4.4 Siding and Trim Design Guidelines

4.4.1 INTRODUCTION

Siding and trim of a building – whether on residential or commercial buildings – are the 'skin' of the building which protect the building from the elements while also reflecting the style and character of the building.

The materials used for a buildings' siding vary over the years: in the mid 19th-century, wood siding was used for both commercial and residential buildings due to its easy availability in the north Texas area. Siding could be horizontal (novelty siding, 1" x 4"s for example) or vertical (simple flat boards or board and batten). Towards the end of the 19th-century, masonry was available (although expensive as it was not made locally) and was widely used as structure and exterior materials in commercial buildings and as a veneer in some of the larger residential buildings.

This trend continued through the early decades of the 20th-century and is reflected in Grapevine's historic commercial buildings of masonry construction and with the majority of Grapevine's residential buildings with wood siding.

The trim used at a building - both residential and commercial – is typically wood, and can be door trim (or casing), window trim, corner boards, fascia trim, cornices, patterned siding (or shingles) at a gable, dormer trim, porch and roof trim.

Trim provides the ornamentation that gives a house or commercial building much of its architectural character and is associated with the style of a building. For example, wood roof brackets are typically associated with Arts and Crafts houses while fanciful and delicate ornate porch or eave brackets are associated with Queen Anne houses. As such, trim is one of the most important components of a historic building with most trim elements having both a structural function while expressing the style of the building.

Although materials other than wood can be used for siding and trim, these guidelines shall primarily address wood siding and trim.

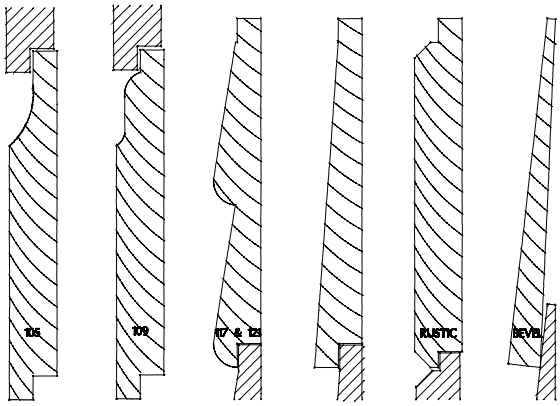
4.4.2 TYPES OF SIDING

Siding, as the surface material on the outside of a structure, provides protection for the building against weather. In north Texas that includes often violent storms and accompanying rain, hail and sleet, and the searing heat of summer.

In commercial structures, siding or exterior materials on the walls are typically masonry, stucco or stone. Masonry and stone are addressed in detail in the *Masonry Design* chapter of these Guidelines.

Fake brick, stone or gravel aggregate materials shall never be used on commercial or residential structures.

Wood siding typically used in Grapevine houses are horizontal siding with either a top front rabbet and a bottom rear rabbet that lap the board below or tongue-and-grove edges; this siding is installed directly against the wall (exterior studs) of the house, and is commonly referred to as 'drop' or novelty siding.



TYPICAL WOOD HORIZONTAL SIDING PROFILES

TYPICAL NOVELTY SIDING

TYPICAL 'LAPPED' SIDING

Board and batten siding is also a common siding type and is used at the side and rear of commercial properties, some houses and particularly at accessory buildings. Wide vertical boards are applied directly to the structure, and are then covered at the joints with narrow boards (battens). A 'reverse' board and batten siding has the smaller boards (battens) applied directly to the structure with the larger boards at the top.

BOARD AND BATTEN SIDING

As boards in horizontal and board and batten siding overlap one another, this provides a limited amount of natural insulation, and when properly maintained by caulking and painting,

can last for a very long time. Most of the historic houses in Grapevine retain their original wood siding, including some that date from the 1870's.

Newer and non-historic siding materials such as asbestos, asphalt, aluminum, vinyl and cement board are not recommended for use on historic buildings.

4.4.3 SYNTHETIC SIDING MATERIALS.

Synthetic siding materials have been used since the 1930's with the introduction of asbestos cement shingles and asphalt shingles.

Asbestos shingles were made of cement reinforced with asbestos fibers, and were rigid. Asphalt shingles are a composition of several materials – fiberglass saturated with asphalt – and was originally made as a replacement for wood roofing shingles, but was also manufactured specifically for vertical siding installations. Asphalt shingles are pliable so are not subject to damage and breakage as asbestos cement shingles are.

Both asphalt and asbestos shingles were installed over wood siding in an effort to reduce the maintenance associated with wood siding.

Typically, these shingles were nailed directly to the wood siding, and the corner boards, window and door trim and other trim elements were often left in place. However, roof brackets, porch brackets and trim that was considered to be ornamentation was removed to accommodate these new siding materials.

These siding materials bear little resemblance to historic siding materials. While the original massing and style of the building was retained after replacement of the siding, much of the historic character was lost due to both the change in texture of the siding, and the loss of trim and ornamentation on the building.

ASBESTOS SIDING which RETAINS THE WINDOW TRIM, CORNER BOARDS and FASCIA

ASBESTOS SIDING with HISTORIC TRIM REMOVED

As these siding materials were installed for lengthy periods of time before removal, they hid deterioration to the historic wood siding and trim below due to moisture accumulation between the historic and new siding. Often, the historic wood siding was deteriorated beyond repair due to this, and replacement of the historic siding in its entirety was required.

Modern synthetic materials such as metal (typically aluminum) and vinyl siding, are applied in a manner similar to the older shingles – directly on top of the historic siding, although rigid insulation may now be installed. With these newer types of siding, the existing window, door and other trim elements are typically removed and discarded as these synthetic siding systems provide new, low-profile trim at doors, windows, corners, etc.

Synthetic siding materials adversely affect the appearance of a historic residence and typically result in the loss of historic elements that are critical to the character of the building: door and window trim, roof brackets and other decorative trim, texture of the siding. Loss of this historic character at one building also alters the historic visual relationship between the buildings in a district.

METAL SIDING with CHANGES AT WINDOWS and LOSS of MAJORITY OF TRIM

Installation of metal, vinyl and similar synthetic siding materials also damage the historic wood siding by nailing directly to it. Existing problems which signal early warning signs of deterioration (such as a hidden source of water entry within an exterior wall or leaking from the roof) may be hidden by the installation of synthetic siding; unfortunately, these problems continue and will only worsen, and may destroy the historic wood siding below once new siding is installed over the wood. Eventually moisture will surface and affect the new synthetic siding; however, by this time the historic wood siding underneath may be damaged beyond repair.

