

MAINTENANCE MATTERS



Building Envelope Maintenance and Renewals Planning

Over the life of every building, owners are required to periodically make decisions, and take action, to maintain and renew the various physical components of their buildings. Each of these decisions and actions can impact the lifespan of the building components.

The term “assets” refers collectively to all major building components that are part of the common property. This bulletin addresses building envelope components such as roofs, walls, windows and doors. However, the information is equally applicable to all other building assets.

The degree to which maintenance impacts the service life of building assets will depend on their durability and exposure conditions, as well as the quality of the maintenance program. The primary focus of this bulletin is on the importance of being proactive rather than reactive in the maintenance and care of buildings. Proactively maintaining building assets, such as common property and the property that a strata corporation has to maintain and repair under their by-laws, will result in lower long-term costs, protection of property and asset value, minimized disruptions to residents, and lower risks for all property owners.

All strata corporations of five units or more in British Columbia must complete a depreciation report as required by the Strata Property Act, unless they have passed a three-quarters vote each year they wish to be exempt from the requirements.



Concentrated balcony runoff leads to an unsightly appearance and potentially premature failure of the wall if not addressed.

Maintenance Matters

This series of bulletins and companion videos is designed to provide practical information on maintaining residential buildings. Produced by BC Housing, in collaboration with Polygon and the Condominium Home Owners' Association (CHOA), this bulletin was prepared by a consortium of building envelope experts.

Why Maintain?

Building assets require maintenance and care to achieve their full lifespans. For a building that has been well designed, constructed and maintained, the assets can be expected to last their full predicted service lives. Conditions deteriorate over time as a result of a variety of factors such as weather (sunlight, rain, wind, snow and ice), and wear and tear (daily use by occupants of the building).

Without adequate maintenance, the building assets will deteriorate faster and their service lives may be diminished.

How We Spend Money on Buildings

The quality of the design and construction of a building has a significant impact on the life expectancy of the building assets, as well as on the maintenance and renewal requirements associated with these assets. In the case of new buildings, strata owners have no control over design and construction decisions. However, for a rehabilitated or renovated building envelope, strata owners can participate in decisions related to the design and can have a significant impact on future maintenance and renewal activities. These decisions usually consider trade-offs between higher initial costs and future costs associated with operations, maintenance and renewals. Maintenance and renewals planning should start at the design phase of a project and not be left as an afterthought for the owners to address once the building is handed over.

Owners act as program administrators of the common property of their buildings and are required to invest in various types of activities to sustain the performance and maintain functionality of the assets. These investment costs can be organized into four broad groups:

- **Operating Costs:** These are the costs required to run the building. Electricity, gas and insurance are typical examples of operating costs.
- **Maintenance and Repair Costs:** These costs include activities to keep assets in good working condition. Examples of routine maintenance activities for the building envelope system include cleaning of debris from roof drains, washing of the windows or inspecting the sealants. Small repairs are often included in the same category as maintenance costs.
- **Renewals Costs:** These include costs to replace or refurbish the assets when they have reached the end of their service lives. Replacement of the roof every 15 to 25 years is one example.
- **Adaptation Costs:** These include expenditures required to adapt the building to the evolving needs of the users and to address new legislative requirements and standards that may be imposed by public orders. An example of this may be the requirement to retrofit the fire safety equipment in multi-unit residential buildings.

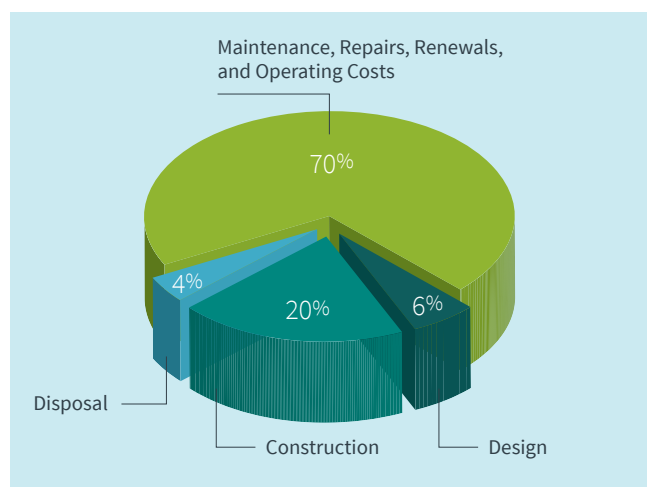


Window cleaning



Roof drain cleaning

The chart below illustrates the typical distribution of costs over the life cycle of a residential building, from the initial construction through to the disposal of the building at the end of its service life.



