Urban Enterprise Zone
Historic Preservation Commission

GUIDELINES FOR EXTERIOR WOODWORK

These Guidelines were developed in collaboration between the Gloucester City Urban Enterprise Zone (GCUEZ) and the Gloucester City Historic Preservation Commission (GCHPC) in order to enhance the visual aesthetics in the Gloucester City commercial and historic districts.

Program Overviews:
The GCHPC reviews Certificate of Appropriateness (COA) applications for proposed exterior alterations to properties within the historic districts visible from a public way. The applicant is responsible for complying with the provisions of the Zoning and Building Codes at the time of application. The applicant must obtain a Certificate of Appropriateness (COA) as well as all necessary permits prior to proceeding with any work. For more information, or to obtain permit applications, please call the Administrative Zoning Officer at (856) 456-7689.

The GCUEZ program promotes economic growth by helping neighborhood businesses succeed through offering incentives which encourage growth while stimulating the local economy. One of these such programs is the GCUEZ signage and matching façade grant program where UEZ businesses only can receive up to $10,000 in matching facade grants as well as $1,000 in signage grants to enhance their business storefronts. For more information, contact the UEZ Coordinator at (856) 456-6075 or via email at uez@cityofgloucester.org.

Using the Guidelines:
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.

Additional Guidelines addressing other historic building topics and application forms are available at the Municipal Building and on the City’s web site at www.cityofgloucester.org.

PURPOSE
These Guidelines were prepared to assist property owners with information when considering the repair, repainting, alteration or installation of exterior woodwork, trim and porches. It is not intended that these Guidelines should replace consultation with qualified architects, contractors, the GCUEZ, the GCHPC, and/or the applicable ordinances.

EXTERIOR WOODWORK
Wood siding, shingles and trim on a building’s wall surface serve both functional and aesthetic purposes. Functionally, exterior woodwork acts as the skin of the building, shedding water and deflecting sunlight and wind. Aesthetically, woodwork is an important design feature and can be applied as siding, shingles, ornamental trim, and larger elements such as porches, and cupolas. Exterior woodwork:
• Establishes a weather-tight enclosure, providing protection from rain, wind and sun
• Is affected by temperature variation and building movement
• Establishes a building’s scale, mass and proportion
• Acts as an important design feature, helping to define a building’s architectural style
• Adds visual interest to the streetscape
• Adds pattern and casts shadows on wall surfaces

With proper maintenance, exterior wood elements can last for centuries, however improper maintenance can result in problems and deterioration from water, fungus, mold and insects.
The original building to the left has clapboard siding, and the later addition, located to the right, has German siding.

**COMMON SIDING TYPES**

The most common type of wood siding is clapboard with German siding being more unusual.

- **Clapboard Siding**, also known as weatherboard or beveled siding, is made from long boards, tapered across the width. Clapboard is installed by nailing an upper board overlapping a lower board with joints staggered across the wall surface. The boards are usually nailed to allow approximately four inches of exposure, or visible board surface.

- **German Siding**, also known as drop siding, is a flat faced board with a concave top and notched bottom. German siding is installed by nailing the notched bottom of the upper board over the concave top of the lower board in a staggered joint pattern.

Historically, the two most traditional types of wood siding for secondary buildings are vertical board and batten siding. Traditionally, most secondary buildings were also painted red.

- **Vertical Board Siding**, also known as vertical plank siding, is made from long wide boards fastened vertically across a façade.

- **Board and Batten Siding** is similar to vertical board siding, although the joints between the wide vertical boards are covered with narrow boards or trim known as battens.

**WOOD TRIM AND ORNAMENT**

Visually, exterior wood trim frames areas of wood siding or shingles and serves as the transition to decorative elements such as doors, windows, cornices and porches. Functionally, it seals siding and shingles at joints, corners and openings, providing a weather-tight building enclosure. Wood trim includes window and door frames, corner boards, rake boards and wood sills. In addition to wood trim, there are numerous types of wood ornaments applied to buildings, including porch posts and columns, brackets, balustrades, newel posts, spindles, and other decorative details.