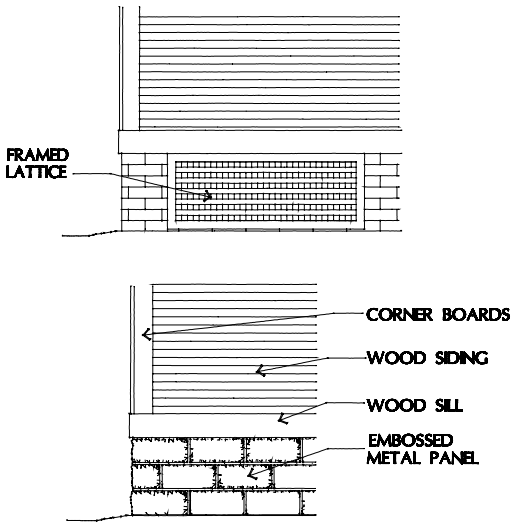
For these reasons, synthetic materials such as aluminum, vinyl siding or cement boards may not be used on historic properties.

4.4.4 NEW SIDING and TRIM

Where new siding and trim is necessary to replace severely deteriorated existing siding and trim at historic buildings, or is to be used at new construction (new house or accessory structures), wood siding shall be used. This new wood siding and trim shall be appropriate to and compatible with wood siding used elsewhere in the district and immediate vicinity. Appropriate wood trim at windows, doors, corner boards, top and sill conditions, brackets, cornices, roof trim and other decorative trim shall used. The size (width and height), scale, profile and relationship to other components (siding) shall be carefully considered in design and installation. It is appropriative for trim at new construction to be a simplified design, respecting historic trim used in other buildings in the district but not imitative in design.

TRIM AT A QUEEN ANNE HOUSE: GABLE TRIM, WINDOW TRIM, FINIAL AT ROOF, TEXTURED SHINGLES AT GABLE and DECORATIVE CORNER BRACKETS.

In addition, new skirting at residential buildings shall be appropriate to the building. Wood siding as a continuation of the siding on the walls, lattice that is 'framed' or pressed metal are examples of appropriate skirting materials.

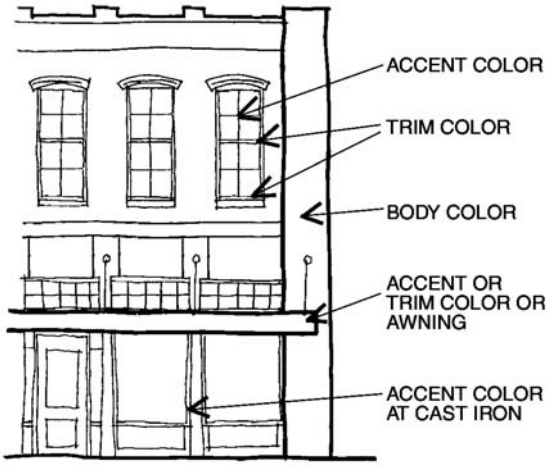


RESIDENTIAL BUILDING SKIRTING

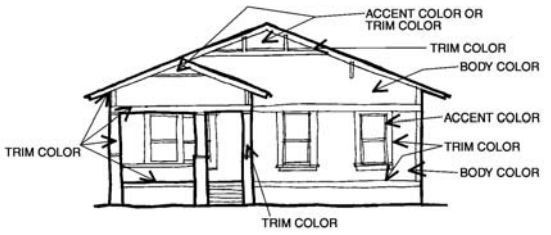
4.4.5 PAINTING OF SIDING AND TRIM

While painting and selection of paint colors of residential and commercial buildings is addressed in chapter 4.5, *Paint and Color Design Guidelines*, the use of color to reinforce the architectural style and character of a historic building is worthy of repetition. Refer to this chapter for information on approved paint palettes.

Paint colors for the siding and trim of a building are to be appropriate to the style, period and type of building and its district or area. Paint colors should be complementary to each other and the overall character of the buildings and district, and shall be used to accentuate the building's significant features; the right colors respect the historic building. When possible, research the original paint colors and finishes of the historic building, and document these for future use.



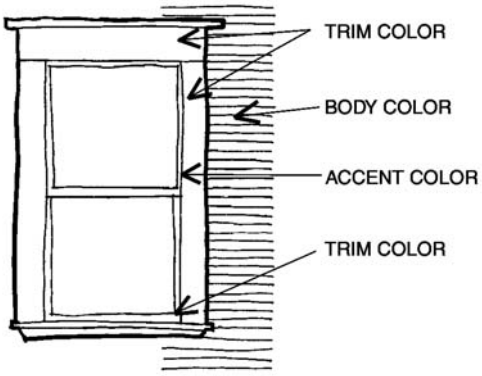
TRIM and ACCENT COLORS at COMMERCIAL BUILDINGS



TRIM and ACCENT COLORS at RESIDENTIAL BUILDINGS

WOOD TRIM at DOORS, WINDOWS and BASE OF SIDING at COMMERCIAL STOREFRONT REINFORCES TRIM DESIGN

The articulation and details of exterior walls, window and doors and openings, building and roof trim, scale and texture of exterior materials can be enhanced or obscured by appropriate and inappropriate paint colors selected for a building.



WINDOW TRIM COLORS

Additional Technical information on the stabilization and repair of historic siding and trim is included in *'Technical Guidelines'* (Part 5).

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PRESERVATION BRIEFS: 8

Aluminum and Vinyl Siding on Historic Buildings

The Appropriateness of Substitute Materials for Resurfacing Historic Wood Frame Buildings.

John H. Myers, revised by Gary L. Hume

U.S. Department of the Interior
National Park Service
National Center for Cultural Stewardship and Partnerships
Heritage Preservation Services Division
Technical Preservation Services

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Standard 6 of the *Secretary of the Interior's Standards for Rehabilitation* states that "deteriorated architectural features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials..." The Guidelines further caution against "removing or radically changing wood features which are important in defining the overall historic character of the building so that, as a result, the character is diminished."

A historic building is a product of the cultural heritage of its region, the technology of its period, the skill of its builders, and the materials used for its construction. To assist owners, developers and managers of historic property in planning and completing rehabilitation project work that will meet the Secretary's "Standards for Rehabilitation"(36 CFR 67), the following planning process has been developed by the National Park Service and is applicable to all historic buildings. This planning process is a sequential approach to the preservation of historic wood frame buildings. It begins with the premise that historic materials should be retained wherever possible. When retention, including retention with some repair, is not possible, then replacement of the irreparable historic material can be considered. The purpose of this approach is to determine the appropriate level of treatment for the preservation of historic wood frame buildings. The planning process has the following steps:

1. Identify and preserve those materials and features that are important in defining the building's historic

character. This may include features such as wood siding, brackets, cornices, window architraves, doorway pediments, and their finishes and colors.

2. Undertake routine maintenance on historic materials and features. Routine maintenance generally involves the least amount of work needed to preserve the materials and features of the building. For example, maintenance of a frame building would include caulking and painting; or, where paint is extensively cracking and peeling, its removal and the reapplication of a protective paint coating.

