addition on the rear or on another secondary elevation helps to ensure that it will be subordinate to the historic building. New construction should be appropriately scaled and located for enough away from the historic building to maintain its character and that of the site and setting. In urban or other built-up areas, new construction that appears as ofil within the existing pattern of development can also preserve the historic charactor of the building, its site,





SECRETARY OF THE INTERIOR'S STANDARDS AND GUIDELINES FOR REHABILITATION OF HISTORIC BUILDINGS

HISTORICAL OVERVIEW

Stone is one of the more lasting masonry building materials and has been used throughout the history of American building construction. Stones most commonly used in historic buildings in the U.S. are quarried stone, including sandstone, limestone, marblaslate, basalt, and coral stone, and gathered stone, such as

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Mortar is used to bond together r units. Historic mortar was genera soft, consisting primarily of lime and sand with other additives. Portland cement, which creates a more rigid mortar, was first manufactured in the U.S. in the early 1870s, but it was not in common use

The coof-with its form; features such as creating, dormers, cupolas, and chirmseys; and the size, color, and patterning of the roofing material-is an important design element of many historic buildings. with the de-In addition, a weathertight roof is essential to the long-term preser-roofing mat vacion of the entire structure. Historic roofing reflects availability of materials, levels of construction technology, climate, and cost.

Throughout all periods of American history, with only minor exception, wood has been used for roofing despite the early use of many other materials, wood shingles remained the most common roofing and steeples material throughout much of the 19th century. Initially the species of downspout wood used would have been specific to a region, but the quality and design of a building were usually the prime determinants in the way

Painted iron wood was used, ranging from wide, lapped boards to small, uniform, with smaller geometrically-shaped shingles.



Clay tile was used at least in a breited way in the first actilements on the East crust and it was manufactured in America by the mid cith century. The Spanish influence in the use of clay roofing tiles is apparent in buildings in the south, southwest, and western assembly of parts of the country. Slete was also an early moting material, but it was imported until the end of the 18th century when the first slate quarry opened. Both

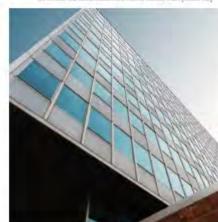
Load and co by after and in the mid i

which were and low con Galegrained projects m sheet metal material be also could b

In the late ! as a substitu that is suital

Curtain Walls

Curtain wall construction was originally based on a steel framework. Today, most cortain wall construction utilizes an extruded alumiman framework, which became popular in the 1930s in the U.S. and came into its own after World War II. A curtain wall is not a structural system and, although it is self supporting, does not carry the weight of the building. Rather, it is an exterior wall hung or attached to the structural system. Curtain wall construction most frequently employs glass, metal punels, thin stone venoer, and other cladding materials, although loovers and vents, like plans panels, can also he set into the metal framework. Newer curtain wall systems may



incorporate rain screens and gloss fiber reinforced concrete panels (GFRC). Because curtain wall construction uses relatively lightweight and less expensive materials, it reduces building costs, which, in part, explains its popularity.

There are essentially two types of curtain wall systems: afick systems and unifited or modular systems. A stick system is a framing system composed of long metal pieces (sticks) put together individually using vertical pieces (mullions) between fictors and horizontal pieces between the vertical members. The framing members may sometimes be assembled in a factory, but the installation and plazing is done on site. A unifixed or modular curtain wall system consists of ready-to-hang pre-assembled medules which already include glazing or other panel infill. These modular units are usually one story in height and approximately five- to six-feet wide. Both types of curtain walls are attached to fictor slabs or columns with field-drilled boils in moted, adjustable anchor brackets.

Glass panels in curtain wall systems can be fixed or operable and can include spandrel glass, clear, or tinted glass. Stone venoer panels may be slate, granite, marble, travertine, or limestone. Metal panels can be aluminum plate, stainless stuel, copper, or other non-corresove types of metal. Other majorials used in curtain wall systems include composite punels (such as honeycomb composite punels, consisting of two thin sheets of aluminum bonded to a thin plastic layer or rigid. instilation in the middle'; architectural term cotta; glassed ceramic tile; and fiber-reinforced plastic (FRP).

provided more options for a flat roof. By the end of the 20th centu liquid and viryl membranes were also installed on flat roofs, and synthetic recycled materials were used increasingly for both new and

SECRETARY OF THE INTERIOR'S GUIDELINES FOR REHABILITATION OF HISTORIC BUILDINGS -

WINDOWS



Identifying, retaining, and preserving windows and their functional and decorative features that are important to the overall historic character of the character of the building.