**COMMON SHINGLE TYPES**

Although not as common as siding, there are a variety of wood shingled wall surfaces in the City of Gloucester. Similar to clapboard siding, wood shingles are tapered and installed in an overlapping pattern with staggered joints to minimize potential moisture infiltration. Types of wood shingles include:

- **a. Chisel or Bevel**: Rectangular shape, similar to roof shingles
- **b. Fishscale**: Bottom shingle edge cut in a U shape with multiple rows forming a fishscale pattern
- **c. Diamond**: Bottom shingle edge cut in a V shape with multiple rows forming a diamond pattern
- **d. Staggered**: Chisel or beveled shingles with alternating greater and lesser exposure
- **e. Octagonal**: Bottom shingle corners cut with 45° angle with multiple rows forming an octagonal pattern
- **f. Sawtooth**: Bottom shingle edge cut in a W shape with adjacent shingles forming a sawtooth pattern

This house features clapboard at the first floor, staggered shingles at the upper levels, as well as decorative brackets and an ornate porch.
bases, porch deck and apron. The green bloom is biological evidence of moisture.

Exterior woodwork laid on a horizontal plane or located close to the ground is highly susceptible to deterioration such as this porch example. Ongoing exposure to moisture deteriorated the column bases, porch deck and apron. The green bloom is biological growth, probably algae, indicating the presence of moisture.

**EXTERIOR WOODWORK CHECKLIST**

Property owners generally do not notice their exterior woodwork unless a problem occurs, or there is desire to improve the appearance or reduce maintenance. Typical exterior woodwork concerns include lack of regular maintenance, peeling paint, rot or deterioration, infestation, and loose, cracked or missing elements. Property owners will often hide these problems with materials such as vinyl without addressing the root cause of the problem, resulting in further deterioration.

The actual condition of un-maintained exterior wood is generally better than its appearance. In addition, a deteriorated component or area typically does not necessitate the replacement or covering of all exterior woodwork. In most instances, selective repair or replacement of damaged parts and implementation of a regular maintenance program is all that is required. Full exterior woodwork replacement or encapsulation with artificial siding is rarely necessary and should be avoided whenever possible.

**The GCHPC and GCUEZ encourage:**

- **Conducting semi-annual inspections** of all exterior wood elements to verify condition and determine maintenance needs. Look for signs of deterioration including excessive paint peeling that might indicate moisture problems. Look for veins of dirt on the exterior walls that might be termite mud tunnels. (See Wood Rot section.) Clean exterior surfaces annually in warm weather with a garden hose, household detergent and a bristle scrub brush. Avoid using power washers that can force water into wall cavities through crevices and damage decorative details.

- **Maintaining and repainting** exterior woodwork on a regular basis. A good quality paint job can last 5 to 8 years. For best results, address any moisture or deterioration problems prior to painting. Hand scrape and sand where possible to avoid removing or damaging decorative details with power tools or burning. Apply high quality and compatible primer and paint to clean and dry surfaces. Paint colors and luster should be appropriate to the style of the building.

- **Repairing smaller areas of deterioration** by reinforcing or patching as required. Small cracks and checks can be repaired with an exterior wood filler, glue or epoxy. Loose elements can be refastened with careful nailing or drilling.

- **Selective replacement** of deteriorated wood elements when they are beyond repair. The replacement wood pieces should be the same size, profile and character of the historic wood element. It might be helpful to take a sample of the historic wood to the lumber yard or millwork shop for the best match. Wood filler between the seams of the new and old wood will help provide a smooth finish.

- **Replacement** of all exterior wood might be necessary if deterioration of exterior woodwork is severe and extensive. Decorative woodwork should be retained whenever possible since it is a character defining element that can be difficult and costly to replace. Replacement wood element should have the same visual characteristics as the historic woodwork including the size, profile and visual characteristics. Replacement siding materials should be installed in the original pattern being as careful as possible to match the original exposures. Select replacement wood species appropriate for exterior use and location.

