

City of Fort Lauderdale Historic Preservation Design Guidelines

ROOFING



Roofing provides the first line of defense against the elements and greatly affects the overall appearance of a building. The terra cotta roof in this example has a distinctive form, color and texture.

PURPOSE

These *Guidelines* were prepared to assist property owners with information when considering the repair, alteration or installation of roofing. It is not intended that these *Guidelines* should replace consultation with qualified architects, contractors, the Historic Preservation Board (HPB), City Staff and applicable ordinances.

These *Guidelines* were developed in conjunction with the City of Fort Lauderdale's Historic Preservation Board (HPB) and the Department of Sustainable Development (DSD). Please review this information during the early stages of planning your project. Familiarity with this material can assist in moving a project quickly through the approval process, saving applicants both time and money.

The DSD Staff is available to provide informal informational meetings with potential applicants who are considering improvements to their properties.

Additional *Guidelines* addressing other historic building topics are available at City Hall and on the City's website at www.fortlauderdale.gov. For more information, to clarify whether a proposed project requires HPB review, or to obtain permit applications, please call the DSD at (954) 828-3266.

ROOFS

A building's roof provides the first line of defense against the elements and its design greatly affects the overall appearance of a building.

The following functional and aesthetic concerns should be considered when considering roof alteration:

- Weather-tight roofing preserves a building and provides shelter from rain, wind and sun
- Roofing helps define the building's character, silhouette and architectural style
- The form, color and texture of roofs and roof penetrations affect the scale and massing of the building
- Roof variations add visual interest to the streetscape



5-V crimp roofing panels were popularized in the mid to late 20th century. They can provide a weather-tight roof system.

HISTORIC CHARACTER OF ROOF FORMS

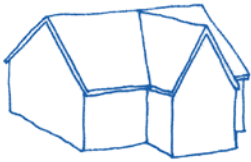
The historic form of a roof is critical to the understanding of a building's type and architectural style. Alterations to a roof's shape can have a negative impact on the building's appearance. Roof forms can have various pitches and be combined in different manners to provide numerous roof types. This is particularly true of Mediterranean buildings which often have complex roof forms with intersecting gables, hips and towers. Some of the most common basic roof forms found in Fort Lauderdale are illustrated below.



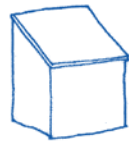
Front Gable



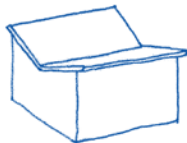
Side Gable



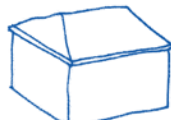
Cross Gable



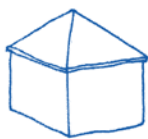
Shed or Canted



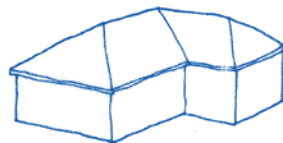
Butterfly



Ridged Hip



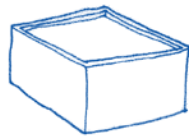
Pyramidal Hip



Cross Hipped



Extended Parapet



Flat with Parapet

ROOF PITCH & MATERIALS

The pitch or slope of a roof helps define the appropriate materials for the roof. Low-pitched to flat roofs depend on a continuous or nearly continuous roof surface to minimize moisture infiltration. Material options for low-pitched roofs include built-up hot tar roofing; roll roofing; and soldered flat seam metal. Possibilities for moderately to steeply sloped roofs include unit materials such as terra cotta, concrete, wood shingles, metal shingles and asphalt shingles.

ROOFING MATERIALS

Historically, roofing materials were selected based upon practical and aesthetic criteria including pitch, weather conditions and availability of materials and craftsmen.

In Fort Lauderdale, historic roof materials were generally terra cotta, metal and concrete, with wood being less common. Later roofs were often covered with asphalt shingles. Each material provides a specific color, texture and pattern to a roof surface. Terra cotta, concrete and wood shingles provide a modulated surface with variations in color, texture and thickness.

With industrialization at the beginning of the 20th century, new roofing materials were introduced, including asbestos and asphalt based shingles, as well as varieties of rolled or built-up roofing for flat installations. The variety of metal roofing was also expanded, including copper, galvanized sheet steel and aluminum. Metal roofing was installed as shingles, rolled roofing such as standing seam, welded flat seam roofing, as well as metal shingles, sometimes featuring a decorative embossed pattern.