Window repair, The Presidio, California.

SECRETARY OF THE INTERIOR'S GUIDELINES FOR REHABILITATION OF HISTORIC BUILDINGS — WINDOWS

Ford Island Tower Operations Building, Before Rehabilitation.

Photos by Pearl Harbor Aviation Museum.







Secretary of the Interior's Guidelines for Rehabilitation

OF HISTORIC BUILDINGS - WNDOWS





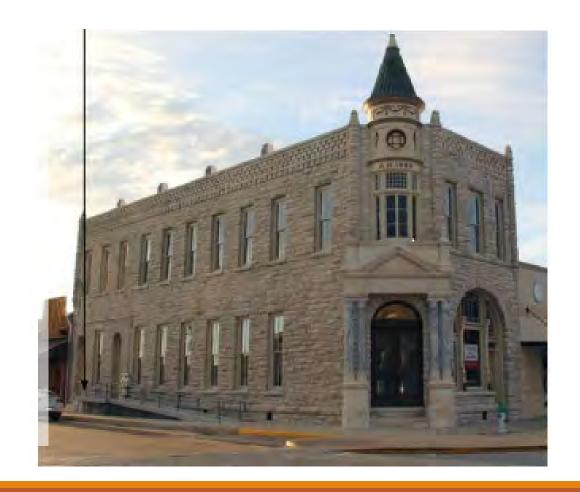


Secretary of the Interior's Guidelines for Rehabilitation of Historic Buildings — CODE REQUIRED WORK, ACCESSIBILITY



RECOMMENDED:

Complying with barrier-free access requirements in such a manner that the historic building's character-defining exterior features, interior spaces, features, and finishes, and features of the site and setting are preserved or impacted as little as possible.

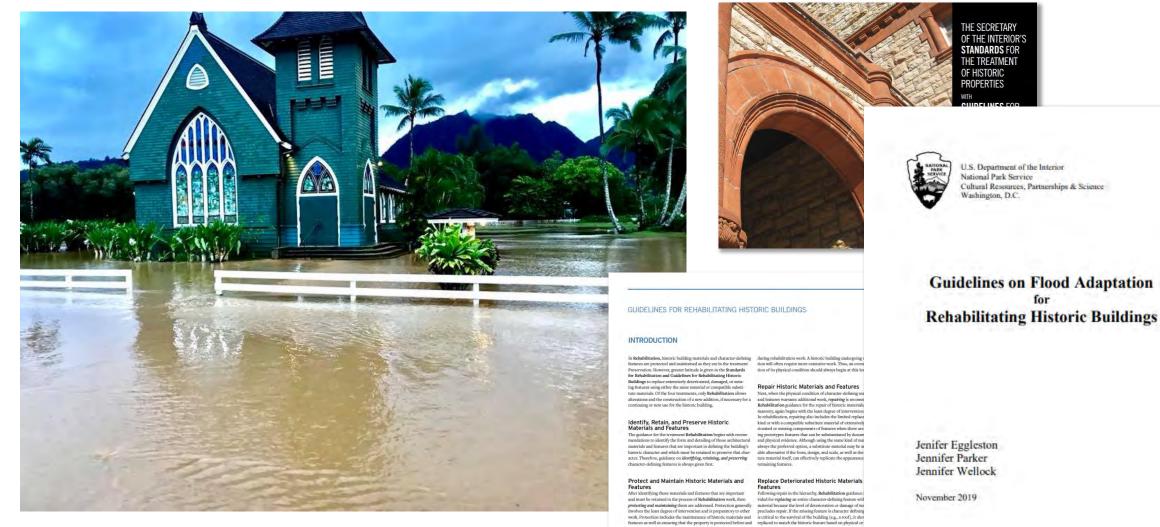


Secretary of the Interior's Guidelines for Rehabilitation of Historic Buildings — CODE REQUIRED WORK, ACCESSIBILITY



Hale Na'auao, Windward Community College, Kāne'ohe, O'ahu. Photo courtesy WCC.

Guidelines on Flood Adaptation for Historic Buildings



Wai'oli Hui'ia Church, Hanalei, Kaua'i. Courtesy photo.

GUIDELINES ON FLOOD ADAPTATION FOR HISTORIC BUILDINGS — ADAPTIVE TREATMENTS - DUANNING AND ASSESSMENT FOR FLOOR BUILDINGS



Wai'oli Hui'ia Church, Hanalei, Kaua'i. Courtesy photo.