**The GCHPC and GCUEZ discourage:**

- Removing or encapsulating of siding, trim, decorative features and trim elements such as brackets, spindles, cornices, columns, posts, etc.

**Hiring a Contractor**

- Repair, maintenance, installation and painting of siding can be potentially dangerous work and should be left to professionals.
- All contractors are not necessarily experienced in all materials.
- Verify extent of warranty for materials and labor.
- Check references, especially from 5 years prior, to understand how well work has held up.

City of Gloucester – Guidelines for Exterior Woodwork 3
WOOD ROT

Almost all wood rot is caused by fungi that break down dead wood to return it back to the earth. Spores of decaying fungi are continuously produced and airborne at the interior and exterior of buildings. Rot-causing fungi need four basic elements to thrive: oxygen, moisture, food and moderate temperatures. If any of these elements are missing, rot can be controlled.

Since oxygen and moderate temperatures are prevalent in the environment, and most historic buildings are full of wood, an excellent food source, the best hope to minimize rot is to control moisture. Moisture-causing rot generally comes from one of four sources: ground water, rain and snow, plumbing leaks and condensation.

Ground water can migrate from the soil into the house by: direct contact between wood and soil; improper drainage away from the foundation; vegetation too close to the foundation; water vapor condensation in crawl spaces; and capillary action or rising damp in masonry foundation walls carrying water several inches up to wood sills.

Rain and snow can find its way into a building through crevices and be confined within a wall cavity. Exterior surfaces with open joints or those that are not protected by paint, caulk or mortar are subject to water infiltration. Blocked or undersized gutters and downspouts can overflow and direct water towards building surfaces. Rainwater splashing on hard ground surfaces can rebound, saturating exterior woodwork. Ice build-up along roof eaves without appropriate flashing could back-up under shingles and melt.

Leaky plumbing is generally sudden, such as a cracked pipe; or slow, where a gradual, unnoticed leak can soak a wood structure until significant damage occurs. Cracks in grout and tiles on floors and around bathtubs, sinks and washing machines can admit enough water to rot wood framing. Periodic inspections for signs of leaking behind bathtub access panels, within sink vanities, and around washing machines and dishwashers can help to catch a problem earlier.

Condensation is an insidious source of moisture since the water comes from air vapor rather than an obvious source such as rain or a cracked pipe. Condensation occurs when warm moist air contacts a cold surface. Warm air can hold more moisture than cold air. If warm moist air comes in contact with a cold surface that is below the dew point temperature, the excess moisture changes to water droplets on the cold surface. Some common areas for condensation include:

- Crawl spaces beneath a building where water can condense on framing members such as sills and joists, especially in corners with poor air circulation and if the building is air conditioned in the summer – Plastic sheathing on the ground is recommended
- Cold water pipes in humid weather – Pipe insulation is recommended
- Window panes – Re-caulking of existing storm windows or new storm windows are recommended
- High humidity in kitchens, bathrooms and laundries – Exhaust fans and exterior clothes dryer vents are recommended
- Wood deterioration atop foundation – Wall insulation with an interior-facing vapor barrier and interior humidity control is recommended

DETECTING WOOD ROT

A simple means of testing for rot is to stab the wood member perpendicular to the grain with an awl or ice pick. Then measure the penetration depth and evaluate the type of splintering using the following criteria:

- If the penetration is less than \( \frac{1}{4} \) inch, the component does not need replacement
- If the penetration is more than \( \frac{1}{2} \) inch, the component might need replacement
- If long splinters are produced, the wood is healthy and the component does not need replacement
- If short sections broken across the grain are produced, the component might need replacement
Vinyl siding of different colors has been installed at each residence. The siding is not aligned and obscures wood window surrounds.

**TYPES OF ARTIFICIAL SIDING**

Artificial siding has been applied by Gloucester City’s property owners for years to provide an updated appearance and minimize maintenance and repair needs. Artificial siding materials include asphalt and asbestos and more commonly, vinyl and aluminum siding and capping. These materials can significantly change a building’s character and appearance and are not necessarily maintenance free. Most forms of artificial siding can trap moisture within a wall thickness, accelerating potential rot and decay.