More recently, a larger variety of substitute roofing materials intended to simulate historic materials have been developed, with some being more successful than others. These include "dimensional" or "architectural" asphalt-composition shingles and fiberglass, metal or recycled rubber shingles intended to replicate the appearance of terra cotta and wood shingles.

INVESTIGATING HISTORIC ROOFING

Some investigation may be needed to determine the historic roof material for a building. A good place to start is in the attic. New roofs are often installed on top of older roof surfaces. By looking between rafters, older roofs can sometimes be seen. Another area of review is the roof framing, lath and sheathing. Because of their weight, terra cotta and concrete require more substantial roof framing, with larger rafters and narrower spacing than wood shingle framing. If the original lath is visible, there are variations in lath spacing that relate to standard sizes for terra cotta, concrete and wood shingles. Finally, wood sheathing was often needed in metal roof installations, while lath was used in shingle installations. If physical evidence is not available, documentary evidence such as historic photographs, speaking to neighbors or looking at similar buildings in the area might provide clues about original roof materials.

SUBSTITUTE MATERIALS

Care is recommended when using substitute materials since they might not have the longevity advertised and they can potentially damage historic building fabric, particularly with the heat and sun exposure in Florida.



Tile roofing is available in a variety of profiles. These concrete tiles are relatively flat and are similar in appearance to slate roofing.

TILE

A tile roof, including terra cotta and concrete tiles, can last over 100 years depending on the material’s properties, the manufacturing process, installation quality and regularity of maintenance. Similar to slate, problems with tile roofs are typically the result of localized failure since many of the roof accessories and fasteners do not have the same 100-year life span as the tile itself. In addition, the tiles are relatively fragile and susceptible to damage from falling tree limbs and other impacts. To extend the serviceable life of a roof, property owners are encouraged to address localized problems as they become apparent, using a qualified roofer.

Typical localized problems and possible repairs for tile roofing:

- Loosening or corrosion of fasteners for tiles or accessories – *Reattach or replace fastener*
- Missing mortar between tiles - *Install compatible mortar*
- Cracked tile – *Install sheet metal under tile, fill split or reattach dislodged piece with tinted roofing cement*
- Missing or damaged tile or roof accessories – *Replace to match original, preferably with salvaged units with the same dimensions and similar visual characteristics*

If over 20% of the tiles on a roof slope are damaged or missing, replacement of the roofing might be warranted; in this case, property owners are strongly encouraged to make every attempt to match decorative shapes, patterns and colors with replacement materials. Other materials are used to simulate terra cotta, concrete or other tiles, but many do not have the same dimensional characteristics of the historic material or have not been available commercially for very long. It is often possible to reuse salvaged tiles taking care to verify availability of appropriate quantities of needed sizes, shapes and colors. When replacing a roof, select a flashing material that has a life span similar to or longer than the roofing.

LIFE-CYCLE COST OF ROOFING MATERIALS

With regular maintenance, roofing materials perceived as “more expensive” (ie, terra cotta, concrete and wood shingle roofing) often have a substantially longer lifespan than other forms of roofing. As a result, they do not require replacement as often and may have a lower life-cycle cost than less expensive materials such as asphalt. This longevity and the material’s aesthetic qualities often add to a property’s value.

WOOD

Wood shingles are typically made from redwood, oak, elm or yellow pine. While relatively uncommon in Fort Lauderdale, historically they represented a common sloped roofing material.

A wood shingle roof can last 30 to 60 years depending on the roof pitch, quality of materials and installation. However, like all exterior wood installations, a shingle roof is subject to deterioration from rot, splitting, warping and eroding. In many cases, wood shingle roofs are replaced at the first indication of a localized problem, even when regular maintenance or a less intensive repair would be sufficient. Common locations of failure are the roof accessories including the fasteners, flashing and gutters, which might have a shorter life span than the roofing surface. To extend the serviceable life of a roof, property owners are encouraged to address localized problems as they become apparent.

Typical localized problems and possible repairs for wood shingles:

- Loosening or corrosion of fasteners for shingles or accessories – *Reattach or replace fastener*
- Split or punctured shingle – *Install sheet metal under shingle, fill split or hole with roofing cement*
- Moss or fungi on surface – *Trim back adjacent trees allowing sun to dry out roof surface; investigate fungicide application; check attic for adequate ventilation*
- Missing or damaged shingles or roof accessories – *Replace to match original*

If over 20% of the wood shingles on a roof slope are damaged or missing, replacement of the roofing might be warranted. Wood roofing replacement alternatives include wood, and visually similar dimensional fiberglass asphalt shingles.

