



Township of Cheltenham

Board of Historical and Architectural Review

GUIDELINES FOR EXTERIOR WOODWORK



The owner of this Queen Anne home removed the aluminum siding and repaired underlying wood shingles and applied an appropriate paint scheme.

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 BHAR.

These guidelines were developed in conjunction with Cheltenham Township's Boards of Historical Architectural Review [BHARs]. The BHARs review Certificate of Appropriateness [COA] applications for proposed exterior alterations to properties within the historic districts that are 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 COA Administrator at [215] 887-6200 ext. 213.

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.

WOOD SIDING, SHINGLES AND TRIM

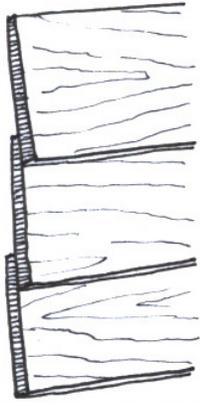
Wood siding, shingles and trim on a building's wall surface serves both functional and aesthetic purposes. Functionally, exterior woodwork acts as the skin of the building, shedding water and deflecting sunlight and wind. Aesthetically, woodwork is an important design feature and can be applied as siding, 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

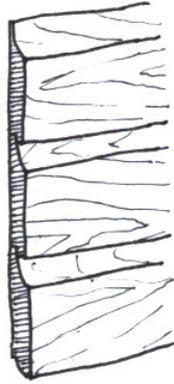
With proper maintenance, exterior wood elements can last for centuries, however improper maintenance can result in problems and deterioration from water, fungus, mold and insects.



Stained beveled shingles were often used in Arts and Crafts or Craftsman influenced homes. The dark brown color was intended to blend with the natural surroundings.



Clapboard Siding



German Siding

COMMON SIDING TYPES

The two most common types of wood siding in Cheltenham 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.

In addition to clapboard and German siding, there is also beaded edge siding, butt-edged siding, and board and batten siding. Board and batten siding is one of the few historically appropriate vertical siding types, and its use is generally limited to secondary buildings such as barns and carriage houses.

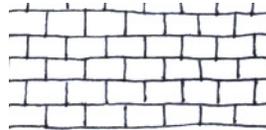


Although the walls of this residence were covered with artificial siding, the decorative wood pediment remains exposed to view.

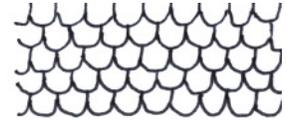
COMMON SHINGLE TYPES

There is a great variety of wood shingled wall surfaces in Cheltenham's Victorian and Queen Anne 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



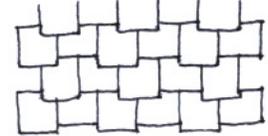
Chisel or Bevel



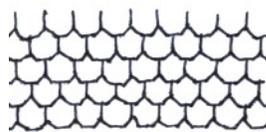
Fishscale



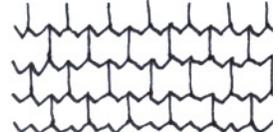
Diamond



Staggered



Octagonal



Sawtooth

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, decorative details, etc.



This siding includes visible signs of deterioration. Problems include bare wood from peeling and missing paint, splitting or checking along the grain of the post and siding, and open joints between the siding and post.

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 maintenance, peeling paint, rot or deterioration, infestation and loose, cracked or missing elements.

Generally, the actual condition on unmaintained exterior wood is 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 BHAR 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. (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 the wall cavity through crevices and damage decorative details.
- **Maintaining and repainting** exterior woodwork on a regular basis. A good quality paint job can last 8-10 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. For historic buildings, low luster paint is generally most appropriate.

- **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 they are character defining elements that can be difficult and costly to replace. Replacement wood elements 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 BHAR 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 extents 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.

