

Porches

Introduction

Porches are a common design element found on many older buildings. Representing a transition between the outside and the inside, porches shelter the entryways from the weather and create spaces to gather and observe the street. Porches may be prominent and elaborately decorated or, more commonly, may include simple design features.

Porches are among the most vulnerable components of an older building. As they are generally constructed of wood, they are susceptible to rotting, sagging, deterioration and freeze-thaw cycles. They are also often modernized with unsympathetic alterations that use inappropriately contemporary materials. For these reasons, many original porches have not survived, making the conservation of those remaining more important.

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This guide provides practical recommendations for the conservation of porches on heritage properties. Although the term "porch" is broadly discussed in this guide, the recommendations also apply to related structures, such as porticoes, verandahs and decks (see [Practical Guide: Landscaping](#) for more information on decks specifically).

Design

Porches help to create the appeal of heritage homes as they are often the most embellished components of an older building. They come in a variety of sizes, proportions and styles, including: low one-storey porches, imposing two-storey variations, balcony porches and roof decks. Porches consist of several different components: the structure and decking, stairs and railings, support columns or structure and the roof. Porch roofs are usually low pitched or nearly flat and covered in the same material as the main structure's roof. Columns are common and can be of a variety of designs. Balustrades are also diverse and range from simple posts to elaborate turned balusters.

Porch Styles

Porches compliment the architectural style of a building and it is important to recognize and maintain that style. The following are some images of porches associated with specific architectural styles found in the Region of Waterloo.



Image: Georgian pre-1800-1830
(St. John Heritage, 2010, p. 1)



Image: Gothic Revival 1850-1870
(St. John Heritage, 2010, p. 1)



Image: Italianate 1850-1870
(St. John Heritage, 2010, p. 2)



Image: Second Empire 1860-1900
(Victoria Heritage Foundation)



Image: Queen Anne 1880-1900
(St. John Heritage, 2010, p. 2)



Image: Edwardian 1890-1916
(Victoria Heritage Foundation)

Often porches were added to the original building later by a subsequent owner and as a result may have a design that is incompatible with the style of the house. To determine if a porch was well-suited for an older home you should consider the structure's architectural style, geographic location, climate and social customs of the area. Deciding to keep a later porch also depends on where it is located on the structure and how much use it will receive. Consultation with an architect or heritage contractor can help you to determine how to proceed.

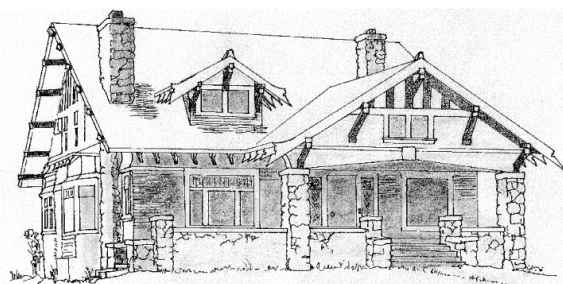


Image: Arts & Crafts 1890-1940 (Victoria Heritage Foundation)

Some hints to help to determine if your porch is original or appropriate for the structure, include:

- Examine its construction, especially where it meets the wall of the house. Is there evidence that the structure is old, such as old nails and mortise and tenon joints?
- Analyze the construction materials. Many older porches in the Region are wood, stone or brick. Modern materials, such as concrete steps, wrought iron columns and plastic awnings are a sign of contemporary alterations.
- Count the paint layers and compare them with layers on a section of the house you know is original.
- Locate historic photographs of the building to see if the porch is visible.
- Scan the neighbourhood for houses designed in the same style to see if they have a porch resembling yours.

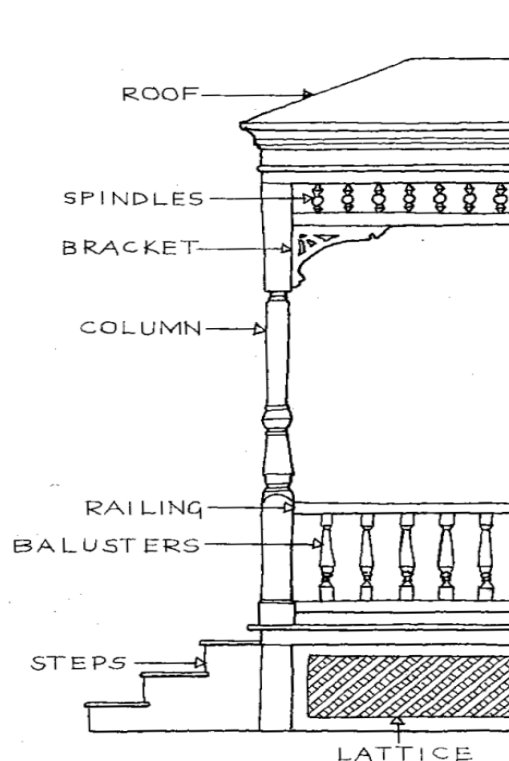


Image: Parts of a porch (Betty Anderson, 1983, p. 123)