- PLANNING AND ASSESSMENT FOR FLOOD RISK
 REDUCTION
- Temporary Protective Measures
- SITE AND LANDSCAPE ADAPTATIONS
- PROTECT UTILITIES
- DRY FLOODPROOFING
- WET FLOODPROOFING
- FILL THE BASEMENT
- ELEVATE THE BUILDING ON A NEW FOUNDATION
- ELEVATE THE INTERIOR STRUCTURE
- ABANDON THE FIRST STORY
- Move the Historic Building

Knowledge Check 4



A historic building is located in an area that is susceptible to flooding and has been damaged by storm surge. The property owners want to protect the building from future damage.

The <u>first</u> step should be:

- A. Hire a contractor to move the building uphill and out of the flood zone.
- B. Relocate the electrical and mechanical systems from the basement to the roof to keep them dry.
- C. Review the "Guidelines on Flood Adaptation for Rehabilitating Historic Buildings" and determine the treatment approach that best suits the circumstances.
- D. Jack up the building and install post and piers to raise the first floor above the flood level.

Knowledge Check 4



A historic building is located in an area that is susceptible to flooding and has been damaged by storm surge. The property owners want to protect the building from future damage.

The <u>first</u> step should be:

C. Review the "Guidelines on Flood Adaptation for Rehabilitating Historic Buildings" and determine the treatment approach that best suits the circumstances.

Dole Cannery, Iwilei, Oʻahu. Flood barriers installed during storm events replaced sandbags. Photo by HHF.

78



Case Study

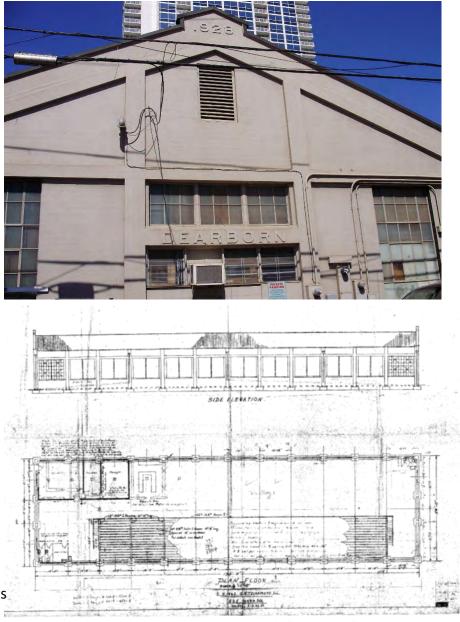
REHABILITATION AND ADAPTIVE USE

OF THE DEARBORN CHEMICAL COMPANY BUILDING

KAKA'AKO, HONOLULU, O'AHU

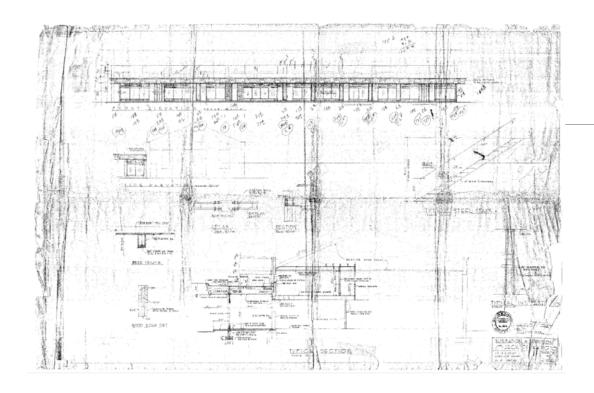






Top: pre-rehabilitation
Bottom: original drawings
(1927)







Universal Front Addition, 1965

Left: Elevation for addition (1965)