3. Repair historic materials and features. For a historic material such as wood siding, repair would generally involve patching and piecingin with new material according to recognized preservation methods.

4. Replace severely damaged or deteriorated historic materials and features in kind. Replacing sound or repairable historic material is never recommended; however, if the historic material cannot be repaired because of the extent of deterioration or damage, then it will be necessary to replace an entire characterdefining feature such as the building's siding. The preferred treatment is always replacement in kind, that is, with the same material. Because this approach is not always feasible, provision is made under the recommended treatment options in the Guidelines that accompany the Secretary of the Interior's Standards to consider the use of a compatible substitute material. A substitute material should only be considered, however, if the form, detailing, and overall appearance of the substitute material conveys the visual appearance of the historic material, and the application of the substitute material does not damage, destroy or obscure historic features.

In many cases, the replacement of wood siding on a historic building is proposed because little attention has been given to the retention of historic materials. Instead, the decision to use a substitute material is made because: (1) it is assumed that aluminum or vinyl siding will be a maintenancefree material; and (2) there is the desire to give a building a "remodeled" or "renovated" appearance. A decision to replace historic material must, however, be carefully considered for its impact on the historic resource--even when the model planning process has been followed and the appropriate treatment is replacement.

Therefore, this brief focuses on the visual and physical consequences of using a substitute material such as aluminum or vinyl siding for new siding installations on a wood frame historic building. These concerns include the potential of damaging or destroying historic material and features; the potential of obscuring historic material and features; and, most important, the potential of diminishing the historic character of the building.

The Historic Character of Buildings and Districts

The character or "identity" of a historic building is established by its form, size, scale and decorative features. It is also influenced by the choice of materials for the walls--by the dimension, detailing, color, and other surface characteristics. This is particularly true for wood frame buildings which are the typical objects of aluminum or vinyl siding applications. Since wood has always been present in abundance in America, it has been a dominant building material in most parts of the country. Early craftsmen used wood for almost every aspect of building construction: for structural members such as posts, beams and rafters, and for cladding materials and decorative details, such as trim, shakes, and siding.

The variety of tools used, coupled with regional differences in design and craftsmanship, has resulted in a richness and diversity of wood sidings in America. For example, narrow boards with beveled, lapped joints called "clapboards" were used on New England frame dwellings. The size and shape of the "clapboards" were determined by the process of hand splitting or "riving" bolts of wood. The width, the

short lengths, the beveled lapping, the "feathered" horizontal joints, and the surface nailing of the clapboards created a distinctive surface pattern that is recognizable as an important part of the historic character of these structures.

The sawn and handplaned clapboards used throughout the MidAtlantic and Southern states in the eighteenth and early nineteenth centuries, by contrast, have a wide exposure--generally between six and eight inches. The exposure of the siding, frequently coupled with a beaded edge, created a very different play of light and shadow on the wall surface, thus resulting in a different character. The "German" or "Novelty siding"--a milled siding that is thin above and thicker below with a concave bevel--was used throughout many parts of the United States in the late nineteenth and early twentieth century but with regional variations in material, profile, and dimensions. One variation of this type of milled siding was called "California siding" and was milled with a rabbetted or shiplap edge to insure a tight installation of the weather boards. Shingles were also commonly used as an exterior cladding material, and in buildings such as the Bungalow style houses, were often an important characterdefining feature of the exterior. Shingles were often applied in decorative patterns by varying the lap, thus creating alternating rows of narrow exposures and wide exposures. Shingles were also cut in geometric patterns such as diamond shapes and applied in patterns. This treatment was commonly used in the gable end of shingled houses. Siding and wood shingles were often used in combination with materials such as cobblestone and brick in Bungalow style buildings to create a distinctive interplay of surfaces and materials.

The primary concern, therefore, in considering replacement siding on a historic building, is the potential loss of those features such as the beaded edge, "drop" profile, and the patterns of application. Replacing historic wood siding with new wood, or aluminum or vinyl siding could severely diminish the unique aspects of historic materials and craftsmanship. The inappropriate use of substitute siding is especially dramatic where sufficient care is not taken by the owner or applicator and the width of the clapboards is altered, shadow reveals are reduced, and molding or trim is changed or removed at the corners, at cornices or around windows and doors. Because substitute siding is usually added on top of existing siding, details around windows and doors may appear set back from the siding rather than slightly projecting; and if the relationship of molding or trim to the wall is changed, it can result in the covering or removal of these historic features. New substitute siding with embossed wood graining--intended to simulate the texture of wood--is also visually inappropriate. Exaggerated graining would have been undesirable on real wood siding and is generally found only after sandblasting, a destructive and totally unacceptable treatment for wood.

While this discussion focuses primarily on the historic character of individual wood frame buildings, of equal importance is the context of buildings that comprise a historic district or neighborhood. Changes to the characterdefining features of a building, such as distinctive clapboarding and other wall surfaces and decorative trim, always have an impact on more than just that building; they also alter the historic visual relationship between the buildings in the district. If characterdefining weatherboards, clapboards or shingles are replaced on a number of buildings in a historic district, the historic character of the entire district may be seriously damaged. Because of the potential impact some substitute materials have on the character of a neighborhood or district, many communities regulate their use through zoning ordinances and design review boards. These ordinances and review boards usually require review and approval of proposed alterations to a historic building that could potentially impact the historic character of the building or the district, including the application of substitute materials, such as aluminum or vinyl siding.

Preservation of a building or district and its historic character is based on the assumption that the retention of historic materials and features and their craftsmanship are of primary importance. Therefore, the underlying issue in any discussion of replacement materials is whether or not the integrity of historic materials and craftsmanship has been lost. Structures are historic because the materials and

craftsmanship reflected in their construction are tangible and irreplaceable evidence of our cultural heritage. To the degree that substitute materials destroy and/or conceal the historic fabric, they will always subtract from the basic integrity of historically and architecturally significant buildings.

The Products and Their Installation

The use of aluminum and vinyl siding really involves two separate industries. The siding materials themselves, including a variety of inside and outside corner pieces, trim and molding pieces and panning for window and door frames, are produced by a comparatively small number of manufacturers. The product information, advertising, and any manufacturer's warranties on the product itself are handled by this part of the industry. The installation of aluminum or vinyl siding is generally carried out by independent contractors or applicators, who are frequently called "home improvement" contractors, and they are not affiliated with the manufacturers. The manufacturer's warranties normally do not cover the installation, or any damage or defect resulting from the installation process.

Since the manufacturer has little control over the quality of the installation, both the quality of the work and the sensitivity of the application are variable. This variation in quality has traditionally been a problem in the industry and one which the industry and its professional associations have attempted to correct through publishing and disseminating information on the proper application of vinyl and aluminum siding.