Care should be used in the installation of new wood shingle roofs, which must meet hurricane and fireproofing requirements. To minimize the potential for rot and allow for the greatest longevity, it is also important to provide adequate ventilation at the underside of shingle surfaces.



Wood shingle roofs can be found on some of Fort Lauderdale’s oldest homes.

METAL

Metal became a popular material for roofing after sheet metal production was expanded following the mid 19th century, and can be found on commercial and industrial buildings, as well as residences. Traditional sheet roofing metals include lead, copper, zinc, tin plate, tern plate and galvanized iron. Some metal roofs require regular painting, with traditional colors including silver, grey or green, to minimize the potential for corrosion.

On shallow pitch roofs such as porches, small rectangular pieces of flat seam metal roofing were installed with edges crimped together and soldered to form a weather-tight surface. On steeper pitched roofs, long continuous seams were used, typically in a standing seam configuration, providing regular ridges down roof slopes. Corrugated or other paneled metal roofing, such as 5-V crimp panels were popularized in the 20th century. (Refer to photograph on Page 1.)

Deterioration of the metal surface tends to occur from wearing of the protective painted or galvanized surface, chemical action, rusting, pitting or streaking, airborne pollutants, rain or material acids, or galvanic action. Galvanic action occurs when dissimilar metals chemically react against each other and corrode, and can come from adjacent metals, such as fasteners or non-adjacent metals, (such as roof cresting) via rainwater.

If the roof is generally rusting, splitting, pitted, severely buckled or warped, or many of the seams or edges are open or disfigured, replacement of the roofing might be warranted. If considering replacement, applicants are encouraged to make every attempt to match the material, seam patterns and color with the replacement material.

Typical localized problems and possible repairs for metal:

- Worn paint, galvanizing or coating – *Repaint*
- Slipping sheet, panel, open seam or open solder joint – *Refasten and/or re-solder*
- Isolated rusting or holes – *Replace to match original*



These decorative metal shingles include an embossed pattern on each shingle that adds to the roof's texture.



Although asbestos roofing was available in a number of different patterns, diamond-shaped shingles, such as those illustrated above, were by far the most common.

ASBESTOS

Asbestos became a popular roofing material at the beginning of the 20th century. Asbestos roofing is made from asbestos mineral fibers and either Portland or hydraulic cement and it provides a durable, lightweight, economical, fireproof, rot and termite resistant alternative to terra cotta and concrete tile roofing.

With appropriate maintenance, an asbestos shingle roof can be expected to last well over 30 years, with cracking and rusting nails being the most typical cause of failure. However the manufacturing of asbestos roofing essentially ceased when asbestos was banned by the EPA in 1973. If the roofing is damaged, consultation with a professional to determine whether repair is feasible is recommended. If considering replacement, visually similar shingles, without the presence of asbestos, or an alternate, such as sheet metal roofing, are recommended.

ASBESTOS SHINGLE REPAIR OR REMOVAL

Great care should be taken when working with broken asbestos products and during their removal. It is recommended that all asbestos related work be undertaken by a licensed contractor.

Property owners are responsible for ensuring that all asbestos removal and disposal is handled in accordance with all applicable regulations and procedures. Contact the Broward County Environmental Protection and Growth Management Department for information related to removal and disposal requirements at (954) 519-1260.

ASPHALT

Asphalt became a popular roofing material at the beginning of the 20th century, providing a relatively inexpensive and easily installed roofing material. Early asphalt roofing was generally made of asphalt-saturated felts in a variety of shapes, styles, textures and colors. Today, asphalt shingles are made with fiberglass, generally as 3-tab, “architectural” or “dimensional” shingles, which include multiple layers of material with simulated shadows suggesting wood or slate.

With the extreme exposure to sun and heat in Fort Lauderdale, the serviceable life for asphalt shingles can be substantially shorter than those installed in more moderate climates. In Fort Lauderdale an asphalt shingle roof can be expected to last from 10 to 15 years with “architectural” or “dimensional” shingles lasting longer due to their multiple layers. Over time, asphalt shingles can curl, lose their mineral coating, be dislodged by hurricane-strength wind or become brittle.