Right: pre-rehabilitation



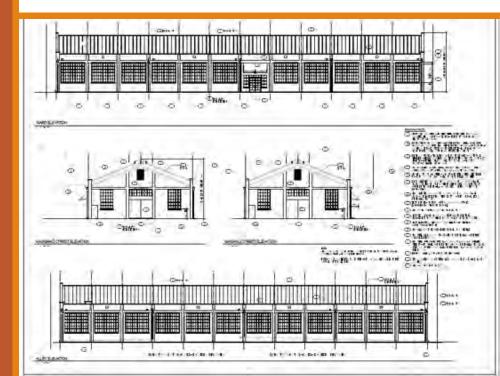
Character-Defining Features

- Single-story, utilitarian, concrete building with classical undertones
- Massing is 54' x 190', three bays wide by 12 bays long.
- Corrugated metal gable roof with pedimented gable ends have a parapet that terminates with a chevron
- Concrete slab foundation
- Square columns at the corners which terminate in Doric capitals
- Concrete walls, plastered on the exterior and impressions of the walls' form work evident on the interior
- Original fenestration pattern intact on Waimanu, Kawaiaha'o and alleyway facades including industrial steel windows with 30 panes of wire glass with hexagon mesh. Other windows are fixed, pivot or glass block.
- Some windows and doors were replaced, covered, infilled or in disrepair
- Fenestration on Ward Avenue was destroyed by the 1965 storefront addition.
- Details include the bas-relief date "1928" and the name "Dearborn"

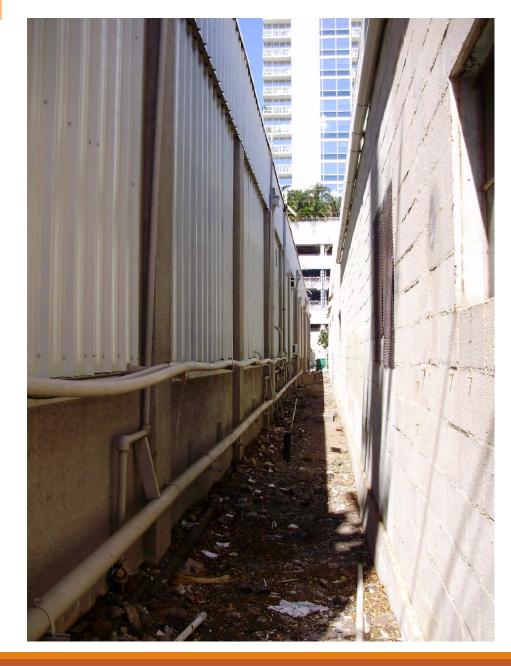


- Recreate the original Ward Avenue façade by removing the storefront addition, add a new reinforced poured concrete wall to match the original, and recreate the original fenestration pattern.
- New windows match the design of the original wall to replace those that were infilled or deteriorated.
- Central metal doors on Waimanu façade were refurbished. Infilled door on Kawaiaha'o façade restored with metal doors to match the original.
- Metal louvers on end facades were refurbished.
- Prepare, prime and paint exterior to match original building
- Repair or replace gutters and downspouts, roof drainage, concrete splash blocks and pipes.
- New standing seam roof with insulation to comply with current codes
- New supports for roof structure to comply with codes and to support a new PV panel array.
- Refurbish historic building signs and add historic plaque and new tenant identification sign.



















Rehabilitation of Interior

- Interior is one large open space. Interior partitions from the 1965 addition were removed. Several mezzanines were removed.
- One original mezzanine was partially removed and original metal staircase retained.









Code Compliance

- Replace electrical system and add new electrical room.
- Mezzanine and stairwell added new metal guardrails to match existing and to meet code.
- Did not install an elevator to the mezzanine in order to protect the interior spaces and avoid ground-disturbance in an archaeologically sensitive area. Operational restrictions will keep the mezzanine off limits.
- Existing parking lot is restriped to add handicapped accessible stalls, loading zones and meet current parking codes.
- Bicycle racks, sidewalks and benches are added to Ward Avenue façade
- Plumbing system, water piping, sanitary and gas piping systems are brought to code.
- Mechanical, ventilation and air conditioning systems are brought to code.
- Fire protection systems are brought to code.