Maintenance and Repair

Although porches are a sheltering feature, they are unsheltered themselves from the weather. Without proactive maintenance, rapid deterioration is inevitable. Due to their placement near the ground, porches are targets for insects and moisture penetration. It is best to keep all wood above the ground unless it is pressure treated with a wood preservative.

The relationship between the porch and the house is important. If portions of the porch are decaying or if foundation piers are sinking, the roof structure may pull away from the house. Many porch decks are fastened to the main building on a ledger, which is a horizontal board along the house's foundation. A decaying ledger may compromise the structural integrity of the porch and can represent a major safety issue. To ensure porch problems do not transfer to the house, proper maintenance and repair is important.

Rot

Proactive and frequent maintenance is the key to a porch with a long life. When a moisture-related problem is spotted, identify and eliminate its source and then address the damage. There are many places on a porch that are susceptible to moisture related problems and it is recommended that they are inspected at least once a year. The parts of a porch to inspect include:

- The wood steps and posts, porch underside, other wood near the ground and the place where the porch joins the house for decay and signs of termites or other insects.
- The area under the porch for excessive moisture.
- The columns and posts, especially at the bases, for decay.
- The flooring and steps for cracks and deterioration and ensure they properly slope away from the house.
- The joints for any gaps, especially where the porch joins the house or another roof.
- Masonry, mortar joints and wood for signs of deterioration.
- The roofing material and flashing to see if they are in good condition. Check under the roof for dampness or moisture stains.
- The gutters and downspouts to make sure they work well and to see if water splashes any nearby wood.
- The paint for peeling, blistering and cracking.
- The nails for rust spots - might indicate moisture problems.

Wood Care

Many porches are constructed of wood and when it comes time to repair the components of your porch it is best to understand the variety of wood types and their associated characteristics.

The chart on the following page is taken from the [National Park Service Preservation Brief #4: Preserving historic wood porches](#) and outlines the characteristics of wood types most suitable to porch rehabilitation.

Wood Characteristics						
Species	Cut or Grade	Cost	Workability	Resistance to Decay	Resistance to Cupping	Paint Holding Ability
Redwood	Clear, Vertical-grain, all-heart	\$\$\$	Fair	Excellent	Excellent	Excellent
	"B" Select, flat-grain	\$\$	Fair	Excellent	Good	Good
Cedar	Clear	\$\$	Fair	Excellent	Good	Fair
Cypress	Clear	\$\$	Fair	Excellent	Fair	Good
Douglas Fir	"C" & better, Vertical grain	\$\$	Fair to Poor	Good to Fair	Excellent	Fair
Southern Yellow Pine	"D" Select, flat-grain	\$	Fair	Fair	Good	Fair
	Vertical-grain	\$\$\$	Fair	Fair	Excellent	Fair to Good
Eastern White Pine	"D" Select, flat-grain	\$	Excellent	Fair	Excellent	Good
	Vertical-grain	\$\$\$	Excellent	Fair	Good	Excellent
Poplar	Firsts and Seconds	\$	Good	Poor	Good	Fair
American Mahogany	Clear	\$\$\$	Excellent	Excellent	Excellent	Good

This table summarizes the characteristics of just a few of the different species available, including the workability of the wood (indicating a better wood for decorative porch pieces), the resistance to decay (an important feature for all porch components), resistance to cupping (a wood highly resistant to cupping is a better choice for floor board replacement) and paint holding ability. The Cut or Grade is also listed, as a low-grade wood can perform very differently than a higher grade in the same species. Cost will vary depending on region and market supply and demand. In general, it is best to contact two or three local lumberyards to find the available woods with the characteristics needed in the local market. Source: Practical Restoration Report, Exterior Woodwork Details.

Chart: Characteristics of wood types best suited to porch construction (Sullivan & Leeke, 2006)

To extend the life of porches a number of repairs can be made (for more detailed information on the conservation of woodwork and masonry, please refer to the Region's Practical Guide: Structural Woodwork or Practical Guide: Masonry).