**VINYL AND ALUMINUM SIDING**

Vinyl and aluminum siding typically simulates wood. Because vinyl and aluminum are extruded pieces of plastic and metal, they are thinner and visually lighter than wood. It should also be noted that in the event of a fire, the fumes from vinyl can be very hazardous.

If considering artificial siding, a smooth finish is recommended rather than a wood-grain finish. Replacement of this aluminum siding section would be the best way to repair the puncture. Since siding colors tend to fade from sunlight, the replacement siding probably would not match the existing siding.

**FIBER-CEMENT SIDING**

Fiber-cement siding is a lightweight, solid material that is a durable and visually more compatible material to wood than vinyl or aluminum siding. It is manufactured in similar sizes and shapes to wood products including siding, shingles and trim, making it easier to duplicate historic characteristics. The installation method is similar to wood, and it can be cut to shape on-site using hand tools, and painted to match any color scheme. Manufacturers indicate that fiber-cement products are resistant to rot, termites, fire and delamination, and are dimensionally stable, allowing paint to last longer. Fiber-cement products cost more than vinyl or aluminum siding but much less than wood siding. They are increasingly common in this region, and some manufacturers offer warranties for as long as 50 years.

Asphalt siding often simulates brick or stone wall surfaces.

Asbestos siding is often embossed with a wood grain pattern. The removal of asbestos siding can be dangerous and should be undertaken by trained professionals.

Fiber-cement siding material is a good economical alternative for an addition to an historic house. The surface of the Hardiplank siding above was painted to match the existing paint scheme.
**Exterior Woodwork or Artificial Siding?**

Property owners install artificial siding because of the desire to avoid maintenance issues associated with repainting, and aggressive marketing by the vinyl industry. They believe that artificial siding provides a maintenance free solution that will solve their exterior building problems for a lifetime. The table below contrasts common statements by the vinyl industry with the viewpoint of preservation professionals.

<table>
<thead>
<tr>
<th>Vinyl Industry View</th>
<th>Preservation View</th>
</tr>
</thead>
</table>
| “Vinyl siding is a cost effective alternative to wood” | • Vinyl siding is usually guaranteed for 20 years and costs approximately the same as two quality paint jobs. (Guarantees over 20 years are usually prorated.) Properly maintained wood siding has been found to last hundreds of years.  
• Vinyl siding installed over existing woodwork can trap moisture and lead to costly hidden structural repairs. (See weatherproof section below.)  
• Artificial siding can reduce home values by covering distinctive qualities and details. |
| “Vinyl siding improves the appearance of a building” | • Exposures, shadow lines, joint layout, texture and the sheen of vinyl siding typically do not match wood.  
• Historic or decorative trim is often covered or removed in the installation process. Installation typically requires damage to historic wall materials.  
• Stock vinyl trim is generally narrower than historic wood trim.  
• Historic details and decorative elements are generally not available in vinyl.  
• Available vinyl colors are limited and might not be appropriate for the building style.  
• Colors are difficult to change. (If change is desired, the type of paint should be compatible in material and color to minimize peeling, warping and curling.) |
| “Vinyl siding is weatherproof” | • It can be weatherproof if properly installed, but at many historic buildings there are crevices and uneven surfaces that allow moisture behind the artificial siding or capping. (Generally, new buildings with vinyl siding are constructed with an internal vapor barrier to exhaust moisture-laden air.)  
• Unlike wood, vinyl or metal siding does not breathe and can trap moisture within a building’s wall cavity. Trapped moisture condenses when it reaches the dew point, changing to water droplets that can drip and run through the wall’s structure. This can lead to rotting of sills and structural components, and potential mold and insect damage. (To reduce trapped moisture, install continuous wall vents under eaves and add weep holes to artificial siding.)  
• Installing vinyl or metal over deteriorated wood will not make the problem disappear. (Generally, by trapping additional moisture, the deterioration could accelerate and lead to costly hidden structural repairs.) |
| “Vinyl siding conserves energy” | • Insulation value of vinyl siding is minimal, even when it is backed by a thin layer of insulating foam or rigid board insulation. Furthermore, the insulation could trap additional moisture within the wall cavity.  
• Tests have shown that up to 75% of a typical building’s heat loss is through its roof. Installing attic insulation is a more cost effective method of reducing a heating bill. |
| “Vinyl siding is maintenance free” | • Like wood, vinyl siding needs regular cleaning.  
• Vinyl and aluminum siding is subject to denting, warping, cupping, puncturing and fading from sunlight exposure. Vinyl siding is prone to cracking in cold weather. Replacement patches usually do not match the earlier installation.  
• The painting of vinyl or aluminum siding to change or to freshen the appearance typically voids the manufacturer’s warrantee. (Type and color of paint used over vinyl siding should be compatible to minimize potential peeling, warping and curling. Once painted, artificial siding will need to be repainted as often as wood.) |
CONDENSATION

