

Historic Roofing Technical Information

Guidelines

The Secretary of the Interior's Standards

The National Park Service (NPS) has published two sets of guidelines applicable to historic roofs: *The Secretary of the Interior's Standards for Rehabilitation and Illustrated Guidelines for Rehabilitating Historic Buildings* and *The Secretary of the Interior's Standards for Rehabilitation and Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings*. These guidelines provide illustrated recommendations for rehabilitating historic roofs.

Links:

- *The Secretary of the Interior's Standards for Rehabilitation and Illustrated Guidelines for Rehabilitating Historic Buildings* :
<https://www.nps.gov/tps/standards/rehabilitation/rehab/roofs01.htm>
- *The Secretary of the Interior's Standards for Rehabilitation and Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings*:
<https://www.nps.gov/tps/standards/rehabilitation/guidelines/roofs.htm>

National Park Service Guidance: Applying the Standards

The NPS published guidance on applying and interpreting the *Secretary of Interior's Standards for Rehabilitation (Standards)*. Guidance includes information on how to preserve, rehabilitate, restore, and reconstruct historic buildings, including roofing and rooftop additions, to meet the *Standards*.

Links:

- *The Secretary of Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, & Reconstructing Historic Buildings*:
<https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf>
- Interpreting the Secretary of Interior's Standards for Rehabilitation – Rooftop Additions:
<https://www.nps.gov/tps/standards/applying-rehabilitation/its-bulletins/ITS36-Rooftop-Additions.pdf>

Whole Building Design Guide DoD Unified Facilities Criteria (UFC)

The UFC documents provide planning and restoration criteria for buildings and apply to the DoD and its components, in compliance with DoDI 4270.5 on Military Construction. These documents include technical guides for roofing: UFC 3-110-03 and UFC 3-110-04. The UFC 3-110-03 Roofing document is used in conjunction with current building manuals to provide guidance for Military roofing projects. The UFC 3-110-04 Roofing Maintenance and Repair document describes repair methods and materials.

- DoD UFC documents: <https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc>
- UFC 3-110-03 Roofing, With Change 3: <https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-3-110-03>
- UFC 3-110-04 Roofing Maintenance and Repair: <https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-3-110-04>

DoD Resources

Former DoD Program Comment for Rehabilitation Treatment Measures

This program comment (PC) expired in 2018, but the content and technical guidance is still relevant. A handful of the rehabilitation treatment measures (RTM) were formally adopted in the PC, but many RTMs remained in draft form. The Office of the Deputy Assistant Secretary of Defense for Environment is working on a project to update all of the RTMs, including those RTMs that were never formally adopted in the PC, and develop a guidebook to share the technical recommendations more broadly (expected completion is 2021). The RTMs provide guidance and recommendations on roofing treatment in the following instances:

- Program Comment: <https://www.govinfo.gov/content/pkg/FR-2008-12-16/pdf/E8-29667.pdf>
- Repair and Reattachment of Wood Shingles (DRAFT—NEVER FORMALLY ADOPTED)
- Repair and Reattachment of Slate Roof Tiles (DRAFT—NEVER FORMALLY ADOPTED)
- In Kind Replacement of Slate (DRAFT—NEVER FORMALLY ADOPTED)
- Repair and Reattachment of Clay Tiles (DRAFT—NEVER FORMALLY ADOPTED)
- In Kind Replacement of Clay Tile (DRAFT—NEVER FORMALLY ADOPTED)
- Mechanical Repair of Metal Roofing (DRAFT—NEVER FORMALLY ADOPTED)
- In Kind Replacement of Metal Roofing (DRAFT—NEVER FORMALLY ADOPTED)
- In Kind Replacement of Metal Windows (DRAFT—NEVER FORMALLY ADOPTED)

Please note there is additional info related to RTMs on the DoD-only user side that requires CAC log-in. See log-in button at the top of the DENIX webpage for access.

DoD Legacy Research

Legacy 06-313: Section 106 Standard Treatments as Program Alternatives

This project aims to develop Standard Treatments for repair and maintenance of building materials and systems common to historic military buildings, including roofing materials.

