



V. GUIDELINES FOR EXISTING STRUCTURES: MATERIALS





A. Introduction

As a homeowner, the choices you make regarding materials to use on the exterior of your house directly affect the appearance of the Cradock Historic District.

In this chapter you will find helpful information on the maintenance and repair of various materials that were used for houses in Cradock. You will also find guidance on replacement or substitute materials that may be approved for use on your house.



A majority of Cradock houses were constructed of the same materials including wide wooden board siding (clapboard), wooden windows and trim, and asbestos shingle roofs. Over the years many of these materials have been replaced with substitute materials with varying degrees of success in retaining the historic character of the district.



In a departure from the majority of Cradock houses, this two-story example has a brick first level with wooden shingles covering the large shed-roof dormer above, and wood windows and trim.



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This house retains many wooden elements including its windows, trim, door and sidelights, and siding.



A few houses in Cradock are clad in wooden shingles either in-full or in-part. Also note the wooden details, such as the bracketed pediment covered entry and cornice returns.

B. Wood

The availability and flexibility of wood has made it the most common building material throughout much of America's building history. Because it can be shaped easily by sawing, planing, and carving, wood is used for a broad range of decorative elements, such as cornices, shutters, posts and columns, railings, and trim on windows and doors. In addition, wood is used in major elements, such as framing and siding.

Wood is the primary building material in Cradock. The wood frames of the houses in the district were originally clad in wood siding, which in many cases still exists beneath replacement siding, such as asbestos, vinyl or aluminium. Wood shingles are also used occasionally as an exterior cladding material in the district.

Original windows and doors are also constructed of wood as is the trim that surrounds those elements. The porches and roof trim are also original wood elements.

Maintenance

Wood requires consistent maintenance. The main objective is to keep it free from water damage, rot and wood-boring pests.

- 1** Keep all surfaces primed and painted.
- 2** Use appropriate pest poisons, as necessary, following product instructions carefully.
- 3** Recaulk joints where moisture might penetrate a building.
- 4** Allow pressure-treated wood to season for a year before painting it. Otherwise, the wood-preserving chemicals might interfere with paint adherence.
- 5** Identify sources of moisture problems, and take appropriate measures to fix them.
 - a.** Remove vegetation that grows too closely to wood, and take any other steps necessary to ensure the free circulation of air near wood building elements.
 - b.** Repair leaking roofs, gutters, downspouts, and flashing.
 - c.** Maintain proper drainage around the foundation to prevent standing water.



⊘ Inappropriate Treatments

- 1 Do not use liquid siding. See *Section E: Paint* for more information on this treatment.
- 2 Do not use high-pressure power washing to clean wood siding as the pressure may force moisture behind the siding where it can lead to paint failure and rot.
- 3 Do not caulk under individual siding boards or window sills as this action seals the building too tightly and can lead to moisture problems within the frame walls and paint failure.

✓ Guidelines

- 1 Retain wood features that define the overall character of the building.
- 2 Repair rotted or missing sections rather than replacing the entire element.
 - a. Use new or salvaged wood, epoxy consolidates or fillers to patch, piece or consolidate parts.
 - b. Match existing historic materials and details.
- 3 Replace wood elements only when they are rotted beyond repair.
- 4 Match the original in material and design or by the use of substitute materials that convey the same visual appearance or by using surviving material.
- 5 Base the design of reconstructed elements on pictorial or physical evidence from historic sources.



By keeping the exterior wooden elements of your house clean, well-painted and otherwise in good general repair, you can prolong the lifespan of these elements. In this example, the second floor exterior is clad in vertical board-and-batten, an original design feature of one of the house types.



A number of the original wood siding boards on this Cradock house are being replaced with new wood that replicates the old in appearance to retain the historic character of the house.