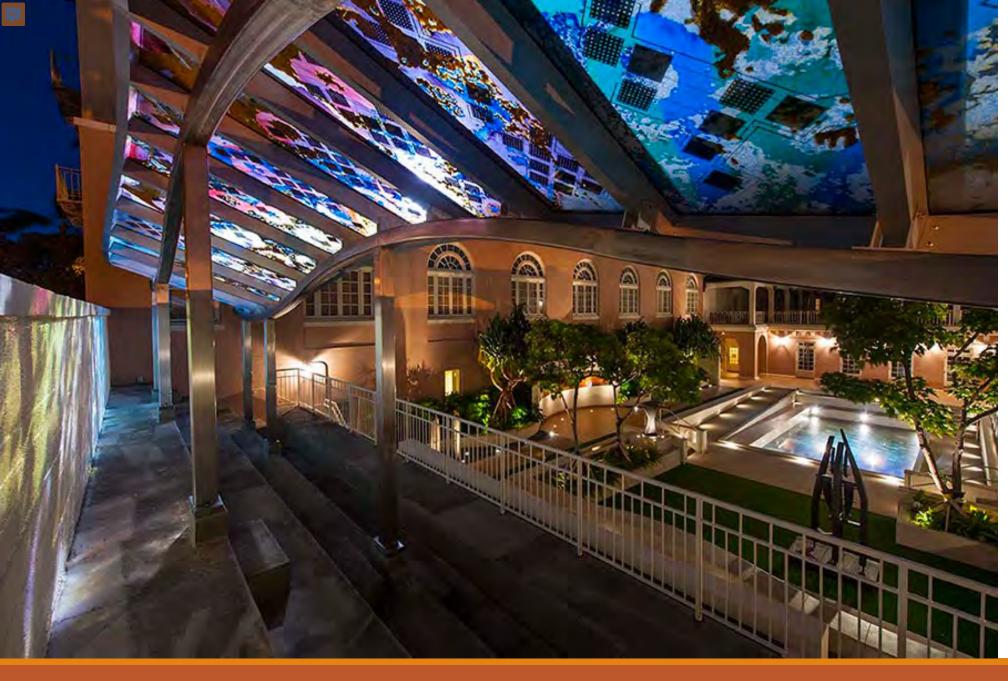


Sustainability

- Photovoltaic system added to both sides of the gable roof, with thin panels mounted in-line with the roof and will not be visible from the public right of way
- Tsunami and flood adaptation measures
- Salvage and reuse of wood from the demolished Ward Warehouse used for fixtures, furniture and equipment.



After Rehabilitation, 2020

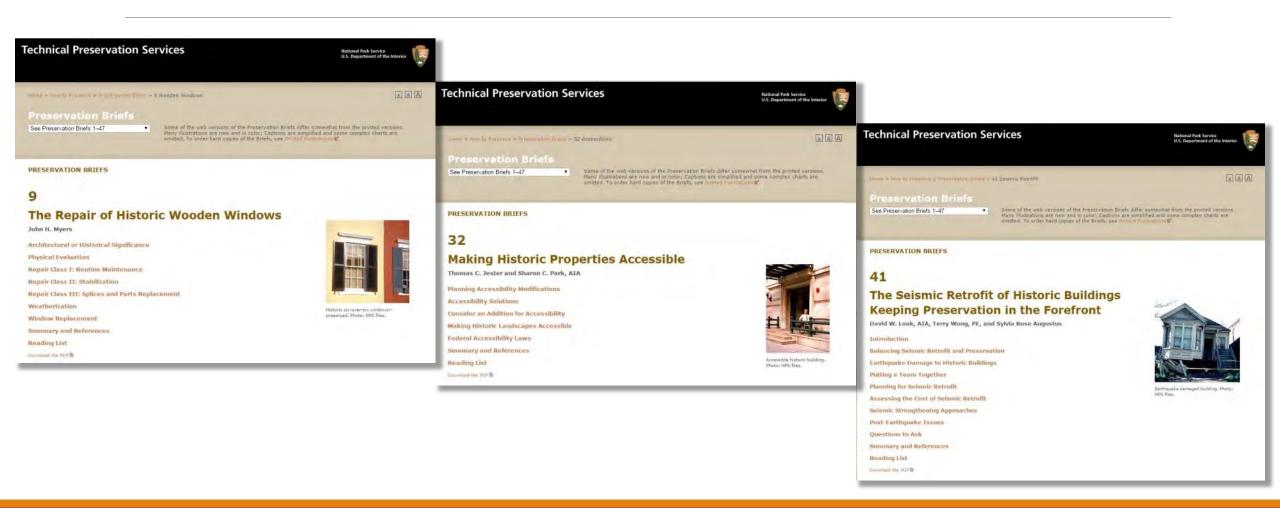


Audience Questions and Discussion



- https://www.nps.gov/tps/how-to-preserve.htm
- https://www.nps.gov/tps/standards/four-treatments/treatment-rehabilitation.htm
- https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf
- https://www.nps.gov/tps/sustainability.htm
- https://www.nps.gov/tps/how-to-preserve/cultural-landscapes.htm
- https://www.nps.gov/tps/standards/rehabilitation/flood-adaptation.htm
- https://www.nps.gov/tps/how-to-preserve/briefs/17-architectural-character.htm
- https://www.nps.gov/tps/how-to-preserve/briefs/18-rehabilitating-interiors.htm
- https://www.nps.gov/tps/tax-incentives.htm