Fact Sheet: <https://denix.osd.mil/cr/cultural-resources-program-management/historic-buildings-structures/uploads/interim-fact-sheet-06-313/>

Legacy 07-382: Design Guidelines for Department of Defense Historic Buildings and Districts

The Design Guidelines provides sound guidance and the necessary tools for individuals to facilitate the Section 106 review process of the National Historic Preservation Act (36 CFR 800) through the avoidance of adverse effects to historic buildings and districts; and to assist the Cultural Resource Managers (CRMs) in consultations with State Historic Preservation Officers (SHPOs). The guidelines include a section on the treatment of roofs.

Report: <https://www.denix.osd.mil/cr/cultural-resources-program-management/historic-buildings-structures/uploads/design-guidelines-for-dod-historic-buildings-and-districts-legacy-07-3821/>

Fact Sheet: <https://denix.osd.mil/cr/cultural-resources-program-management/historic-buildings-structures/uploads/design-guidelines-for-dod-historic-buildings-and-districts-legacy-07-382/>

DoD Case Studies

Conserving Cultural Resources And Energy At Camp Pendleton

The Virginia Army National Guard (VaARNG) Cultural Resources Management (CRM) program is dedicated to conserving historic resources across state training sites and armories. When Camp Pendleton, an oceanfront installation in Virginia Beach, needed to update facilities and grounds to meet

energy initiatives on its 325 acres, it needed to meet historic preservation goals and maintain its status on the National Register of Historic Places. The VaARNG Cultural Resources Manager, with support from the National Guard Bureau, set up a state-wide programmatic agreement with the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation. This simplified oversight and consultation processes required for the Camp Pendleton endeavor by streamlining Section 106 compliance requirements for many activities--from routine maintenance to rehabilitation--thereby resulting in a dramatic reduction in time and resources.

Upgrading Camp Pendleton's WWII-era buildings, designed in the 1940s to be temporary, proved challenging. Structures needed new high-efficiency HVAC systems and energy-conserving lighting, as well as new insulation, roofs, and windows--but the upgrades needed to preserve the historic aesthetic. Installing a new HVAC system in the Governor's Cottage, for example, meant running ductwork beneath the floors and in the attic, where it was out of sight. Elsewhere on the installation, original chimney and stovepipe heating systems were replaced, while detached chimney stacks were retained. Roofs were replaced using historically appropriate green asphalt shingles.

Army.mil article: <https://aec.army.mil/index.php/blog/conserving-cultural-resources-and-energy-camp-pendleton>

Technical Guidance & Studies

Whole Building Design Guide DoD Unified Facilities Guide Specifications (UFGS)

The UFGS documents are a joint effort of the U.S. Army Corps of Engineers, the Naval Facilities Engineering Command, the Air Force Civil Engineer Center, and the National Aeronautics and Space Administration. These documents are used in specifying construction for Services and include technical guides for roofing, including insulation, tiles, panels, and replacement or repair.

- DoD UFGS documents: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs>
- UFGS 03 52 00 Lightweight Concrete Roof Insulation: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-03-52-00>
- UFGS 07 22 00 Roof and Deck Insulation: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-22-00>
- UFGS 07 32 13 Roof Tiles: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-32-13>
- UFGS 07 32 14 Clay Tile Roofing Replacement or Repair: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-32-14>
- UFGS 07 41 13 Metal Roof Panels: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-41-13>
- UFGS 07 41 13.16 Copper Roof Panels: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-41-13-16>
- UFGS 07 41 63 Fabricated Roof Panel Assemblies: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-41-63>
- UFGS 07 51 13 Built-Up Asphalt Roofing: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-51-13>
- UFGS 07 52 00 Modified Bituminous Membrane Roofing: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-52-00>
- UFGS 07 53 23 Ethylene-Propylene-Diene-Monomer Roofing: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-53-23>
- UFGS 07 54 19 Polyvinyl Chloride Roofing: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-54-19>

- UFGS 07 55 00 Protected Membrane Roofing (PMR): <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-55-00>
- UFGS 07 57 13 Sprayed Polyurethane Foam (SPF) Roofing: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-57-13>
- UFGS 07 61 14.00 20 Steel Standing Seam Roofing: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-61-14-00-20>
- UFGS 07 61 15.00 20 Aluminum Standing Seam Roofing: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-61-15-00-20>
- UFGS 07 72 20 Gravity-Type Roof Ventilators: <http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-07-72-20>

National Park Service Preservation Briefs on Roofing

Preservation Briefs provide guidance on preserving, rehabilitating, and restoring historic buildings. These NPS Publications help historic building owners recognize and resolve common problems prior to work. The briefs recommend methods and approaches for rehabilitating historic buildings that are consistent with their historic character.

