

# Maintenance Matters

BUILDING MAINTENANCE BULLETIN



## Window and Door Replacement



As part of the ongoing maintenance of your home or multi-unit residential building, windows and doors will eventually become a focal point. Aging appearance, rising energy costs, drafts, condensation and comfort problems are reasons to consider replacing your windows and doors.

This bulletin addresses the key issues you should consider when replacing windows and doors, from preparing for the initial conversation with replacement contractors to selecting products, understanding installation options, and maintaining windows and doors. The term replacement contractor refers to any business that offers window and door replacement products with installation services included.

This publication focuses on wood-frame buildings, both single-family residential and multi-unit buildings. However, many of the principles described also apply to mid and high-rise buildings constructed with concrete and steel-stud exterior walls.

Information in this bulletin is based on the publication, *Consumer Guide to Window and Door Replacement*, which is available on the Homeowner Protection Office website.



This bulletin has been created to help homeowners discuss the relevant issues with replacement contractors.



Homeowner  
Protection Office  
Branch of BC Housing

*Maintenance Matters* is a series of bulletins and companion videos designed to provide practical information on the maintenance of residential buildings.

Produced by the Homeowner Protection Office (HPO), a branch of BC Housing, this bulletin was prepared by RDH Building Engineering in collaboration with Canada Mortgage and Housing Corporation, BC Hydro, Fenestration Association of BC, and the City of Vancouver.

Discuss the following key questions with your replacement contractor as part of your information-gathering process.

### How can I select a replacement contractor?

The following steps will help you choose a replacement contractor:

- Insist on references from both customers, and window and door manufacturers.
- Request their WorkSafe BC clearance letter and evidence of their general liability insurance.
- Find out how long they have been in business.
- Consider written assurance that work will be performed according to the voluntary specifications outlined in the HPO's industry guide entitled *Best Practices for Window and Door Replacement in Wood-Frame Buildings*.

### Why select a contractor who follows the best practices?

The HPO's *Best Practices for Window and Door Replacement in Wood-Frame Buildings* guide establishes a consistent and sound standard of practice for the replacement contractor. It also identifies factors that need to be addressed in a successful window and door replacement project. Choosing a replacement contractor who follows the principles in this guide will help minimize the risk of problems and ensure the best long-term performance.

It is recommended that you ask prospective contractors if they follow the best practices guide and whether they are willing to commit, in writing, to perform the work according to the guide's voluntary specifications. Include this commitment in your contract with them.

Contact the Fenestration Association of BC if you have questions or concerns about the information you are getting from the replacement contractor you are considering for your project. Fen-BC will have a list of third-party consultants and companies that can offer their knowledge to the consumer.



### I would like to take advantage of energy efficiency incentive programs. How do I do this?

If you intend to take advantage of a window replacement incentive program, learn about the program's requirements before you commit to a particular contractor. Incentive programs may require you to begin with an energy audit in order to be eligible for the rebates. This audit may identify other energy efficiency measures you may wish to consider. Replacement contractors may help you understand and access incentive programs, but be sure you thoroughly understand the rebate requirements before committing to particular products and a replacement contractor.

### Can I improve the natural ventilation provided by my windows? Can I change the type and arrangement of the operating windows?

Natural ventilation through windows may be improved by exploring the location and type of operable window units when choosing replacement products.

You will probably be able to improve ventilation by using more operable units, preferably located on opposite or adjacent walls to encourage cross ventilation. When cross ventilation is not possible, a single window can ventilate a room most effectively when it can be opened in a way that encourages air to move in at the lower portion of the window and out at the top.

Many different types of operable windows are available. Ask your replacement contractor about different styles of operators and how they impact appearance, ventilation, security and ease of use.

### How can windows make my home more secure or keep noise out?

Windows and glass doors with laminated glass can be effective in blocking outdoor noise. When combined with appropriate hardware, they can also be highly resistant to forced entry. Some companies specialize in offering products with noise-blocking or higher security options.

### How much work will need to be done to the walls?

Knowing the extent of work required to the walls is important in order to fully determine the scope and cost of the window replacement project. The type of wall cladding, the kind of replacement window, and the rain exposure conditions all affect how much work must be done to the walls.

Depending on what kind of windows you have now, and the type and condition of the existing wall, it may not be possible or practical to install the new windows and doors in exactly the same way. However, in most cases replacement windows can be installed in ways that minimize disturbance to the existing walls.

You should discuss the merits of various approaches to installation with your replacement contractor.