Filling

Small cracks in the wood can be filled with putty or caulk. Larger cracks or holes can be filled with plastic wood. For wide gaps in the wood or joints, insert oakum or a similar filler then caulk over the filler. Other products used to lengthen the life of wood include epoxy consolidants for deteriorated wood and epoxy fillers for holes and cracks.

Replacing

Alternatively, the rotted section of wood can be replaced. This is done by cutting out the damaged wood and patching it with a piece of wood of the same dimensions and characteristics. Glue the patch into place, caulk over the joint and paint or finish the patch to match the existing wood. When replacing wood in areas near the ground and exposed to excessive moisture, install pressure treated wood, wood treated with a preservative, or heartwood stock of naturally decay-resistant woods like: redwood, cedar, white oak, cypress or black locust. Use of pressure treated wood is not recommended beyond areas of the porch that are in contact with the ground.

Protecting

On areas of the porch where paint has peeled or deterioration has begun and where horizontal ledges occur, treat the existing wood with a wood preservative. Before removing the paint, examine the layers to determine the colours and finishes historically used. Once the paint is removed apply a preservative and allow it to soak in. Apply a primer compatible with the preservative before repainting (see [Practical Guide: Paint & Colour](#) for more information). Finally, repaint using historical colours to illustrate the distinctive character of the building.

Masonry Care

When necessary, repaint the joints and repair any cracks or deterioration. It is important to replicate the existing mortar, its colour and the type of joint originally used on the porch. Any new bricks or stones added should match the colour, size and texture of the original masonry material. More detailed maintenance recommendations for conserving the brick or stone that may be located on or under your porch are discussed in the [Practical Guide: Masonry](#).

Roofs

The more effectively that water drains and diverts away from the porch roof, the longer the porch will last. To prevent moisture damage, the gutters and downspouts of the house should work well and divert water away from the structure. The inclusion of eavestrough diverters may be needed to control where water goes, or gutters and downspouts added in inconspicuous locations, when possible. Additionally, the porch roof should slope away from the house. The juncture of the porch roof and another roof or the wall of the house is another spot susceptible to water penetration. Ensure that the flashing is installed properly and does not have holes or cracks and is not loose. If problems are spotted.

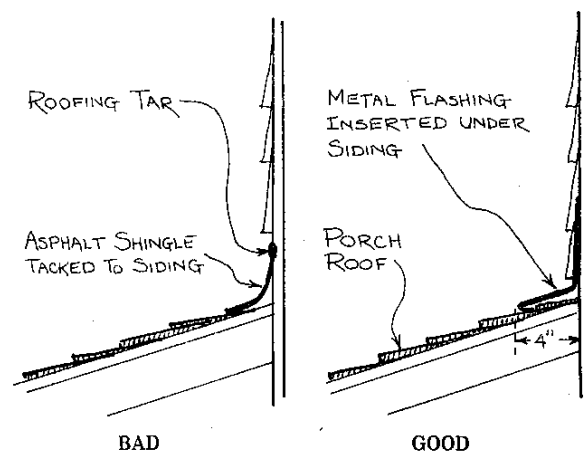


Image: Illustration of good and bad porch roof flashing (The Old House Journal, 1981, p. 224)

make the repairs as quickly as possible as water can enter the walls of the house and cause structural damage. A drop of solder for a small crack or a hole and a metal patch for larger holes can repair metal flashing. If the flashing has come loose and leaves a gap, put the flashing back in place and seal the joint with caulking. If it becomes necessary to remove part of the wall or roof material to reach flashing, it may be best to contact a heritage professional.

For more detailed information on how to maintain a roof on a heritage building, please see the [Region's Practical Guide: Roofs](#).

Columns, Balustrades, Entablatures and Brackets

Porch columns, balustrades, entablatures and brackets should be checked regularly for damage, repaired as needed, and repainted whenever the house is painted, or more frequently if necessary. Prior to painting undertake the necessary repairs as outlined below. To prepare surfaces for painting, scrape off cracked or loose paint, sand and clean, and apply a coat of primer to seal the wood pores (for more detailed information see [Practical Guide: Paint & Colour](#)).

Any loose joints should be tightened when spotted to prevent water penetration. To do this, if necessary, insert a screw at an angle through both pieces of wood to hold the pieces together. First, drill a pilot hole, countersink the screw, cover the hole with plastic wood and paint over it. It is recommended to keep joints caulked and painted.