Preservation Brief #08:
Aluminum and Vinyl Siding on Historic Buildings
www.nps.gov/history/hps/tps/briefs/brief08.htm

Preservation Brief #09:
The Repair of Historic Wooden Windows
www.nps.gov/history/hps/tps/briefs/brief09.htm

Preservation Brief #10:
Exterior Paint Problems on Historic Woodwork
www.nps.gov/history/hps/tps/briefs/brief10.htm



Low-pressure power washing can be an environmentally sensitive approach to cleaning historic masonry.

C. Masonry

Historic masonry materials include brick, stone, terra cotta, concrete, stucco, tile, and mortar. Brick foundations and chimneys are character-defining elements in Cradock. Concrete is also found in the district and is used for some foundations and porch floors in addition to site elements, such as walkways and driveways.

Maintenance

Most masonry problems can be avoided with monitoring and prevention. Disintegrating mortar, cracks in mortar joints, loose bricks, or damaged plaster work may signal the need for masonry repair.

- 1** Prevent water from gathering at the base of a wall by ensuring that the ground slopes away from the wall.
- 2** Repair leaking roofs, gutters, and downspouts and secure loose flashing.
- 3** Ensure that cracks do not indicate structural settling or deterioration. Repair cracks and unsound mortar according to the guidelines later in this section.
- 4** Masonry should only be cleaned when necessary to remove heavy paint buildup, halt deterioration or to remove heavy soiling.
- 5** The best method for cleaning unpainted brick is to use a low-pressure wash of no more than 200 psi, equivalent to the pressure in a garden hose. A mild detergent may be added when necessary.
- 6** Test any detergent or chemical cleaner on a small, inconspicuous part of the building first. Older brick may be too soft to clean and can be damaged by detergents and by the pressure of the water. This test is a mandatory step if you are applying for federal or state rehabilitation tax credits.
- 7** Use chemical paint and dirt removers formulated for masonry cautiously. Do not clean with chemical methods that damage masonry, and do not leave chemical cleaners on the masonry longer than recommended.
- 8** Follow any local environmental regulations in regard to chemical cleaning and disposal.



🏠 Maintenance Repointing

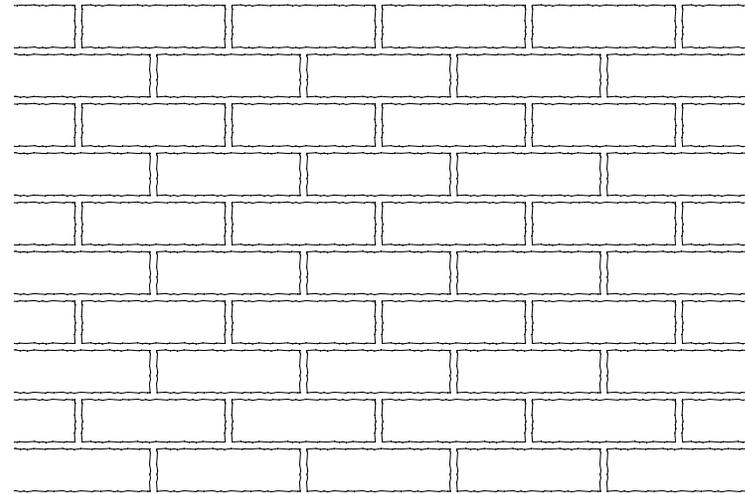
Old bricks are different from new bricks and the mortar, the material that makes the joints, has to be different as well. Appearance is not the only issue. An improper mortar mix can damage historic brick. Professionals experienced in working with old masonry can guide you in appropriate repointing methods.

9 Remove deteriorated mortar and masonry by hand-raking the joints to avoid damage to the brick or the surrounding area. Roughly one inch of old mortar should be removed to allow for the new mortar.

10 Appearance: Duplicate old mortar joints in width and profile (see the *Mortar Joint Profile* illustration on the this page). It is also possible to match the color of the new mortar to that of a clean section of existing mortar.