HISTORIC GLASS NUMBER 1

Repair and Reproduction of Prismatic Glass Transoms

Technical Preservation Services National Park Service

Introduced in the 1890s, prismatic glass transoms were a popular and practical means of directing daylight into building interiors. With origins in sidewalk vault lights and glass panels used on ship decks, prismatic tiles had ridges or other that refracted sunlight toward the rear of a building. The pressed tiles were usual-ly joined together with zinc or lead in a process similar to that used to create stained glass windows (see figure 1). An alternate, less common approach was to bond the tiles to copper strips during immersion in an electrolytic bath, a process known as electroglazing. At the peak of popularity, over a dozen manueach "scientifically designed" to increase reliance upon light wells and artificial used both in new construction and to

update existing storefronts, until change ing tastes and the dominance of electrici-ty led to their functional obsolescence by

seen most frequently above the display street buildings, they were also used in ple is the Hamm Building in St. Paul, shops on the ground floor, offices above, and a theatre on one side, was completed in 1920. The exterior of the building was especially admired for its cream-colored terra cotta with Classical and

Renaissance Revival ornamentation. Another important feature of the Hamm Building exterior was the large band of prismatic glass located just above the storefront awnings (see figure 2). Divided into groups of three and four panels separated by terra cotta pilasters.

Minnesota. This six-story structure, with

Deteriorated prismatic glass transoms should be repaired using historic tiles. When tiles are missing, the transoms should be replicated using glass that matches closely the appearance of the historic prisms.



LYNDHURST GATEHOUSE Tarrytown, New York

grounds of the Lyndhurst Estate in larrytown, New York, is part of a National Historic Landmark that was once the home of railroad magnate Jay Gould. The property is owned today by the National Trust for Historic Preserva tion and is open to the public. Built in 1864, the South Gatehouse is used as a

The windows, with ashlar surrounds detailing on the second, are prominent features of the building. The original double-hung wooden windows, with twoover-two pane configuration, have sur-vived in relatively good condition. The 13 windows in the gatehouse are of five different sizes; all but one have an arched head in the upper sash and a thick vertical muntin with a center head.

fitted with custom-made exterior storm the storm windows and inconspicuous windows that meet specified performance hardware had to be used. criteria and vet minimize both damage windows.

Design Problem

In many buildings where the historic windows are significant and will be pre-served in the rehabilitation project, the installation of storm windows for en-

tive features or some adaptation to standard window designs. This may be necessary in order to minimize damage visual qualities of the historic windows

Such an approach was taken in the rehabilitation of the South Gatehouse windows at Lyndhurst. As guidance, beforehand for designing the new storm

 The new design had to be sympathetic with the historic character of the

also for use as possible fire exits. had to be met.

4. Only minimal damage to the his-The windows on this structure were toric windows could occur in mounting

5. Provisions had to be made for

Design Solution

A storm window was subsequently developed that meets all of the above requirements. The storm window, in the style of a single casement, was installed on the outside of each of the historic win-

Tech Notes

NATIONAL PARK SERVICE U.S. DEPARTMENT OF THE INTERIOR

WINDOWS NUMBER 3

Exterior Storm Windows: Casement Design Wooden Storm Sash

Wayne Trissler National Trust for Historic Preservation and Charles E. Fisher Preservation Assistance Division National Park Service

Physical damage and visual

changes to historic windows

should be minimized when in-

stalling exterior storm windows.



THE WIDENER BUILDING Philadelphia, Pennsylvania

Constructed in 1914 by Philadelphia industrialist Peter A.B. Widener at a cost of eight million dollars, the Widener Building reflects the major development of the business and City Hall at the turn of the century Designed by the noted architect Horace Trumbauer, this eighteen story, steel-framed office structure with its glazed terra cotta comice. smooth-finished Indiana limestone

veneer and granite base, typifies the architectural style applied to a multi-The Widener Building continues to function as an office building and is a contributing structure in the Broad Street National Register Historic

City Hall, the building has endured a number of misguided attempts at



MASONRY NUMBER 3

Water Soak Cleaning of Limestone

Robert M. Powers Mid-Atlantic Regional Office National Park Service

Masonry should be cleaned using the gentlest means possible.



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May 26, 2021 Native American Graves Protection and Repatriation Act & Hawai'i Burial Protection Statutes



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