Although it is sometimes argued that an artificial siding application is reversible since it can be removed, there is frequently irreversible damage to historic building materials if decorative features or trim are permitted to be cut down or destroyed, or removed by applicators and discarded. The installation process requires that the existing surface be flat and free of "obstructions" so that the new siding will be smooth and even in appearance. To achieve the requisite flat surface, furring strips are usually placed over the wall surface (vertical furring strips for horizontal aluminum or vinyl siding and viceversa for vertical siding). The potential danger in this type of surface preparation is that the furring strips may change the relationship between the plane of the wall and the projecting elements such as windows, door trim, the cornice, or any other projecting trim or molding. Projecting details may also cause a problem. To retain them, additional cutting and fitting will usually be required. Further, additional or special molding pieces, or "accessories" as they are called by the industry, such as channels, inserts and drip caps, will be needed to fit the siding around the architectural features. This custom fitting of the siding will be more laborintensive, adding to the cost of the siding installation.

The existing wall fabric is further damaged by the nailing necessary to apply siding. Either by nailing directly to the building fabric or by nailing the furring strips to the old siding, the installation of aluminum or vinyl siding will leave numerous holes in wood siding, molding, trim, window and door frames. When applied to brick or other masonry units, the nail penetrations attaching the furring strips and siding can cause irreversible cracking or spalling of the masonry. Although this reference to damaging masonry is included as a point of fact, the application of aluminum or vinyl siding is highly inappropriate to historic masonry buildings.

The Use of Aluminum or Vinyl Siding on Historic Buildings

The maintenance and periodic painting of wood frame structures is a timeconsuming effort and often a substantial expense for the homeowner. It is therefore understandable that a product which promises relief from periodic painting and gives the building a new exterior cladding would have considerable appeal. For these reasons, aluminum and vinyl siding have been used extensively in upgrading and rehabilitating the nation's stock of wood frame residential buildings. For historic residential buildings,

aluminum or vinyl siding may be an acceptable alternative only if (1) the existing siding is so deteriorated or damaged that it cannot be repaired; (2) the substitute material can be installed without irreversibly damaging or obscuring the architectural features and trim of the building; and (3) the substitute material can match the historic material in size, profile and finish so that there is no change in the character of the historic building. In cases where a nonhistoric artificial siding has been applied to a building, the removal of such a siding, and the application of aluminum or vinyl siding would, in most cases, be an acceptable alternative, as long as the abovementioned first two conditions are met.

There are, however, also certain disadvantages in the use of a substitute material such as aluminum or vinyl siding, and these factors should be carefully considered before a decision is made to use such a material rather than the preferred replacement with new wood siding duplicating the old.

Applying Siding without Dealing with Existing Problems

Since aluminum and vinyl sidings are typically marketed as home improvement items, they are frequently applied to buildings in need of maintenance and repair. This can result in concealing problems which are the early warning signs of deterioration. Minor uncorrected problems can progress to the point where expensive, major repairs to the structure become necessary.

If there is a hidden source of water entry within the wall or leakage from the roof, the installation of any new siding will not solve problems of deterioration and rotting that are occurring within the wall. If deferred maintenance has allowed water to enter the wall through deteriorated gutters and downspouts, for example, the cosmetic surface application of siding will not arrest these problems. In fact, if the gutters and downspouts are not repaired, such problems may become exaggerated because water may be channeled behind the siding. In addition to drastically reducing the efficiency of most types of wall insulation, such excessive moisture levels within the wall can contribute to problems with interior finishes such as paints or wallpaper, causing peeling, blistering or staining of the finishes.

It cannot be overemphasized that a cosmetic treatment to hide difficulties such as peeling paint, stains or other indications of deterioration is not a sound preservation practice; it is no substitute for proper care and maintenance. Aluminum and vinyl siding are not directly at fault in these situations since property owners should determine the nature and source of their problems, then make appropriate repairs. The difficulty arises when owners perceive the siding as the total solution to their required maintenance and forgo other remedial action.

Durability and Cost

The questions of durability and relative costs of aluminum or vinyl siding compared to the maintenance cost of historic materials are complex. It is important to consider these questions carefully because both types of siding are marketed as long lasting, low maintenance materials. Assuming that the substitute sidings are not damaged, and that they will weather and age normally, there will be inevitable changes in color and gloss as time passes. A normal application of aluminum or vinyl siding is likely to cost from two to three times as much as a good paint job on wood siding. A sensitive application, retaining existing trim, will cost more. Therefore, to break even on expense, the new siding should last as long as two or three paintings before requiring maintenance. On wood two coats of good quality paint on a properly prepared surface can last from 8 to 10 years, according to the U.S. Department of Agriculture. If a conservative life of seven years is assumed for paint on wood, then aluminum and vinyl siding should last 15 to 21 years before requiring additional maintenance, to break even with the maintenance cost for painting wood siding. Once painted, the aluminum and vinyl siding will require repainting with the same frequency as wood.

While aluminum siding can dent upon impact and the impact resistance of vinyl siding decreases in low temperatures and, therefore, is susceptible to cracking from sharp impact, these materials are generally not more vulnerable than wood siding and shingles. All siding materials are subject to damage from storm, fire, and vandalism; however, there is a major difference in the repairability of wood siding versus substitute materials such as aluminum and vinyl. Although they can all be repaired, it is much easier to repair wood siding and the repair, after painting, is generally imperceptible. In addition, a major problem in the repairability of aluminum and vinyl siding, as mentioned above, is matching color since the factory finishes change with time. Matching the paint for wood siding has a greater likelihood of success.

Energy

Because of high fuel costs, there is a concern for energy conservation in historic materials as well as in substitute materials. Because aluminum and vinyl siding can be produced with an insulating backing, these products are sometimes marketed as improving the thermal envelope of a historic building. The aluminum and vinyl material themselves are not good insulators, and the thickness of any insulating backing would, of necessity, be too small to add to the energy efficiency of a historic building. What energy savings did accrue as a result of a siding application would probably be as much the result of the creation of an air space between the old and new siding as the addition of insulating material. If the historic wood siding were removed in the course of installing the aluminum or vinyl siding (even with an insulating backing), the net result would likely be a loss in overall thermal efficiency for the exterior sheathing.

Preservation Briefs Number 3, "Conserving Energy in Historic Buildings," notes that the primary sources of energy loss in small frame buildings are the doors, windows and roof. It is, therefore, more costeffective to apply storm windows, weatherstripping and attic insulation than to treat the sidewalls of these structures. There are numerous publications on energy retrofitting which explain techniques of determining costeffectiveness based on utility costs, Rfactors or materials and initial cost of the treatment. Persons interested in this approach may wish to read "Retrofitting Existing Houses for Energy Conservation: An Economic Analysis" published by the National Bureau of Standards, or the U.S. Department of Housing and Urban Development booklet "In the Bank or Up the Chimney." One such study in Providence, Rhode Island, determined that for a twostory house, twentyfive feet square, the payback period for twentythree storm windows, two storm doors and six inches of attic insulation (R20) was 4.4 years while the payback period of aluminum siding with an Rfactor of 2.5 was 29.96 years. Most of the information which is available supports the position that aluminum or vinyl siding will not have a reasonable payback on an energysaving basis alone.