As a result of changes in our living standards, condensation has become a significant problem in historic buildings. Today’s buildings include central heating and air conditioning to stabilize temperatures and relative humidity, and insulation that can trap moisture. Buildings also include moisture-intensive conveniences such as plumbing, bathrooms, and laundry and cooking facilities. While interior conditions have stabilized and moisture laden activities increased, exterior temperatures and relative humidity are continuously changing.

The differences in temperature and relative humidity between the interior and exterior of our buildings are distributed through the thicknesses of exterior building walls. If the temperature is below the dew point at any location within the wall, condensation will occur causing the moisture to change into water droplets. Installing artificial siding over wood can exacerbate this problem and hide deterioration until it is very severe. Unlike wood, vinyl and aluminum siding do not “breathe” and can trap moisture within a building’s wall cavity, leading to rot, mold and insect damage of the wood structure. Therefore, it is important to inspect and repair potential water sources to minimize the moisture within the wall cavity.

REMOVING ARTIFICIAL SIDING

Some Gloucester City residents have removed artificial siding and restored underlying woodwork. Artificial siding removal allows buildings to function as originally designed and exposes problems that might have developed since its installation. If removing artificial siding from woodwork:

- Expect to replace about 20% of woodwork
- Expect surprises such as removed details and trim
- Sell aluminum siding for recycling

WOOD TRIM AND ARTIFICIAL SIDING

Most historic buildings usually have significant wood door and window frames, moldings and trim that can be removed, damaged or concealed in inappropriate artificial siding installations. The loss of these features can significantly alter the character of a building and streetscape.

Artificial siding installation over existing materials can increase the wall thickness, causing the existing wood trim to appear set back from the wall rather than projecting from it. This also diminishes the visual characteristics of the building.

INSTALLING ARTIFICIAL SIDING

If the repair and preservation of exterior woodwork is not an option, owners can install vinyl or aluminum siding and capping in a manner that minimizes damage to historic materials and mimics the appearance.

The GCHPC and GCUEZ encourage:

- Limiting the installation of artificial siding to areas of severe deterioration that are not repairable
- Repairing and repainting woodwork before installing artificial siding
- Retaining and leaving exposed decorative wood elements such as brackets, spindles, cornices, columns, posts, etc.
- Installing siding abutting existing wood trim at doors, windows and corners
- Maintaining ventilation behind vinyl or aluminum siding to minimize condensation and hidden rot
- Minimizing nailing and fastening into decorative elements and unique features
- Matching visual characteristics and patterns of historic materials
- Selecting a siding color that is compatible to the style of the building

The GCHPC and GCUEZ strongly discourage:

- Installing artificial siding over brick, stone or stucco since it changes the historic appearance and can lead to accelerated deterioration
- Installing artificial siding over the steeply sloped potions of Mansard roofs, which were historically covered in roofing materials such as slate
- Wood-grained siding
- Wavy-edged artificial shingles
- Vertical artificial siding and textured plywood (T-111) simulated vertical siding
Porches provide a sheltered transition into a home and should complement the style of the house. This example features paired columns.