Typical localized problems and possible repairs for asphalt:

- Split or puncture – *Install sheet metal under shingle, fill split or hole with roofing cement*
- Moss or fungi on surface – *Trim back adjacent trees to allow sun to dry out roof surface*
- Missing or damaged shingles or roof accessories – *Replace to match original*

If over 20% of the asphalt shingles on a roof slope are damaged or missing, replacement of the roofing might be warranted. Property owners are encouraged to replace historic asphalt shingles in-kind.



Asphalt shingles often replicate alternate materials such as wood shingles.



Flat roof are often hidden from view. In this case, a decorative parapet conceals the flat roof beyond. A terra cotta pent roof, located below the parapet, circles the building.

FLAT ROOFING SYSTEMS

Although very few roofs are truly “flat”, low-sloped roofs, generally defined as a pitch less than 3:12, (3” rise for 12” run), require a watertight roofing system. There are a variety of flat or low-slope roof systems including: metal roofing; built-up roofing, single-ply roofing, and modified bitumen roofing. By contrast, steeper pitched roof systems generally employ shingles that shed storm water.

Typical localized problems for flat roofs include:

- Splits, punctures, or cracking of surface
- Standing water or poor drainage

It is recommended when selecting roofing materials that the materials and design address the building’s drainage and specific details of the existing conditions including attachment, substrate and weight limitations. The installation of light-colored roofing to minimize solar heat gain is also recommended, particularly if the roof surface is not visible.

HURRICANE RECOMMENDATIONS FOR ROOFING

To minimize potential storm damage, it is recommended that property owners consider the following:

- A well maintained and water-tight roof provides the first line of defense against a storm
- Anchor roof framing to perimeter walls with hurricane clips to minimize the potential for uplift during a storm
- Provide supplemental bracing for gable ends
- Install roof vent covers prior to a storm to prevent wind-driven rain entering attic
- Avoid porous roof insulation that can become saturated, causing interior damage

For additional information, refer to *Disaster Planning for Florida’s Historic Resources* available at www.friendsofflorida.org.

ROOF ACCESSORIES & DESIGN FEATURES

In addition to the roofing surface, roof accessories and design features are also functional and influence a roof's appearance. Roof accessories include flashing, projecting eaves, gutters, and downspouts.



Flashing is typically made of thin sheet metal, formed to prevent water from entering a building at joints, intersections and changes of pitch. It is typically installed around chimneys, parapets, dormer windows, roof valleys, vents and intersections of porches, additions or bay windows. Flashing often fails before roof surfaces, particularly with more durable roofing such as slate, resulting in interior leaking. If the flashing deteriorates, it is possible to replace it without replacing the entire roof.

When replacing flashing or installing a new roof, it is important to select a flashing material that has an anticipated life span similar or longer than the roofing. Copper, terne, steel, lead and aluminum are all used for flashing. The longevity of each material is based upon its thickness, its propensity for deterioration from environmental conditions, and whether it is galvanized, treated or coated. Generally, copper has the longest life span, followed by steel, with aluminum being highly susceptible to punctures, tears and galvanic reaction with other metals. It is important to verify that flashing materials are sympathetic and compatible with existing roofing materials, particularly metal roofs.



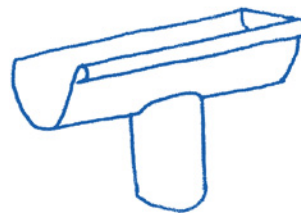
The extended eaves have exposed rafter tails and jigsaw-cut outriggers providing support.

Extended eaves extend the edge of the roof surface beyond the face of the building, discharging rain water away from the building wall. The style of an extended eave can be decorative, as in the case of a bungalow, or very plain, typical of a Mid-Century Modern building.

Gutters are typically located near or along the bottom edge of a roof slope to collect rainwater. Built-in gutters are hidden from view from the ground within or behind architectural features such as cornices or parapets. Pole gutters are located near the bottom edge of a roof slope and project perpendicularly to the roof surface. Built-in gutters and pole gutters generally include flashing materials typically wrapped around or within wood forms.

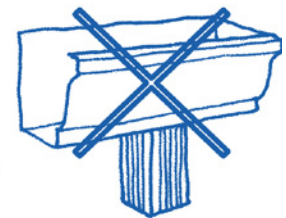
Hanging gutters are attached to the building just under the roof slope edge and are half-round or profiled in cross section. Hanging gutters are typically made from wood, copper, galvanized metals, aluminum and recently vinyl.