### Will the replacement project fix the water penetration problems?

Water leakage is often assumed to originate from the nearest window or door but could, in fact, be related to problems in the adjacent walls, the roof, or the interface between the window and the wall. It's important to understand the cause of any existing problems in order to determine whether the window and door replacement project will address the leaks. If the source of the water cannot be addressed by the replacement project, you will need the help of an appropriate contractor or consultant to determine the cause.

Discuss the merits of various approaches to installation with your replacement contractor.



### How disruptive will the construction be?

The amount of disruption caused by the replacement project will primarily depend on the installation methods and on the extent of work affecting the existing walls. Normally work is done from both the exterior and the interior, but is localized to the immediate vicinity of the window and doors. The replacement contractor will require access to all rooms that contain windows and doors. Depending on the scope and complexity of the project, the construction time may vary from a few days to several weeks.



### My house may contain lead paint or asbestos. How will these be addressed, if they exist?

Depending on its age, your house may contain building materials that are now considered hazardous and are no longer used. Paint used on older buildings may contain lead, and materials such as vermiculite insulation, plaster, stucco, siding materials and even some sealants may contain asbestos.

As owners, you are responsible for providing the contractor with information necessary to identify these hazards. Some window and door installation methods will not disturb these materials, while others are more disruptive. If you are not certain about the presence of these substances, it's wise to consult a specialist contractor to do the necessary sampling and testing so that you understand the implications before committing to a window and door replacement project.

### Will the improved airtightness affect the potential for back-drafting and carbon monoxide (CO) risk in my home?

The improved airtightness of new windows and doors, and how they are installed, can result in an increased risk of back-drafting from combustion appliances such as gas stoves and fireplaces. If other aspects of the home have been improved, such as attic insulation and air sealing, it is advisable to have some simple testing done to evaluate the potential for CO back-drafting. As a minimum precaution you should install CO monitors if they are not already in the home. Your replacement contractor should also be able to direct you to the appropriate resources should your home need additional or improved mechanical ventilation.

### Will the improved airtightness affect condensation? How will this be addressed?

Are there indications of condensation problems inside the home? Condensation may be an indication of inadequate ventilation or excessive moisture generation within the home. The new windows and doors will be more airtight, which is a good thing from a thermal comfort and energy perspective. However, greater airtightness can also lead to increased condensation if the existing ventilation system is not adequate. It may be necessary for you to tune up your existing ventilation system, or replace it with new energy efficient ventilation. Your replacement contractor may or may not be able to assist you in addressing ventilation issues in your home. The Thermal Environmental Comfort Association ([www.teca.ca](http://www.teca.ca)) may be able to assist you in identifying appropriate mechanical ventilation contractors.

### How long will the replacement windows and doors last?

Windows typically have a life span of 20 to 50 years, but this can vary significantly depending on the type of windows and the level of exposure to weather. While certain windows may have a higher cost, a longer service life could make them a better investment over the long term. Ask the replacement contractor about the service life expectancy of different types of windows and doors, as well as what warranties apply to both the products and installation.

### What maintenance is required for new windows and doors?

Windows and doors require ongoing maintenance to ensure good long-term performance. The replacement contractor should be able to provide a maintenance plan that includes regular inspection of exposed sealants and weather seals, cleaning, adjustments, and minor repairs and replacement of materials. In addition, consult the *Maintenance Matters* bulletin on Residential Windows and Exterior Doors, available at [www.hpo.bc.ca](http://www.hpo.bc.ca).



These windows are very exposed to wind-driven rain. Water resistant products and installation methods must be used.



The upper windows on this home are protected by overhangs, allowing for more options when selecting products or evaluating installation methods.



### What types of windows and doors are available?

Many types of window and door products are available, most having better energy performance than in the past. Differences in frame material, glass panes and coatings, as well as differences in the type of operation are some of the variables you should consider. You should explore the alternatives that may be suitable for your building with your replacement contractor.

Condensation performance is almost always improved because more energy efficient replacement products also have warmer interior surfaces and are therefore less prone to condensation. Of course, a more airtight home, or one with higher relative humidity levels, may need additional ventilation to help manage condensation.

The new window and door products will also provide improved performance with respect to sound transmission, primarily because of the upgrade from single to double or triple glazing and improved airtightness of the installed windows and doors.



A comparison between a large single-pane fixed window with a narrow frame (left), and a sub-divided window with a wider frame, operable sashes and less glass area (right), illustrates how replacement windows can affect the appearance of a home.

### How can I choose products that meet energy efficiency standards?

Consumers should insist on products that meet the BC Energy Efficiency Standards Regulation or ENERGY STAR® and have labels showing their certified energy performance. The windows should also meet a variety of performance requirements such as water penetration resistance, air leakage and structural wind load resistance.