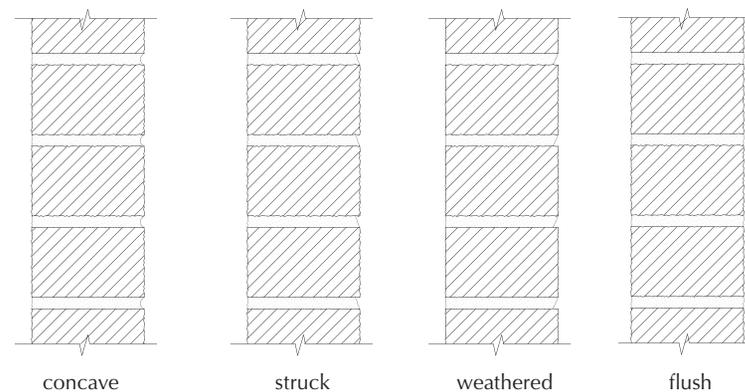
11 Strength: Do not repoint with mortar that is stronger than the original mortar and brick. Brick expands and contracts with freezing and heating conditions, and old mortar moves to relieve the stress. If a hard portland cement mortar is used, the mortar will not flex as much, and the brick can crack, break, or spall.

12 Composition: Mortar of older brick buildings has a high lime and sand content, usually one part lime to two parts sand. Portland cement may be substituted for a portion of the lime as long as the mortar mix is no more than 20 percent portland cement.



The running bond pattern shown here is used for both foundations and chimneys in Cradock.

MORTAR JOINT PROFILES



Identify the original profile of mortar joints used on your foundation and chimney, and replicate that profile in any new work.



Preservation Brief #01:

Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Buildings

www.nps.gov/history/hps/tps/briefs/brief01.htm

Preservation Brief #02:

Repointing Mortar Joints in Historic Masonry Buildings

www.nps.gov/history/hps/tps/briefs/brief02.htm

Preservation Brief #06:

Dangers of Abrasive Cleaning to Historic Buildings

www.nps.gov/history/hps/tps/briefs/brief06.htm

Preservation Brief #38:

Removing Graffiti from Historic Masonry

www.nps.gov/history/hps/tps/briefs/brief38.htm

Preservation Brief #39:

Holding the Line: Controlling Unwanted Moisture in Historic Buildings

www.nps.gov/history/hps/tps/briefs/brief39.htm

C. Masonry *continued*

⊘ Inappropriate Treatments

- 1 Do not sandblast masonry, use high-pressure water blasting, or chemically clean with an inappropriate cleanser as these methods can do irreparable damage.
- 2 Do not repoint masonry with a synthetic caulking compound or portland cement as a substitute for mortar.
- 3 Do not use a “scrub” coating, in which a thinned, low-aggregate coat of mortar is brushed over the entire

masonry surface and then scrubbed off the bricks after drying, as a substitute for traditional repointing.

- 4 Do not remove mortar with electric saws or hammers that damage the surrounding masonry.
- 5 Do not use waterproof, water-repellent, or non-historic coatings on masonry unless they allow moisture to “breathe” through the masonry. An anti-graffiti coating may be used on masonry areas that have seen repeated vandalism and where improved lighting and other security measures have not been successful.

✓ Guidelines

- 1 Retain masonry features which are important in defining the overall character of the building.
- 2 Leave unpainted masonry unpainted.
- 3 Repair or replace a masonry feature when necessary, using bricks that respect the size, texture, color, and pattern of the historic material, as well as mortar joint size and tooling.
- 4 Repair cracks and unsound mortar with mortar and masonry that matches the historic material.
- 5 Repair by repointing only areas where mortar has deteriorated. Sound mortar should be left intact.



This house features a number of masonry elements including its foundation, exterior chimney and front portico steps.



D. Substitute Materials

A building's historic character is a combination of its design, age, setting, and materials. The exterior walls of a building, because they are so visible, play a very important role in defining its historic appearance. Wood clapboards, the original siding material for Cradock houses, have a distinctive character.

Synthetic materials can never have the same patina, texture, or light-reflective qualities as the original wood siding and, therefore, detract somewhat from the district's historic character.