Summary

The intent of this brief has been to delineate issues that should be considered when contemplating the use of aluminum or vinyl sidings on historic buildings and assessing under what circumstances substitute materials such as artificial siding may be used without damaging the integrity of the historic building or adversely changing its historic character. Many property owners are faced with decisions weighing the historic value of their building and its maintenance cost against the possible benefit of aluminum and vinyl siding materials. To assist in making these decisions, "The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings" have been published and are available from National Park Service Regional Offices and State Historic Preservation Offices. Further, since rehabilitation projects for income-producing historic buildings often seek tax benefits under the 1981 Economic Recovery Tax Act, as amended, it is essential that all work, such as the replacement of exterior siding, be carried out in conformance with the Standards and be consistent

with the building's historic character to insure that the tax benefits are not denied.

As stated earlier, the application of aluminum and vinyl siding is frequently considered as an alternative to the maintenance of the original historic material. The implication is that the new material is an economical and long-lasting alternative and therefore somehow superior to the historic material. In reality, historic building materials such as wood, brick and stone, when properly maintained, are generally durable and serviceable materials. Their widespread existence on tens of thousands of old buildings after many decades in serviceable condition is proof that they are the original economic and longlasting alternatives. All materials, including aluminum and vinyl siding can fall into disrepair if abused or neglected; however, the maintenance, repair and retention of historic materials are always the most architecturally appropriate and usually the most economically sound measures when the objective is to preserve the unique qualities of historic buildings.

The appropriate preservation decision on the use of a substitute material in the rehabilitation of a historic building must always center on two principal concerns: the possible damage or destruction of historic building materials; and, the possible negative impact on the historic character of the building and the historic district or setting in which the building is located. Because applications of substitute materials such as aluminum and vinyl siding can either destroy or conceal historic building material and features and, in consequence, result in the loss of a building's historic character, they are not recommended by the National Park Service. Such destruction or concealment of historic materials and features confuses the public perception of that which is truly historic and that which is imitative.

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This Preservation Brief was written by John H. Myers, Historical Architect, formerly with Technical Preservation Services, and was published first in 1979. The Brief was substantially revised in 1984 by Gary L. Hume, Deputy Division Chief, Preservation Assistance Division. H. Ward Jandl, Chief,

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This publication has been prepared pursuant to the National Historic Preservation Act of 1966, as amended, which directs the Secretary of the Interior to develop and make available information concerning historic properties. Technical Preservation Services (TPS), Heritage Preservation Services Division, National Park Service prepares standards, guidelines, and other educational materials on responsible historic preservation treatments for a broad public.

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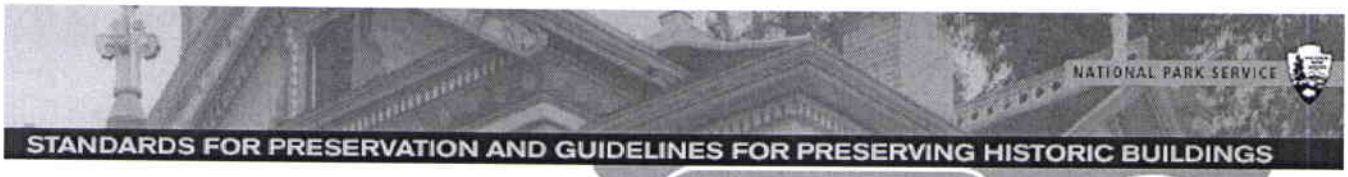
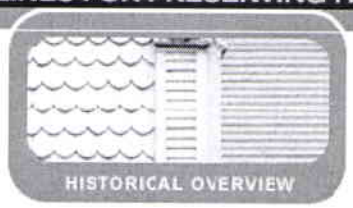


EXTERIOR MATERIALS

wood



Identify Stabilize Protect Repair Replace in Kind

Identify, Retain and Preserve

RECOMMENDED

Identifying, retaining, and preserving wood features that are important in defining the overall historic character of the building such as siding, cornices, brackets, window architraves, and doorway pediments; and their paints, finishes, and colors.

Whether it is used for exterior cladding, roofing, interior finishes, decorative features, or structural members, wood is frequently an essential component of historic and older buildings which should be retained and preserved. Photo: NPS files.

NOT RECOMMENDED

Altering wood features which are important in defining the overall historic character of the building so that, as a result, the character is diminished.

Replacing historic wood features instead of repairing or replacing only the deteriorated wood.

Changing the type of paint or finish and its color.

top

Stabilize

RECOMMENDED

-GUIDELINES-

The Approach

Exterior Materials
Masonry
Wood
Architectural Metals

Exterior Features
Roofs
Windows
Entrances + Porches
Storefronts

Interior Features
Structural System
Spaces/Features/Finishes
Mechanical Systems

Site

Setting

Special Requirements
Energy Efficiency
Accessibility
Health + Safety

THE STANDARDS

Stabilizing deteriorated or damaged wood as a preliminary measure, when necessary, prior to undertaking appropriate preservation work.

NOT RECOMMENDED

Failing to stabilize deteriorated or damaged wood until additional work is undertaken, thus allowing further damage to occur to the historic building.

TOP

Protect and Maintain

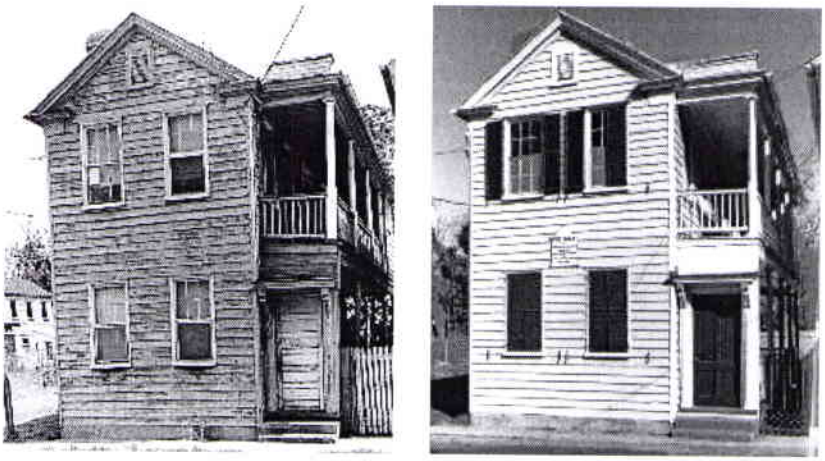
RECOMMENDED

Protecting and maintaining wood features by providing proper drainage so that water is not allowed to stand on flat, horizontal surfaces or accumulate in decorative features.