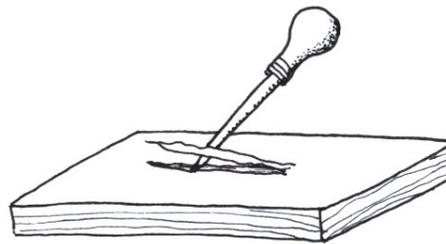
Ground water can migrate from the soil into the house by: direct contact between wood and soil; improper drainage away from the foundation; vegetation too close to the foundation; water vapor condensation in crawl spaces; and capillary action or rising damp in masonry foundation walls carrying water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

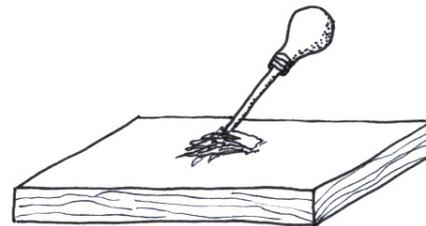
Leaky plumbing is generally sudden, such as a cracked pipe, or slow, where a gradual, unnoticed leak can soak a wood structure until significant damage has occurred. Cracks in grout and tiles on floors and around bathtubs, sinks and washing machines can admit enough water to rot wood framing. Periodic 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 are 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 $\frac{1}{4}$ 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



Artificial siding over decorative elements can greatly change the appearance of the streetscape. The artificial siding can trap moisture and deteriorate the underlying woodwork.

TYPES OF ARTIFICIAL SIDING

Artificial siding has been applied by Cheltenham 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 will 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. Although fiber-cement products are less common in this region, they have been used in the South for many years and some manufacturers offer warranties for as long as 50 years.



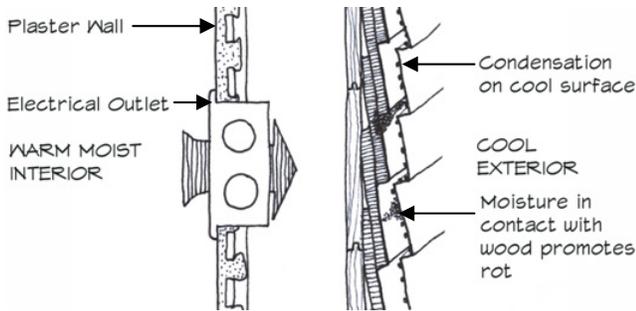
Fiber-cement siding material is a good economical alternative for an addition to an historic house. The surface of the Hardiplank siding above was painted to match the existing paint scheme.

EXTERIOR WOODWORK OR 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.

VINYL INDUSTRY VIEW	PRESERVATION VIEW
<i>“Vinyl siding is a cost effective alternative to wood”</i>	<ul style="list-style-type: none"> • 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.
<i>“Vinyl siding improves the appearance of a building”</i>	<ul style="list-style-type: none"> • 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.)
<i>“Vinyl siding is weatherproof”</i>	<ul style="list-style-type: none"> • 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.)
<i>“Vinyl siding conserves energy”</i>	<ul style="list-style-type: none"> • 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.
<i>“Vinyl siding is maintenance free”</i>	<ul style="list-style-type: none"> • 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, laundry and cooking. 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. Regular moisture in wood can lead to rot, mold and insect damage. Therefore, it is important to inspect and repair potential water sources to minimize the moisture within the wall cavity.

REMOVING ARTIFICIAL SIDING

Some Cheltenham 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.

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 BHLAR encourages:

- Leaving wood trim in place whenever possible



The wood window frame remains exposed in spite of the application of asphalt siding. The exposed woodwork adds visual interest and is in keeping with the size and proportion of the window.

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. Without the frame, the visual dimensions of the window are changed and character of the building diminished.

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 BHAR encourages:

- Limiting the installation of artificial siding to areas of severe deterioration that are not repairable
- Repairing and repainting woodwork prior to 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 BHAR 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
- Textured plywood (T-111) simulated vertical siding



The owners of each half of this semi-detached house repaired the exterior woodwork and applied a uniform paint scheme, making it appear like a larger single home.



Typical of the Queen Anne style, this home features a variety of decorative exterior wood elements including wavy wood shingles at the front pediment, scalloped shingles on the walls, prominent rake boards along the roof, a projecting oriel window with a decorative diamond pattern at the front gable and bracketed turned wood posts at the front porch.

This publication was initiated and overseen by the Township of Cheltenham and made possible through a grant provided by the Pennsylvania Historical and Museum Commission.

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

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

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