Substitute siding materials in the district have changed over time and include asbestos, vinyl, and aluminum. These materials have been used to artificially create the appearance of the original wood siding surfaces or to update the appearance of a particular house.

Substitute materials, either as replacement materials or for use over existing wood siding, may only be approved by the HPC if the original wood siding is beyond repair.

1. Vinyl and Aluminum Siding

When vinyl and aluminum siding are approved for use over existing wood siding in Cradock, the HPC may suggest that the wood siding be replaced in-kind on prominent elevations. This decision will be made on a case-by-case basis depending on the condition of the original material.

Maintenance

- 1** Often property owners wish to install artificial siding because of the desire to avoid maintenance issues associated with repainting. The vinyl siding industry offers artificial siding as a maintenance-free solution that will solve your exterior building problems for a lifetime.
- 2** Vinyl siding is usually guaranteed for 20 years. (Guarantees over 20 years are usually prorated.) Two or three quality paint jobs may cost approximately the same as replacement siding. Good quality latex exterior paint applied according to the manufacturer's instructions may have a warranty of 15 years or more. Properly maintained wood siding has been found to last hundreds of years.

- 3** Painting of vinyl or aluminum siding can be a challenge as paint may not adhere well to these materials. Painting may also void your warranty.
- 4** Vinyl and aluminium siding are not weatherproof. Time and extreme temperatures can take an immense toll on artificial siding. Over time, some artificial siding may dent, warp, cup, become brittle, buckle, break, fade and become dirty due to numerous environmental factors.
- 5** Unlike wood, substitute siding materials are difficult to repair to match the existing. Factory colors, styles, and finishes change over time.

Preservation Brief #08:
Aluminum and Vinyl Siding on Historic Buildings: The Appropriateness of Substitute Materials for Resurfacing Historic Wood Frame Buildings
www.nps.gov/history/hps/tps/briefs/brief08.htm



The original wood siding on this house was covered with asbestos shingles while retaining the original window trim and portico.



Often, the effects of cleaning or painting vinyl siding can leave the siding with an uneven appearance.

D. Substitute Materials *continued*

Inappropriate Treatments

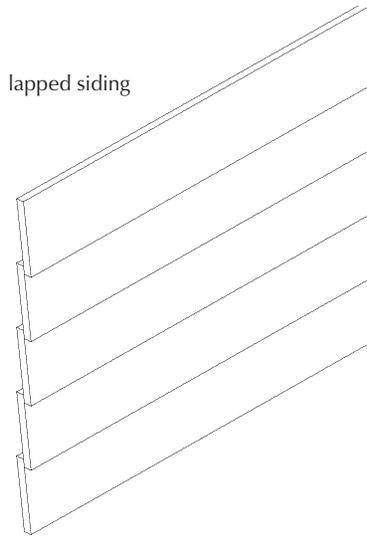
- 1** Do not use synthetic siding for structures with existing repairable original siding in Cradock.
- 2** Do not resurface historic buildings with new material that does not duplicate the original historic fabric in appearance.
- 3** Do not use furring strips when installing vinyl siding. The additional depth added to the new siding diminishes the projection of details such as trim and changes the historic appearance of the building.
- 4** Do not use asphalt siding.
- 5** Do not apply substitute siding over historic wood window and door trim.
- 6** Do not replace original wooden window and door trim with stock vinyl trim.

Guidelines

- 1** Remove synthetic siding and restore original wood siding, when possible.
- 2** Correct any problems that have led to the deterioration of the wood siding before installing replacement siding. Leaks from the roof, gutters or downspouts need to be repaired

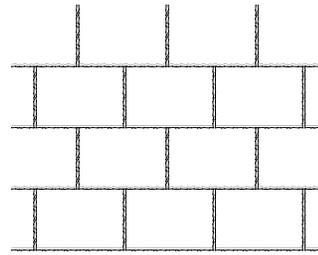
before new siding is installed. If this is not done, it may exaggerate existing moisture problems. It also may create new moisture problems inside and reduce the insulating properties of the new siding. Ensure that any moisture, rot, or infestation problems are corrected before covering these areas with synthetic materials.