Applying chemical preservatives to wood features such as beam ends or outriggers that are exposed to decay hazards and are traditionally unpainted.

Retaining coatings such as paint that help protect the wood from moisture and ultraviolet light. Paint removal should be considered only where there is paint surface deterioration and as part of an overall maintenance program which involves repainting or applying other appropriate protective coatings.

Inspecting painted wood surfaces to determine whether repainting is necessary or if cleaning is all that is required.



Maximizing retention of historic materials and features is the primary goal of Preservation, as demonstrated here in these "before" and "after" photographs. Aside from some minor repairs and limited replacement of deteriorated material, work on this house consisted primarily of repainting the wood exterior. Photos: Historic Charleston Foundation.

Removing damaged or deteriorated paint to the next sound layer using the gentlest method possible (handscraping and handsanding), then repainting.

Using with care electric hot-air guns on decorative wood features and electric heat plates on flat wood surfaces when paint is so deteriorated that total removal is necessary prior to repainting.

Using chemical strippers primarily to supplement other methods such as handscraping, handsanding and the above-recommended thermal devices. Detachable wooden elements such as shutters, doors, and columns may--with the proper safeguards--be chemically dip-stripped.

Applying compatible paint coating systems following proper surface preparation.

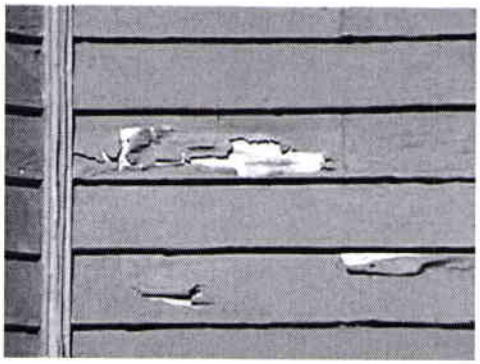
Repainting with colors that are appropriate to the historic building and district.

Evaluating the existing condition of the wood to determine whether more than protection and maintenance are required, that is, if repairs to wood features will be necessary.

NOT RECOMMENDED

Failing to identify, evaluate, and treat the causes of wood deterioration, including faulty flashing, leaking gutters, cracks and holes in siding, deteriorated caulking in joints and seams, plant material growing too close to wood surfaces, or insect or fungus infestation.

Using chemical preservatives such as creosote which, unless they were used historically, can change the appearance of wood features.



As shown, the paint on this house is failing in isolated spots, while most of it is in good condition. On older buildings heavy paint buildup is common. The thick paint film traps moisture in the wood. As the moisture escapes from the wood it pushes the paint off the wall, leaving spots of bare wood. Photo: © John Leeke.

Stripping paint or other coatings to reveal bare wood, thus exposing historically coated surfaces to the effects of accelerated weathering.

Removing paint that is firmly adhering to, and thus, protecting wood surfaces.

Using destructive paint removal methods such as propane or butane torches, sandblasting or waterblasting. These methods can irreversibly damage historic woodwork.

Using thermal devices improperly so that the historic woodwork is scorched.

Failing to neutralize the wood thoroughly after using chemicals so that new paint does not adhere.

Allowing detachable wood features to soak too long in a caustic solution so that the wood grain is raised and the surface roughened.

Failing to follow manufacturers' product and application instructions when repainting exterior woodwork.Using new colors that are inappropriate to the historic building or district.

Failing to undertake adequate measures to assure the protection of wood features.

top

Repair

RECOMMENDED

Repairing, stabilizing, and conserving fragile wood using well-tested consolidants, when appropriate. Repairs should be physically and visually compatible and identifiable upon close inspection for future research.

Repairing wood features by patching, piecing-in, or otherwise reinforcing the wood using recognized preservation methods. The new work should be unobtrusively dated to guide future research and treatment.

NOT RECOMMENDED

Removing wood that could be stabilized and conserved; or using untested consolidants and untrained personnel, thus causing further damage to fragile historic materials.

Removing wood that could be repaired, using improper repair techniques, or failing to document the new work.

top

The following work is highlighted to indicate that it represents the greatest degree of intervention generally recommended within the treatment Preservation, and should only be considered after protection, stabilization, and repair concerns have been addressed.

Limited Replacement in Kind

RECOMMENDED

Replacing in kind extensively deteriorated or missing parts of wood features when there are surviving prototypes such as brackets, molding, or sections of siding. New work should match the old in material, design, color, and texture; and be unobtrusively dated to guide future research and treatment.

An example of "limited replacement in kind" points out an appropriate scope of work within the treatment, Preservation. Targeted repairs to deteriorated wood cornice elements (fascia board and modillions) meant that most of the historic materials were retained in the work. Photo: NPS files.

NOT RECOMMENDED

Replacing an entire wood feature such as a column or stairway when limited replacement of deteriorated and missing parts is appropriate.

Using replacement material that does not match the historic wood feature; or failing to properly document the new work.

HISTORICAL OVERVIEW - preserving - REHABILITATING - RESTORING - RECONSTRUCTING main - credits - email

GUIDELINES FOR
EXTERIOR WOODWORK

Township of Hopewell Historic Preservation Commission

GUIDELINES FOR EXTERIOR WOODWORK

Wood clapboard siding is one of the most common historic exterior wall materials in Hopewell Township.

PURPOSE

These *Guidelines* were prepared to assist property owners with information when considering the maintenance, repair, replacement or installation of wood siding, shingles and trim. They are not intended to replace consultation with qualified architects, contractors and the Historic Preservation Commission (HPC). The HPC will be happy to provide consultation and assistance with materials, free of charge.

These *Guidelines* were developed in conjunction with Hopewell Township's Historic Preservation Commission (HPC). The HPC reviews Certificate of Appropriateness (COA) applications for proposed exterior alterations to properties locally designated as Historic Landmarks or within a local Historic District. 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 COA Administrator at (609) 737-0612, ext. 643.

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 are available at the Township Administration Building and on its web site at www.hopewelltwp.org.

WOOD SIDING, SHINGLES AND TRIM

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 and ornamental trim. 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 dark brown color of these stained beveled shingles blends with the natural surroundings.

The original building to the left has clapboard siding, and the later addition, located to the right, has German siding.

COMMON SIDING TYPES

The two most common types of wood siding for residences in Hopewell Township are clapboard and German siding.