The regulations for the *Energy Efficiency Act* (EEA) establish minimum energy performance requirements for windows and glazed doors sold in British Columbia. The *Act* requires all windows and doors sold in B.C. to bear labels verifying their energy performance characteristics, whether installed in new homes or as replacement products in existing homes. ENERGY STAR® is a voluntary program that identifies windows and doors with superior energy performance ratings. See [www.oee.nrcan.gc.ca](http://www.oee.nrcan.gc.ca).

Qualified for area indicated. Admissible pour les régions indiquées.		
Canada  ENERGY STAR 1 800 387-2000 energystar.nrcan-nrcan.gc.ca	 <b>ER/RE 17</b> ■ = Zones A B	
<b>U-Factor</b> <b>1.50</b> <small>W/m<sup>2</sup>·K</small>	<b>Solar Heat Gain Coefficient</b> <b>0.19</b>	<b>Visual Transmittance</b> <b>0.35</b>
<b>Energy Rating</b> <b>17</b>	<b>Air Leakage</b> <b>1.2</b> <small>L/wh<sup>2</sup></small>	
<b>BC's Best Window Company</b> A100 Series Casement window Vinyl frame, Double glazed, Low-E coating Argon fill		
<b>Certification Agency Logo</b>	<small>Energy performance ratings certified to CSA A440.2-09. Ratings are determined for a fixed set of environmental conditions and a specific reference product size. Certification agency does not recommend or warrant product for any specific use.</small>	
<b>BC's Best Window Company - A100 Series Casement</b> <b>Class R PG25: Size tested 760 X 1520 mm</b> <b>Design Pressure: +1200 / -1200 Pa</b> <b>Canadian Air Infiltration/Exfiltration = A2</b> <b>Water Penetration Resistance Test Pressure: 260 Pa</b> <small>Tested to AAMA/WDMA/CSA 101/1.S.2/A440.0-08 and CSA A440S1-09</small>		

Sample ENERGY STAR® product label.

## Key Questions for Getting Started

As you start thinking about replacing your windows and doors, ask yourself these questions:

- What do you like about your current windows and doors (appearance, trim, operation)?
- What problems do they have (cold drafts, overheating, poor operation, water leaks, condensation)?
- Do the operable windows work well? Are they located where you would like them to be? Do they allow enough natural ventilation?
- Are there any fixed windows you would like to replace with an operable window?
- Would you like to improve the security of your windows and doors, or reduce outdoor noise due to traffic or other sources?
- Is energy efficiency a primary goal for your replacement project? Do you want to take advantage of existing energy efficiency incentive programs?

Windows and doors require ongoing maintenance to ensure good long-term performance.



## Action Plan Tips

- Select a replacement contractor who follows the principles outlined in the *Best Practices for Window and Door Replacement in Wood-Frame Buildings*.
- Make a list of things that you like and dislike about your current windows and doors.
- Make a list of current problems you are experiencing with your windows and doors.
- Investigate energy retrofit incentive programs.
- Discuss the following items with your replacement contractor:
  - appropriate window and door products, and installation methods for the typical weather exposure at your home
  - general arrangement, colour, location and size of fixed and operable windows, and insulating glass properties
  - potential presence of hazardous substances that may be affected by the replacement project, and
  - maintenance instructions.

## For More Information

1. Subscribe to receive HPO *Maintenance Matters* bulletins at [www.hpo.bc.ca](http://www.hpo.bc.ca)
2. *Best Practices for Window and Door Replacement in Wood-Frame Buildings*, available at [www.hpo.bc.ca](http://www.hpo.bc.ca) and [www.fen-bc.org](http://www.fen-bc.org)
3. *Maintenance Matters Bulletin No. 4 – Residential Windows and Doors*, available at [www.hpo.bc.ca](http://www.hpo.bc.ca)
4. ENERGY STAR® products, available at [www.oee.nrcan.gc.ca](http://www.oee.nrcan.gc.ca)

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The regulations under the *Homeowner Protection Act* contain specific provisions requiring owners to mitigate and restrict damage to their homes and permitting warranty providers to exclude coverage for damage caused or made worse by negligent or improper maintenance. These apply to both new and building envelope renovated homes covered by home warranty insurance. Failure to carry out proper maintenance or carrying out improper maintenance either yourself or through qualified or unqualified personnel may negatively affect your warranty coverage. Refer to your home warranty insurance documentation or contact your warranty insurance provider for more information.



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