- 3** Look for synthetic siding that will last at least 20 years before needing additional maintenance. Once you paint siding, it will need the same maintenance as the wood.
- 4** Match new siding material to the location, dimension, scale and overall appearance of the original wood siding.
- 5** Install new siding so that it does not obscure or require removal of details such as historic window and door trim.
- 6** Specify the installation of continuous wall vents under the building eaves and weep holes in the siding to prevent trapped moisture.
- 7** Retain and protect historic trim by the use of “accessories,” such as channels, inserts and drip caps, to fit the siding around these details.
- 8** Pick colors that are historically appropriate according to *Section E: Paint*, the next topic in this chapter.

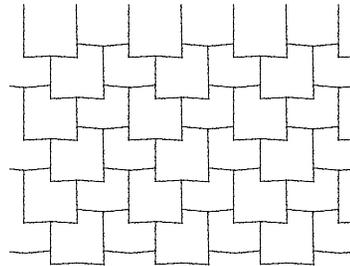


lapped siding

A lapped siding profile is the appropriate replacement for original wood siding in Cradock. Look to historic wooden examples for installation details.



coursed shingle siding



staggered shingle siding



New construction outside of the historic district has successfully used substitute materials, such as cementitious siding and trim details, to achieve a traditional appearance.

2. Cementitious Siding

Cementitious siding may be approved as a replacement material for severely deteriorated original wood siding under the circumstances listed in these guidelines.

Maintenance

Keep cementitious siding painted. Some brands are offered pre-painted with a finish warranty of up to 15 years.

Inappropriate Treatments

- 1 Do not use cementitious siding for structures with existing reparable original siding in Cradock.
- 2 Cementitious siding is not appropriate to use as a repair material on a wall that retains its original wood siding. Repairs to original wood siding should be made by patching with wood that matches the characteristics of the original siding.
- 3 Do not apply cementitious siding over existing wood siding.
- 4 Do not resurface historic buildings with new material that does not duplicate the original historic fabric in appearance.
- 5 Do not apply substitute siding over historic wood window and door trim.
- 6 Do not replace original wooden window and door trim with manufactured trim.



D. Substitute Materials *continued*

✓ Guidelines

- 1 Remove synthetic siding and restore original wood siding, when possible.
- 2 Conduct exploratory demolition of existing siding to reveal any underlying structural problems (such as rot) necessitating the removal of existing siding to address.
- 3 Use care when removing original siding to minimize damage to the old wood which may be dry and may split easily.
- 4 Ensure that any moisture, rot, or infestation problems are corrected before covering these areas with new materials.
- 5 Install salvageable original siding on the primary (front) elevation, and use substitute materials in less visible locations.
- 6 Match new siding material to the location, dimension, scale and overall appearance of the original wood siding.
- 7 Install new siding so that it does not obscure or require removal of details, such as historic window and door trim.
- 8 Use a finish color historically appropriate to the district. See *Section E: Paint* for appropriate colors.

3. Composite Trim Materials

Some currently available composite materials are available in custom-formed lengths such as urethane; while others, including cellular PVC, are dimensional mill-ready blanks. Flat board dimensional materials are available in wood-resin composites and cement board but are not able to be worked in the traditional manner of wood.

🏠 Maintenance

Keep trim painted.

⊘ Inappropriate Treatments

- 1 Do not replace historic wooden window, door, or porch trim unless it is deteriorated beyond repair.
- 2 Do not apply new trim over existing trim.
- 3 Do not introduce trim elements that convey a different period of construction, such as Victorian “gingerbread” trim.
- 4 Do not use composite materials to patch existing wooden trim.

✓ Guidelines

- 1 Use composite trim only if it replicates the dimension, scale, and overall appearance of the original wood trim.
- 2 Pick colors that are historically appropriate according to *Section E: Paint*.



E. Paint

A properly painted wood building accentuates its character-defining details. Painting is one of the least expensive ways to maintain historic fabric and make a building an attractive addition to the historic district.