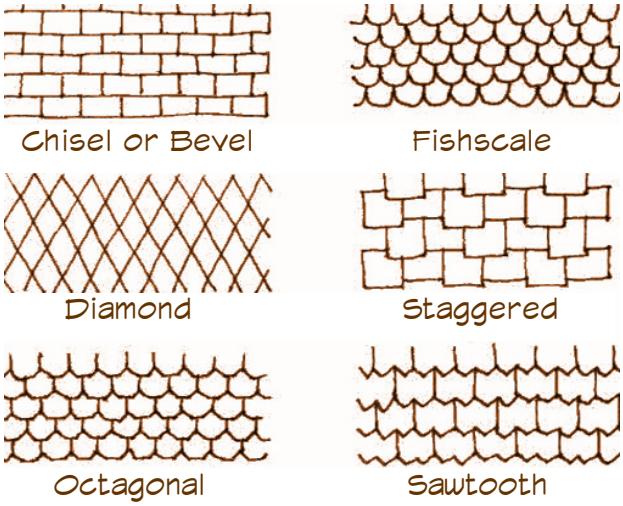
- **Clapboard Siding**, also known as weatherboard or beveled siding, is made from long boards, tapered across the width. Clapboard is installed by nailing an upper board overlapping a lower board with joints staggered across the wall surface. The boards are usually nailed to allow approximately four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

The two most common types of wood siding for agricultural and secondary buildings in Hopewell Township are vertical board and board and batten siding. Most secondary buildings are 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 Hopewell Township's neighborhoods. 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 combines fishscale, beveled and staggered shingles.

Historically board and batten siding was typically used for secondary buildings and farm structures. This example includes visible signs of deterioration. Problems include bare wood from peeling and missing paint, splitting or checking along the bottom edges of the siding, and unsecured battens.

EXTERIOR WOODWORK CHECKLIST

Property owners generally do not notice their exterior woodwork until 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 HPC encourages:

- **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 before 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. For historic buildings, low luster paint is generally most appropriate. Refer to *Guidelines for Exterior Maintenance* for more painting information.
- **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 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.

The HPC discourages:

- Removing or encapsulating siding and trim with artificial siding
- Removing or encapsulating of 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

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, 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.

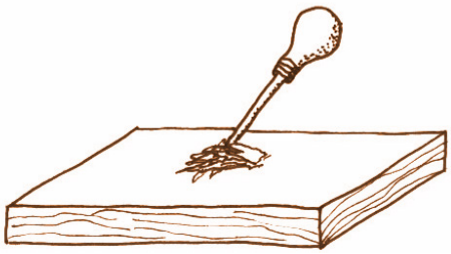
Rain and snow can find its way into a building through crevices and be confined within a wall cavity. Exterior surfaces with open joints or those that are not protected by paint, caulk or mortar are subject to water infiltration. Blocked or undersized gutters and downspouts can overflow and direct water 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 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

Less penetration and long splinters are an indication of healthy wood



Greater penetration and short splinters against the grain are a possible indication of rot

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 ¼ inch, the component does not need replacement
- If the penetration is more than ½ 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 Hopewell Township'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.

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.

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

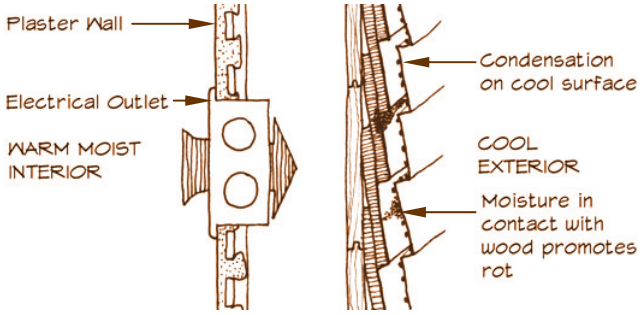
Fiber-cement siding is a lightweight, solid material that is a durable and visually more compatible material to wood than vinyl or aluminum siding. It is manufactured in similar sizes and shapes to wood products including siding, shingles and trim, making it easier to duplicate historic characteristics. 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 warrantees for as long as 50 years.

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 ARTIFICAL 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.

VINYL INDUSTRY VIEW	PRESERVATION VIEW
"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.)



ARTIFICIAL SIDING INSTALLATION

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 vinyl 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 Hopewell Township 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

Aluminum capping has been installed over the window frame. Aluminum capping usually lacks the profile and detail of wood trim. It can also trap moisture within the wall surface that can accelerate rot and deterioration.

The window frame has been completely covered with the vinyl siding. The depth and articulation formerly provided by the frame has been eliminated. Without the frame, the visual dimensions of the window are changed and character of the building diminished.

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.

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.

To avoid these problems, retain as much of the wood trim and decorative details exposed as possible. In some instances spacers might need to be installed behind wood trim to maintain appropriate depths and visual characteristics.

The HPC encourages:

- Leaving wood trim in place whenever possible

The wood siding remains under the aluminum siding.

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 HPC encourages:

- 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 HPC discourages:

- Installing artificial siding over brick, stone or stucco since it changes the historic appearance and can lead to accelerated deterioration
- Wood-grained siding
- Wavy-edged artificial shingles
- Vertical artificial siding and textured plywood (T-111) simulated vertical siding at residences

Agricultural outbuildings historically were typically painted red and usually featured vertical board or board and batten siding.

The owners of each half of this semi-detached house applied a uniform paint scheme, making it appear like a larger single home. Architectural woodwork details including the overhanging cornice, decorative brackets and porch posts remain and provide architectural richness.

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Historic Exteriors: Preserving wood

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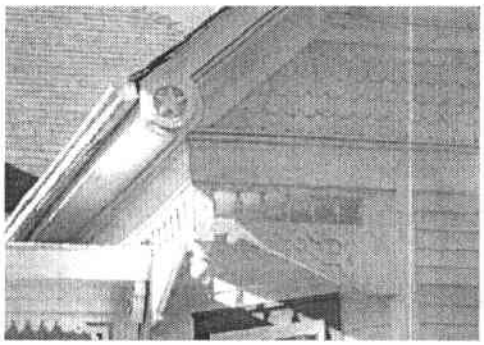
Preservation experts from the National Park Service recommend the following steps in restoring any historic structure. ***First,*** *identify the historically significant features.* ***Second,*** *protect the features that are historically significant.* ***Third,*** *repair damage to historically important features.* ***Fourth,*** *replace what cannot be repaired.* ***Fifth,*** *recreate missing features that were historically significant.* ***And lastly,*** *avoid new additions that alter the historical appearance inside, or outside. These steps are based on guidelines developed by the Department of the Interior.*

Wood: an introduction

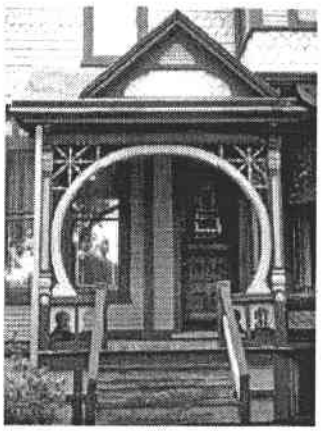


Because it can be easily shaped by sawing, planing, carving, and gouging, wood is used for architectural features such as clapboard, cornices, brackets, entablatures, shutters, columns and balustrades.