Similar to flashings, gutter materials have different life spans. Generally, copper has the greatest potential longevity, followed by steel, with aluminum being highly susceptible to punctures, tears, dents and galvanic reaction to other metals. The longevity of wood gutters is determined by the material and quality of the flashing. Vinyl can become brittle and fracture.



*Half-Round Gutter,
Round Downspout
Encouraged*

*K-Style Gutter,
Corrugated Downspout
Discouraged*



Downspouts, also known as rainwater conductors, are generally surface mounted to a building's exterior to conduct water from a gutter to the ground or an underground drainage system. Similar to gutters, downspouts can be fabricated of copper, galvanized metal, aluminum and vinyl with similar characteristics, in a round or rectangular profile.



The downspout has been painted to match the color of the wall, reducing its visual prominence.

HISTORIC ROOF FEATURES

Roof features are decorative, and sometimes functional, elements that help to define the profile of a roof against the skyline and should complement the building's style. Historic rooftop features include chimneys, dormers, cupolas, bell towers, turrets and finials.

Chimneys were typically designed to complement the style of a building and period of construction. In Fort Lauderdale, many are constructed of brick or concrete block, and less commonly stone; some of which have been covered with stucco. Most styles of building, including Colonial Revival and Classical Revival buildings, tend towards square or rectangular chimney shafts, sometimes with molded caps. Mediterranean Revival chimneys can include decorative detailing including varied patterns, undulating and molded surfaces and decorative chimney caps.



This Arts and Crafts style residence has a prominent front gable roof dormer and an exterior side elevation chimney. Both the dormer and the chimney are appropriate for the building's style.

Dormers, also known as dormer windows, protrude from the roof surface with a window at the downward slope, providing light and additional headroom under roof eaves. Dormers can have various roof shapes, including gable, shed, hipped, eyebrow, and segmented pediment.



This cupola is topped by a hipped roof and includes windows at each face.

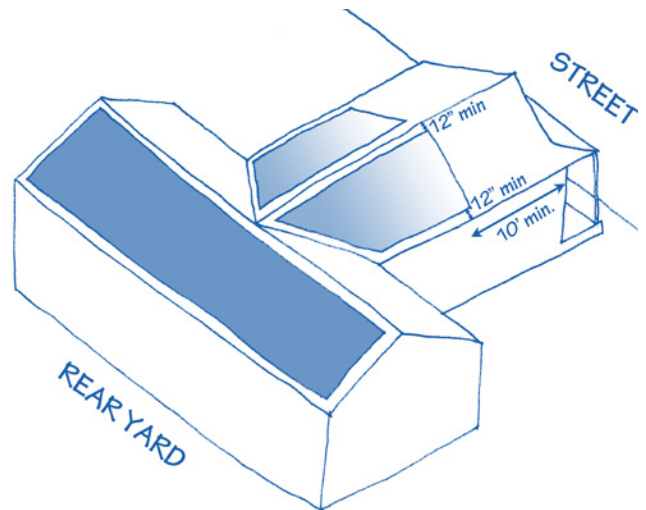
Cupolas, also known as monitors or belvederes, are structures that project up from the roof, used for ventilation with louvers, or as lookouts with windows. They can provide ventilation and light below, but can also serve as a decorative feature on important residential, institutional or civic buildings.

ROOF MOUNTED EQUIPMENT

Roof mounted equipment including mechanical equipment, vents, television dishes and antennae and mobile telecommunication equipment are all examples of modern mechanical equipment and roof penetrations that can affect the historic integrity of a building. Although it is understood that some roof penetrations are required for items such as plumbing vents, property owners are encouraged to limit the amount of rooftop equipment and penetrations, and minimize the overall appearance of clutter.

Solar collectors provide a renewable energy source. Fort Lauderdale encourages solar collectors for space heating, hot water and electricity. However, property owners are encouraged to locate solar collectors where they are hidden or minimally visible from public view.

Skylights are sometimes historically found in commercial buildings. They are occasionally historically appropriate in sloped roof building types and townhouses where dormer windows are not present. The installation should minimize alteration of the roof structure with the long dimension oriented down the roof slope. Skylights should be hidden or minimally visible from the public view, and should not disturb historic roof materials such as terra cotta or concrete.