In some instances buildings may be painted inappropriate colors, or colors are placed on the building incorrectly. Some paint schemes use too many colors, while others paint all building elements the same color – neither one of these is a preferred treatment.

Appropriate Colors

Historic photographs show that many of the houses in Cradock were painted light colors with white or light colored trim, and dark shutters. White and pale shades of gray, green, tan, blue and yellow would be appropriate for wall colors.

Today most of the houses are painted white or a lighter shade, although occasional houses are painted in more intense hues.

Dark grey is the most historically appropriate color for roofs as it was the color of original asbestos roofs in Cradock.

Maintenance

- 1** Keep existing painted materials well-painted.
- 2** Clean painted surfaces of accumulated dirt on an annual basis in order to prolong the life of your paint job.
- 3** Follow all local environmental regulations. Refer to *Chapter II: Section F* for information on lead paint hazards.
- 4** Prep, prime, and paint one side of the house before moving on to the next. Otherwise the surface gets dirty between coats, causing possible paint failure.
- 5** Remove loose and peeling paint down to the next sound layer using the gentlest means possible: hand-scraping and hand-sanding are best for wood and masonry. Oil and lead-based paints cure slowly while latex cures quickly. By removing paint to bare wood, you will have a paint job that will be less apt to fail due to these different rates.
- 6** Performed by a contractor experienced in working on historic buildings, professional chemical removal of paint may be acceptable in certain situations.
- 7** Ensure that all surfaces are free of dirt, grease, and grime before painting. Wash bare wood with tri-sodium phosphate (TSP), then rinse with a hose with no nozzle.
- 8** Repair rot and cracks with wood or epoxy.
- 9** Prime surfaces if bare wood is exposed or if you are changing types of paint. This will allow new paint to adhere properly.
- 10** Use an oil-based alkyd primer applied by brush, not sprayed on.
- 11** Use a high-quality paint and follow the manufacturer's specifications for application.
- 12** Caulk after priming using acrylic/latex caulk with silicone.
- 13** Apply two coats of a high-quality latex paint.



Accumulated paint has been removed from this window trim. Once any necessary repairs have been made, primer and paint should be applied to protect this historic trim from weather damage and ensure its longevity.



Proper surface preparation is the key to a long-lasting paint application.

Preservation Brief #09:
Exterior Paint Problems on
Historic Woodwork
www.nps.gov/history/hps/tps/briefs/brief09.htm



A Colonial Revival color scheme of a light-colored wall or field color, white or a complementary light trim color and a dark shade for shutters and doors is most appropriate for Cradock houses.

E. Paint *continued*

⊘ Inappropriate Treatments

- 1 Do not paint masonry that is unpainted.
- 2 Do not completely remove paint to achieve a natural finish.
- 3 Do not use sandblasting, open flames, or high-pressure water wash to remove paint from masonry, soft metal or wood.
- 4 Burning old paint off is discouraged as it is a fire hazard and can permanently damage the surface of the wood.
- 5 Do not apply latex paint directly over oil-based paint as it might not bond properly and can pull off the old oil-based paint. Ensure good adhesion by using an alkyd primer as noted in Maintenance #10.
- 6 Do not use overly bright and obtrusive colors.
- 7 Do not use liquid vinyl coatings because:

a. Permeability: These coatings may not allow historic structures to properly disperse moisture causing an accelerated rate of structural decay hidden by the coating.

b. Diminishment of Details:
The thickness of these coatings may obscure character-defining details of historic woodwork and masonry.

c. Reversibility: This product has not been shown to be easily removable, therefore, it may cause a potential negative impact to the historic fabric of the structure and the district.

✓ Guidelines

- 1 Select a color scheme appropriate to the time period in which your building was constructed and that is generally compatible with adjacent structures.
- 2 Treat similar elements with the same color to achieve a unified rather than overly busy and disjointed appearance.
- 3 Paint unpainted aluminum-frame storm windows and doors to match wood trim.