Railings will last longer and shed water better if the top slopes away from the centre. Wood bottom railings will also last longer if they do not touch the porch floor, limiting the exposure to moisture. Similarly, the base of a column often does not dry out and consequently rots because it is affixed to the porch floor. Vents inserted in the base and near the top of a column help to dry it out. Adding a metal plate between the floor and column's base is another way to prevent rot. If any part of a damaged column (capital, shaft or base) needs to be replaced, retain the sound parts and replace the damaged section with like materials.

Balusters are also susceptible to rot at the bottom where moisture accumulates. The top portion may last longer as it is protected from the weather by the handrail. If only one or a few balusters have rotten bottoms, carefully remove these and replace the rotten portion with new materials.

Tip

When numerous balusters have deteriorated, consider removing them all, making the necessary repairs and replacing them upside down with the stronger portion now at the bottom. The usefulness of this option will depend on the extent of the damage and baluster's design.

You can make small repairs to relatively sound entablatures and brackets by replacing small broken or missing pieces. Use a piece of cardboard to trace the pattern of the piece in need of replacement. A small saw, such as a bandsaw, can be used to cut the design from wood. Treat the wood with a preservative then glue or nail the piece in place. Prime and paint the area to match the existing colour.

Porch Floors and Steps

Inspect porch floors periodically for loose or warped planks, protruding nails, exposed or deteriorated wood or crumbling concrete or masonry mortar. Wide surfaces, like porch floors or treads on steps hold moisture easily, especially if there are depressions in the wood or concrete. For this reason, porch floors should slope slightly away from the house to shed water. A slope from 1/8 to 1/4 inch per foot works well. It is not advised to use a subfloor as this increases the potential for trapping moisture and prevents the top flooring from ventilating from below.

It is important to treat the floor boards with wood preservative or a waterproof coating. This will greatly extend the life of the top coat of paint. Remember to check that the underside of the flooring is in good condition as well.

Wood steps are especially susceptible to deterioration when they have concave areas, do not slant slightly away from the porch, or if the steps or their supports are in contact with the ground. A three or four-inch concrete strip laid between the bottom step and the ground is one way to separate woods steps from the soil. Caulk the joint between the step and the concrete to help divert moisture away from the wood.

Tip

If steps are worn or warped, it may be possible to turn over the treads and expose the sturdy underside, allowing you to reuse existing materials.

End Grain

Water is rapidly absorbed by the end grain on a piece of lumber and is where deterioration starts on most porches. These areas are also prone to paint loss, leading to even greater water penetration and ultimately rot.

To limit moisture absorption, keep end grain surfaces painted and minimize exposed end grain by following these two rules:

1. Use the minimum number of pieces in porch construction, resulting in fewer joints and less exposure of end grain
2. Cover the end grain of all wood exposed to the weather with trim

Protecting the end grain of floor boards is done with a rounded or square piece of trim, called nosing. The addition of high-performance caulk, such as polyurethane, run on the ends of the boards before the trim is nailed in place will seal the joint.

Groundwork

A porch's supports, foundation or crawl space, and the underside of the floor should be regularly inspected as these less-visible areas can be the source of many problems. To begin with, it is recommended that the soil beneath the porch slopes away from the structure. As well, good ventilation is key and the addition of vents may help to disperse collected moisture. If the porch sits over dirt, not concrete or stone, cover the ground with sheets of building paper or polyethylene overlapping roughly six inches to help reduce moisture on the porch.

As discussed in the [Wood Care](#) section on page 4, when replacing wood, pressure treated wood should be used when it will touch the ground as it is better protected against moisture than wood that only has a brushed-on water repellent coating. Untreated wood should remain elevated above the soil. However, if the existing wood used in the porch sub-structure is not pressure treated, a brush-on coat of wood preservative or non-toxic water repellent is recommended. Concrete footings are one way of raising wood supports above the ground level. Installing a poured footing with a metal stirrup that holds the wooden post above the concrete will allow water to drain away from the end grain at the bottom of the post, which is the area most prone to decay.

The uneven settling of a foundation may cause a porch to sag (see [Practical Guide: Foundations](#) for more information). When the porch roof and floor sag in the same area, the problem may be caused by the foundation or footings. If this is the case, it is advisable to contact a general contractor for advice.