PREFERRED LOCATION FOR ROOF MOUNTED EQUIPMENT

- Applicants are encouraged to place all roof mounted equipment (including mechanical equipment; vents; television dishes and antennae; solar collectors and skylights) in a manner that is as visually unobtrusive as possible from the public view.
- Placement is encouraged facing a rear yard wherever possible. If it is not possible, placement as far back on a side slope as possible is preferred.
- Applicants are encouraged to install skylights and solar collectors so that they do not extend more than 8 inches above the roof surface.

ROOF REPAIR OR REPLACEMENT

Encouraged:

- Maintain, clean or repair of roofing, roof accessories and rooftop features
- Retain original drainage system and appearance
- Regularly repaint metal components susceptible to rusting and wood elements susceptible to rot and deterioration
- Clean gutters and downspouts regularly, typically every spring and fall
- Inspect attics periodically after a storm or freeze to catch small leaks early, and minimize the potential for interior damage
- Install half-round gutters rather than profiled K-gutters, which often compete with building features
- Install plain round or rectangular downspouts in lieu of corrugated downspouts
- Selectively replace damaged or missing materials with new materials to match the material, size, shape, texture, color and other visual characteristics of the original
- If the level of damage or deterioration is beyond repair, completely replace damaged or missing materials with new materials to match the material, size, shape, texture, pattern, color and other visual characteristics of the original
- If replacement in original material is not possible, replace the damaged or missing materials with new material of similar size, shape, texture, pattern, color and other visual characteristics of the original
- Securely install fasteners and flashings with a similar expected life span to the roofing material
- Use a single type of metal compatible with roofing at fasteners, flashing, gutters and downspouts to avoid galvanic action

Discouraged:

- ✗ Remove or alter historic drainage system or roof features such as chimneys, dormers and cupolas
- ✗ Add or alter rooftop features or equipment at areas visible from a public way that change roof configuration, including skylights, television antennas or dishes, solar collectors, mechanical equipment, roof decks, chimney stacks and dormer windows
- ✗ Add rooftop features that create a false historical sense without supporting documentary evidence such as cupolas or wood shingles on an originally terra cotta roof
- ✗ Modify the historic roof form, height or pitch
- ✗ Add new features that are out of character, scale, materials or detailing to the historic building
- ✗ Encapsulate decorative wood elements such as cornices and brackets with vinyl or aluminum capping or siding

ADDITIONAL AREAS OF CONSIDERATION

- Roofing work is potentially dangerous and should be left to professionals
- All roofers are not experienced in all materials; obtain references and verify they have appropriately completed compatible work - Verify the extent of both the material and installation warranties and company histories
- Verify whether removal of existing roofing is required before installation of new roofing, and whether there is adequate support for heavier roofing materials such as terra cotta tiles - too much weight can damage structural elements
- Verify the condition of substrate for rot or decay and make necessary repairs, including the sheathing or lath, and structural elements
- Use a substrate appropriate for the roof material and provide adequate ventilation under roof surface, particularly for wood shingle roofing
- Use appropriate underlayment including building paper, rosin paper and/or ice shield
- Refer to *Page 5* for Hurricane related recommendations for roofing
- Reference industry standards such as SMACNA, *Copper and Common Sense*, *Slate* for roofing information

FUNDING

This project has been financed in part with Federal funds from the National Park Service, U.S. Department of the Interior, and administered by the Florida Division of Historical Resources. The contents and opinions do not necessarily reflect the views or policies of the U.S. Department of the Interior, nor does the mention of trade names or commercial products constitute endorsement or recommendation by the Department of the Interior.

This program receives Federal financial assistance for identification and protection of historic properties. Under Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, and the Age Discrimination Act of 1975, as amended, the U.S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, disability or age in federally assisted programs. If you believe that you have been discriminated against in any program, activity, or facility as described above, or if you desire further information, please write to: Office of Equal Opportunity; National Park Service; 1849 C Street, N.W.; (NC200) Washington, DC 20240.

PREPARATION

All components of the *Fort Lauderdale Historic Preservation Design Guidelines* including all text, graphic design, photography and illustrations unless noted otherwise were prepared by:

Preservation Design Partnership, LLC

Philadelphia, Pennsylvania; www.pdparchitects.com
Principal-in-Charge: Dominique M. Hawkins, AIA