**Porches**

The rich architectural variety of the City of Gloucester is distinguished by its collection of porches. Historically, porches were an outside room where residents could find a sheltered transition into their homes, exterior living space, and a place to meet and converse with neighbors. When they were constructed, the form, details and decorative elements were often intended to complement the style of the house.

Porches remain one of the most visible house elements and play a significant role in its appearance and that of the streetscape. They can act as an extension of a home providing a welcoming feeling for visitors. Unfortunately porches today are often one of the most altered components of a building frequently because they are not properly maintained or they are viewed as potentially enclosable indoor space.

**Looking for Evidence of Prior Porches**

It is important that documentation be found when replacing a missing porch. This can be physical evidence that a porch was present or documentation that shows or describes a porch.

- Look for shadows on the wall or trim from roofs, posts or railings, evidence of nailing patterns on siding, repairs to masonry walls, and evidence of former porch piers or foundations in landscape
- Look for historic photos, drawings or maps and in attics and garages for original components
- Compare porches on neighboring buildings of similar type, design, style and date of construction

**Porch Guidelines**

*The GCHPC and GCUEZ encourage:*

- Painting porches regularly to preserve the wood
- Retaining, repairing and replacing porch elements in-kind whenever possible
- Rebuilding a porch with appropriate documentation
- A painted finish complementing the architectural characteristics of the house – Pressure-treated wood can be painted after its initial weathering period of 6 to 12 months

*The GCHPC and GCUEZ discourage:*

- Enclosing a porch at the front or prominent elevation of a building
- Installing metal posts and railings; they are almost never appropriate for a historic building
- Replacing wood steps with concrete or brick – wood steps are typically appropriate for wood porches
- Using “natural” or stained wood; they are generally not appropriate for a porch on a painted historic building

Following the removal of aluminum siding, evidence of the former, full-width porch at the front elevation was revealed. The profile of the former porch cornice is visible at the left side of the building and can provide the basis for the construction of the replacement porch. Also note the size of the first floor windows was reduced and the former openings infilled with plywood prior to installing aluminum siding.
MAINTAINING HISTORIC PORCHES
Because of the importance porches play in the perception of historic buildings and streetscapes, original materials and details should be preserved as long as possible. Typically areas covered by a porch roof tend to require less maintenance; however, steps, railings, and roofs are usually exposed to the weather and might require additional maintenance. One of the best ways to preserve wood porch features is regular painting. If a component is deteriorating, repair or replacement in kind is recommended as part of the porch’s regular maintenance.

The GCHPC and GCUEZ encourage:
1. Identifying deteriorated elements
2. Finding and correcting sources of deteriorated elements, such as deteriorated, cracked, blocked, inappropriately hung, broken or missing gutters or downspouts
3. Replacing only those parts which can not be repaired – in some instances, such as columns and posts, the base can be replaced without replacing the entire column or post at a fraction of the cost
4. Replacing missing or deteriorated materials with similar new materials, avoiding replacement of a wood railing with a metal or vinyl railing system

GUIDELINES FOR NEW PORCHES
There are times when property owners might consider the construction of a new porch. This can occur when a previous porch is reconstructed; a new porch is added onto an existing house or is part of an addition; or when a new residence is erected. If considering the construction of a new porch, the GCHPC and GCUEZ recommend the following general guidelines:

- New porches are encouraged on streets where porches are common
- At existing buildings, new construction should not damage, destroy, conceal or negatively affect existing historic material and features
- On additions, side and rear elevation porches are typically simpler in design than front elevation porches
- On new buildings, porches should visually relate to the proposed building in a manner similar to historic porches on neighboring buildings
- Consider the size, shape, scale, massing, form, materials, and color of the design and its appropriateness to the house and streetscape
- Most porches in Gloucester City were historically made of wood; stone or brick porches or stoops might be appropriate on masonry buildings

ENCELING PORCHES
Porches were meant to be open exterior spaces. Enclosing a front porch is a radical change to the building and its visual perception from the streetscape. If considering porch enclosure, it is recommended that this occur only at a side or rear elevation porch. If enclosing a porch, it is recommended that the finished space look more like a porch than an enclosed room.