- Roofing for Historic Buildings: <https://www.nps.gov/tps/how-to-preserve/briefs/4-roofing.htm>
- Architectural Character—Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving their Character: <https://www.nps.gov/tps/how-to-preserve/briefs/17-architectural-character.htm>
- The Repair and Replacement of Historic Wooden Shingle Roofs: <https://www.nps.gov/tps/how-to-preserve/briefs/19-wooden-shingle-roofs.htm>
- The Repair, Replacement, and Maintenance of Historic Slate Roofs: <https://www.nps.gov/tps/how-to-preserve/briefs/29-slate-roofs.htm>
- The Preservation and Repair of Historic Clay Tile Roofs: <https://www.nps.gov/tps/how-to-preserve/briefs/30-clay-tile-roofs.htm>

National Park Service Preservation Tech Notes on Roofs

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

- [Restoring Metal Roof Cornices](#). Richard Pieper. 1990.

U.S. General Services Administration (GSA) Technical Preservation Guidelines: Historic Building Roofing. Caroline Alderson. 2009.

2009 GSA guidelines on upgrading historic roofing in compliance with Section 106 of the National Historic Preservation Act: <https://www.gsa.gov/cdnstatic/RoofingTechGuide.pdf>

U.S. Department of Agriculture, Alternative Roofing Materials: A Guide to Historic Structures. U.S. Forest Service. 2007.

2007 U.S. Forest Services guidelines on replacing roofs on historic structures with possible alternative materials that are historically appropriate, cost effective, easy to install, and functional in wildland fire environments: <https://www.fs.fed.us/t-d/pubs/pdf/07231812.pdf>

Program Alternatives

U.S. Army Prototype Programmatic Agreement for the Privatization of Army Lodging

This U.S. Army PPA template for the privatization of Army lodging contains a small section on roofs.

Army PPA: https://www.achp.gov/sites/default/files/prototype_programmatic_agreements/2018-07/Privatization%20of%20Army%20Lodging%20%28PAL%29%20%20Prototype%20PA%204-12%20Final.pdf

Federal Emergency Management Agency Prototype Programmatic Agreement

This FEMA PPA template for Section 106 of the National Historic Preservation Act includes language on roofs.

FEMA PPA: <https://www.fema.gov/media-library-data/1411485257625-3934729ee7ec867282fbffc976102222/PPA.pdf>

Department of Energy Prototype Programmatic Agreement

This DOE PPA regarding the Energy Efficiency and Conservation Block Grant Program, the State Energy Plan, and the Weatherization Assistance Program includes language on roofs.

DOE PPA: https://www.achp.gov/sites/default/files/prototype_programmatic_agreements/2018-07/DOE%20Prototype%20PA%20Final_Complete.pdf

General Services Administration Program Comment for Repairs and Upgrades to Windows, Lighting, Roofing, and Heating, Ventilating, and Air Conditioning, as Amended

This GSA PC, amended in 2018, outlines Section 106 compliance for select repairs and upgrades to windows, lighting, roofing, and heating, ventilating, and air-conditioning (HVAC) systems within historic public buildings. These repairs and upgrades correspond to GSA's Technical Preservation Guidelines.

GSA PC: https://www.achp.gov/sites/default/files/program_comments/2018-07/Federal_Register_Notice_of_Issued_GSA_Program_Comment_72718.pdf

Additional Links

- [Roofing: Best Practices from Historic New England Experts](#) - Historic New England.
- [Restoring Architectural Features Application Guidelines](#) – NYC Landmarks Preservation Commission.
- [Roofs on Historic Buildings – District of Columbia Historic Preservation Guidelines](#) – Government of the District of Columbia, Office of Planning, Historic Preservation Office.
- [Roofs](#) – City of Roanoke.
- [Historic District Homes – Roof Analysis](#) – City of Portsmouth.