These wooden features, both functional and decorative, may be important in defining the historic character of the building and thus their retention, protection, and repair are important in rehabilitation projects. Wood has played a central role in American building during every period and in every style.

Whether as structural membering, exterior cladding, roofing, interior finishes, or decorative features, wood is frequently an essential component of historic and older buildings.

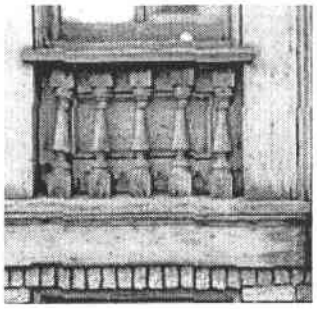
Step 1: Identify, retain, preserve



Identify, retain, and preserve wood features that are important in defining the overall historic character of the building such as siding, cornices, brackets, window architraves, and doorway pediments; and their paints, finishes, and colors. The wood features on this porch were repaired and preserved during rehabilitation.

Not recommended:

Removing or radically changing wood features which are important indefining the overall historic character of the building so that, as a result, the character is diminished.



- Removing a major portion of the historic wood from a facade instead of repairing or replacing only the deteriorated wood, then reconstructing the facade with new material in order to achieve a uniform or "improved" appearance.
- Radically changing the type of finish or its color or accent scheme so that the historic character of the exterior is diminished.
- Stripping historically painted surfaces to bare wood, then applying clear finishes or stains in order to create a "natural look." In the picture above, the wood features have been inappropriately stripped of traditional painted finish.
- Stripping paint or varnish to bare wood rather than repairing or reapplying a special finish, i.e., a grain finish to an exterior wood feature such as a front door.

Step 2: Protect and maintain historically significant features

Protect and maintain wood features by providing proper drainage so that water is not allowed to stand on flat, horizontal surfaces or accumulate in decorative features.

Apply chemical preservatives to wood features such as beam ends or outriggers that are exposed to decay hazards and are traditionally unpainted.

Retain coatings such as paint that help protect the wood from moisture and ultraviolet light. Paint removal should be considered only where there is paint surface deterioration and as part of an overall maintenance program which involves repainting or applying other appropriate protective coatings.

Inspect painted wood surfaces to determine whether repainting is necessary or if cleaning is all that is required.

Remove damaged or deteriorated paint to the next sound layer using the gentlest method possible (hand scraping and hand-sanding), then repainting.

Use electric hot-air guns carefully on decorative wood features and electric heat plates on flat wood surfaces when paint is so deteriorated that total removal is necessary prior to repainting.

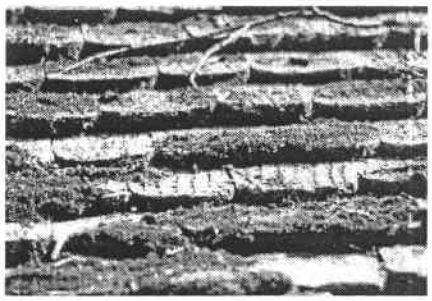
Use chemical strippers primarily to supplement other methods such as hand scraping, hand sanding and the above-recommended thermal devices. Detachable wooden elements such as shutters, doors, and columns may--with the proper safeguards--be chemically dip-stripped.

Apply compatible paint coating systems following proper surface preparation.

Repaint with colors that are appropriate to the historic building and district.

Evaluate the overall condition of the wood to determine whether more than protection and maintenance are required, that is, if repairs to wood features will be necessary.

Not recommended:



Failing to identify, evaluate, and treat the causes of wood deterioration, including faulty flashing, leaking gutters, cracks and holes in siding, deteriorated caulking in joints and seams, plant material growing too close to wood surfaces, or insect or fungus infestation. In the picture at right, moss on wood shingles indicates damaging moisture retention.

- Using chemical preservatives such as creosote which can change the appearance of wood features unless they were used historically.
- Stripping paint or other coatings to reveal bare wood, thus exposing historically coated surfaces to the effects of accelerated weathering.
- Removing paint that is firmly adhering to, and thus, protecting wood surfaces.
- Using destructive paint removal methods such as a propane or butane torches, sandblasting or water-blasting. These methods can irreversibly damage historic woodwork.
- Using thermal devices improperly so that the historic woodwork is scorched.
- Failing to neutralize the wood thoroughly after using chemicals so that new paint does not adhere.
- Allowing detachable wood features to soak too long in a caustic solution so that the wood grain is raised and the surface roughened.
- Failing to follow manufacturers' product and application instructions when repainting exterior woodwork.
- Using new colors that are inappropriate to the historic building or district.
- Failing to undertake adequate measures to assure the protection of wood features.

Step 3: Repair damaged historical features

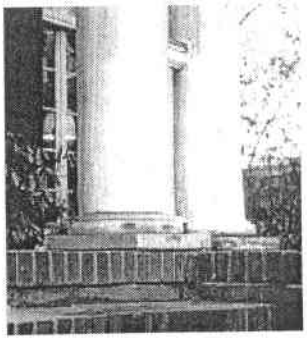
Repair wood features by patching, piecing-in, consolidating, or otherwise reinforcing the wood using recognized preservation methods.

Repair may also include the limited replacement in kind--or with compatible substitute material--of those extensively deteriorated or missing parts of features where there are surviving prototypes such as brackets, molding, or sections of siding. Limited replacement-in-kind of deteriorated wood clapboards is shown at left.

Not recommended:

- Replacing an entire wood feature such as a cornice or wall when repair of the wood and limited replacement of deteriorated or missing parts are appropriate.
- Using substitute material for the replacement part that does not convey the visual appearance of the surviving parts of the wood feature or that is physically or chemically incompatible.

Step 4: Replace what cannot be repaired



Replace in kind an entire wood feature that is too deteriorated to repair--if the overall form and detailing are still evident--using the physical evidence as a model to reproduce the feature. Examples of wood features include a cornice, entablature or balustrade.

If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered. At right, a rotted wood column base has been replaced with new wood.

Not recommended:

- Removing a feature that is not repairable and not replacing it; or replacing it with a new feature that does not convey the same visual appearance.

Step 5: Recreate missing features

Design for missing historic features represents the particularly complex technical or design aspects of rehabilitation projects. It should only be considered after the preservation concerns listed above have been addressed.

Design and install a new wood feature such as a cornice or doorway when the historic feature is completely missing. It may be an accurate restoration using historical, pictorial, and physical documentation; or be a new design that is compatible with the size, scale, material, and color of the historic building.

Not recommended:

- Creating a false historical appearance because the replaced wood feature is based on insufficient historical, pictorial, and physical documentation.
- Introducing a new wood feature that is incompatible in size, scale, material and color.

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