The GCHPC and GCUEZ encourage:
- Retaining porch elements in place and constructing enclosure framing inside of porch columns and railings
- Temporary enclosure systems, such as screens or glazing that can be removed seasonally
- Reversible enclosure systems that do not damage decorative or unique historic building fabric
- Translucent enclosure systems, with large screened or glazed openings
- Vertical and horizontal framing members that align behind porch elements like columns and railings

The GCHPC and GCUEZ discourage:
- Removing or enclosing historic porches

PORCH REPAIR INFORMATION
Since many of the components of porches are discussed in depth in other Guideline brochures, it might be helpful to consult the following information to address specific repair needs:
- Guidelines for Roofing
- Guidelines for Masonry & Stucco
The contrasting colors highlight the cornice details.

**Exterior Paint**

Exterior paint provides a layer of protection to a building by adding a barrier that limits moisture infiltration and damage from the sun, pests and other forms of deterioration. Exterior woodwork is susceptible to moisture-related wood deterioration of the exterior envelope and underlying framing. Although exterior paint is an important protective layer to improve the longevity of a historic resource, it must be viewed as a temporary barrier that is subject to deterioration through cyclical temperature and humidity changes that requires re-application to maintain its shielding properties.

In addition to providing a protective layer, paint colors can highlight a building’s architectural features and style, visually tie the parts of a building together, in addition to reflecting personal taste. A building’s style, period of construction, materials and setting all contribute to an appropriate choice of paint color.

**Paint Properties**

Paint is one of the most common ways to protect exterior materials, particularly wood, from the elements. When the painted surface has been compromised, moisture and the elements can infiltrate the underlying material and accelerate potential deterioration.

In general, exterior surfaces should be repainted every five to eight years, with potential touch-ups of high traffic, worn or deteriorated areas. If the frequency of complete repainting is greater, there might be an indication of another problem such as:

- Presence of excessive moisture
- Paint was applied with inadequate surface preparation or under adverse conditions
- Paint is not compatible to underlying material or previously applied paint

Please refer to the appropriate Guideline brochures for information regarding the painting of various materials and painting as a form of maintenance.

**Repainting**

When considering repainting, the following five steps are recommended:

1. **Determine whether painting is necessary:** Prior to beginning a painting project, it is appropriate to determine whether complete repainting is required or if cleaning and/or spot repainting is more appropriate. By painting more often than is necessary, paint layers can build up, increasing the potential for future paint failure. A dingy finish might only require washing with a mild detergent solution and natural bristle brushes to freshen the appearance.

2. **Inspect existing paint for causes of failure:** To assure the new paint will last as long as possible, property owners should inspect the existing paint for causes of failure. Some common paint problems are:

   - Peeling – possible causes are painting under adverse conditions, inadequate surface preparation or moisture infiltration
   - Blistering – cut into blister, and if wood is visible the problem is probably moisture related; if paint is visible, the problem area was probably painted in direct hot sun
   - Wrinkling – typically the result of the top coat drying before the underlying coat; sand surface smooth and repaint
   - Cracking or crazing – typically the sign of a hard surface that does not expand and contract with underlying material; sand and repaint if cracking and crazing is limited to the surface; remove paint if it extends down to the wood
   - Alligatoring – severe cracking and crazing; remove all paint down to bare wood

3. **Repair causes of failure:** Before repainting, causes of paint failure causes should be repaired. A substantial amount of paint failure is due to moisture problems such as: areas near rooflines, gutters and downspouts; areas near the ground; horizontal surfaces such as window sills; and moisture migration through exterior walls from kitchens, bathrooms and laundry rooms.

   Remediate areas of moisture and repair any damaged wood or substrate material prior to repainting. Remediation of moisture can include repair of gutters and downspouts, reducing moisture migration through the walls by installing an interior humidifier, improving perimeter...
drainage away from the building foundation, and removing perimeter shrubs and other vegetation. Refer to the *Guideline* brochures, in particular the *Guidelines for Exterior Maintenance* for additional information.