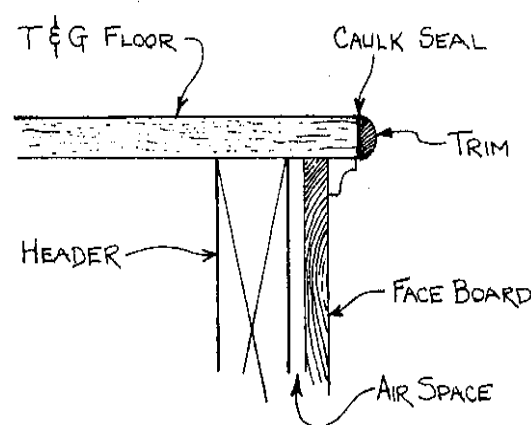


Image: Nosing protects floorboard end grain (The Old House Journal, 1981, p. 222)

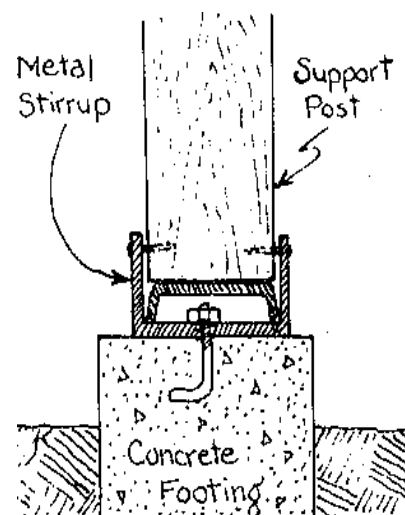


Image: Illustration of a porch's concrete footings (The Old House Journal, 1981, p. 221)

Water Repellants

It is important to maintain an intact protective coating on exterior wood surfaces so that moisture is kept out, prohibiting the growth of fungus and ultimately deterioration. Preservation specialists have reported that water repellants seem to reduce wood's ability to absorb moisture much better than a primer. The goal of using a wood preservative or water repellent prior to priming is not so much to kill decay-causing bacteria but to prolong the life of paint on exposed wood surfaces.

A simple make-it-yourself water repellent developed by the Forest Products Laboratory in Madison, WI has proven effective. The formula includes:

Exterior varnish	3 cups
Paraffin wax	1 oz.
Mineral spirits, (Paint thinner or Turpentine)	Add to make 1 gal.

Paraffin is sold in grocery stores for sealing canning jars. It is best to shave the paraffin block as finely as possible to help it to dissolve more quickly. As well, different brands of exterior varnish have been tested and they all appear to work equally well.

Replacement

The type of porch used in different architectural styles helps to give the building its character.

Selective Replacement

If only one part of the porch has deteriorated beyond repair, replace only that part rather than tearing down the entire structure. Selective repairs cut down on costs and preserve the original integrity of the building. Try to retain as many original components as possible. If a piece cannot be saved, try to find exact or similar pieces that reflect its materials, dimensions and details. For replacement materials, try suppliers of decorative parts that carry an assortment of columns, capitals, pilasters, balusters, brackets, cornices and friezes in many sizes. You may also be able to special order designs from some of these companies. Other sources of replica materials may be stores specializing in architectural salvage, lumber and millwork companies, and cabinet makers. If you are unable to find a reproduction of the original, copy the material and design with or without the intricate details.

When restoration work is undertaken on columns, posts or other supporting members of the porch, it will be necessary to temporarily support the roof. You may decide to seek professional help for this.

Complete Replacement

When large portions of a porch have deteriorated severely, repair or partial replacement may not be practical. If this is the case, a porch will likely need to be removed and a sympathetic replacement constructed. The new porch should reflect the previous structure's design, massing and materials, if it was determined to be original. Consider improving upon the design of a porch that was clearly inappropriate in style and materials. An architect can advise you about whether or not to keep porches that were added later and which are not designed in the same style as the house.



Image: Inconsistent appearance of a missing porch (District of Columbia, 2010, p. 6)



Image: Inconsistent appearance of an altered enclosed porch (District of Columbia, 2010, p. 8)

Enclosures

Some home owners choose to enclose their porch allowing year round use of the space. This type of intervention is rarely recommended as it alters the appearance of the porch and main façade of the building. If, however, the addition of an enclosure is decided upon, attempt to maintain a

sense of the openness of the porch through the use of transparent materials like glass or screens. Also try to place enclosures behind significant architectural detailing so that they remain visible.

Summary

A porch may be a character defining element of a heritage building. When undertaking repairs, retain the original designs and materials if they reflect the structure's architectural style. If the porch will require total replacement, try to duplicate the original size, shape, materials, decoration, silhouette and placement on the building. A sympathetic replacement is most important for porches on the front of the house, row houses, or streets where many buildings are designed in the same style with similar porches.

References

If you would like to learn more about conserving your porch, please refer to the following primary sources:

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