4. **Prepare surface:** To insure a long-lasting painted surface, appropriate surface preparation should be undertaken before repainting.
   - Begin by washing the painted surfaces with a mild detergent solution and natural bristle brushes, then carefully scrape and sand for a smooth finish, removing any paint that is not tightly bonded to the surface
   - Putty or caulk countersunk nails, window glazing, gaps, joints and openings
   - Allow substrate to thoroughly dry before applying primer or paint
   - Spot prime bare wood, areas of repair and wood replacement

5. **Repaint:** High quality paint applied in accordance with manufacturer’s recommendations should improve the longevity of a paint job. In general, it is best to use compatible primer and paint from the same manufacturer, and apply two coats of paint to previously base wood.
   - Apply paint during appropriate weather conditions, generally 50°F and 90°F, less than 60% relative humidity, avoiding direct sunlight

The paint on this door has alligatored, and severe cracking is visible. Removal of paint down to bare wood and proper door repair are recommended prior to repainting.

**COMPLETE PAINT REMOVAL**

It is important to remember that any method of paint removal can result in harm to historic building fabric. Therefore, complete paint removal from a surface should only occur under limited circumstances.

Complete paint removal might be necessary in circumstances in which the existing paint on a surface has completely failed. Examples where complete paint removal would be appropriate include:

- Wholesale blistering or peeling that revealing the underlying substrate
- Continuous patterns of deep cracks in the surface of painted wood
- When windows, doors or shutters have been painted shut
- To achieve a smooth transition when a new wood element or Dutchman is being installed as a repair
- To prevent deterioration of historic building features
- To prevent deterioration of masonry for historically unpainted masonry surfaces

The use of the same three-color paint scheme at each of the buildings provides visual unity. Building details are highlighted with contrasting colors, with complementary colors found at awnings above the storefront windows.
**STRIPPING PAINT**

If the existing paint has failed, it might be necessary to strip all or portions of the paint from the surface. Although there are a variety of tools and chemicals available to strip paint, many of them are potentially hazardous and can cause significant damage to exterior surfaces. All manufacturers’ recommendations should be followed during the paint removal process.

*The GCHPC and GCUEZ encourage:*

- Hand washing with a mild detergent and natural bristle brushes
- Hand scraping
- Hand sanding

*The GCHPC and GCUEZ suggest great care using:*

- Rotary tools – disks can leave circular marks and wires can tear into surface
- Heat guns and heat plate – can ignite paint or underlying surface if left in one location too long
- Chemical paint removers – can raise grains of some woods, be expensive and potentially volatile; runoff is potentially hazardous and should be collected to prevent harm to children, pets, vegetation and storm water

*The GCHPC and GCUEZ strongly discourage:*

- Flame tools such as blowtorches to soften paint – smoldering sparks can start a potentially devastating fire; lead components in paint can vaporize and create highly toxic fumes
- Sandblasting – can be abrasive to surface and wear away protective exterior coating
- High pressure water wash –forces water into open joints affecting interior finishes and structural framing; can be abrasive to exterior surface

**PAINT REMOVAL SAFETY**

Paint removal is potentially hazardous work. Keep children and pets clear of work areas. Property owners should consult a professional for work that is unfamiliar or potentially unsafe.

- Always wear safety goggles and a dust mask
- With heat tools, always wear appropriate clothing and keep a fire extinguisher nearby
- Paint dust from older buildings can contain lead – wear a dust mask, avoid open food or beverage containers in area of paint removal, and thoroughly clean exposed skin and launder work clothes.

---

**PAINTING REFERENCES**

Paint colors can highlight a building’s architectural features and reflect personal taste. Generally, Colonial Revival homes would historically have a two-color paint scheme; Victorian homes might have a three or four-color, earth-tone, paint scheme. Please refer to the appropriate Guidelines and the Guidelines for Exterior Maintenance for information on painting specific materials and the Guidelines for Historic Properties for reference books and sources. The following books address appropriate historic building paint colors:


---

© Dominique M. Hawkins, AIA, of Preservation Design Partnership in Philadelphia, PA, preparer of this publication.