Distribution of life cycle costs of a typical building

What is Building Asset Management?

Effective administration requires responsible planning each year and proper oversight in order to ensure that required inspection, maintenance and renewals tasks are undertaken.

When setting up a program for the effective administration of building assets, owners make decisions relative to risk tolerance, finances (expenditures and return on investment) legal obligations and the need for reliable and functional assets. A variety of techniques have been developed to assist building owners in monitoring, tracking and steering the process of managing their building assets.

The key to responsible and effective building asset management is to embrace the task of managing the building assets on a consistent and ongoing basis. This does not mean that owners have to do the work themselves, however, they do have to ensure that somebody is responsible for planning and the ongoing program administrator role.

Key Documents to Support Effective Maintenance and Renewal Planning

At the completion of a new construction project (or rehabilitation project), the owners, represented by the strata council, must be provided with a package of reference documents regarding the new building assets that have been placed in service. The hand-over of these documents from the building design and construction team is intended to empower the owners to achieve self-sufficiency in the administration of their building assets.

The quality and completeness of the information provided by the construction team is critical to the ability of the owners to effectively manage their building assets. It may be necessary to further develop the package of documents provided to create an effective ongoing building asset management tool.

The Operations and Maintenance Support Information (OMSI) package captures and organizes key documents that are generated during the design, construction and commissioning of a new building or building envelope rehabilitation project. The main components of an effective OMSI package are summarized below:

- **Drawings:** Drawings should be readily available for reference purposes to contractors and consultants and may be required for periodic inspections, repairs and renewal activities. Since drawings are fragile and can sometimes be lost or damaged, it is strongly recommended that all drawings be converted to electronic format. This will facilitate long-term archiving and avoid the need to obtain replacement hard copies from your municipality.
- **Specifications:** Specifications provide information related to materials and components of the building. Unfortunately, specifications are not always provided to the owners for new construction projects.
- **Warranty Certificates:** Warranty certificates for various assets define the level of performance that can be expected over a specified period of time.

Essentially, warranties are intended to protect the owner against premature failure of assets during the specified warranty periods. Warranties are carefully worded documents that contain exclusions and disclaimers.

- **Safety and Test Certificates:** These documents demonstrate that the necessary inspections and other maintenance work associated with certain assets has been completed. Common property with important safety implications such as elevators, roof anchors, fire suppression systems, boilers and backflow prevention valves must be tested periodically. The test certificates must be clearly posted either in the utility rooms, near the corresponding equipment, or be kept on file in a designated site office.
- **Contact List:** A list of all the contractors, consultants and other parties involved in the construction or rehabilitation project is helpful since these companies have first-hand knowledge about the building.
- **Manufacturers' Product Literature:** Most companies that manufacture products used in the construction and repair of building assets produce technical data sheets with reference information about their products. This information is useful to contractors carrying out maintenance and help determine the compatibility of the original construction materials with any new materials.



- **Inspection Forms and Logbooks:** The owner and contractors should use forms and logbooks to collect and record maintenance work carried out on the assets. This demonstrates the level of care and diligence shown by the owners and helps to identify trends in the performance of the building assets.
- **Colour Schedule:** The colour schedule provides a summary list of the basic colours (and sometimes also the textures) that were used on the various finishes installed during original construction or as part of a renewal project. This information helps those undertaking maintenance and renewals tasks to match colours to the existing appearance.
- **Asset Inventory:** This inventory includes information related to some of the basic attributes of the assets such as age, quality, manufacturer and estimated useful life.
- **Equipment and Supplies Inventory:** Equipment and supplies that are stored on the premises are essential to an effective maintenance program. Maintenance supplies should be stored in a locked service room that is accessible only to authorized personnel. Keeping an up-to-date inventory of all items stored on site is recommended.
- **Charts, Labels and Markers:** Equipment tags indicate the inspection dates of certain equipment such as fire safety devices and backflow protection



Roof inspection

valves. Labels also indicate the location of important equipment and provide safety warnings to persons carrying out work in close proximity to some of the equipment.

- **Maintenance Guides:** Various organizations offer maintenance guides, information bulletins, and other reference documents to assist owners with the maintenance and renewals of building assets. BC Housing has produced several Maintenance Matters bulletins and videos with helpful tips on the maintenance of multi-unit building envelopes. For additional resources, check the More Information section in this bulletin.
- **Glossary of Terms:** Since most owners are not familiar with construction terminology, it is useful to have a glossary of terms to explain the various components associated with the building assets.
- **Maintenance Service Agreements:** Over time, the owners, represented by the strata council, will enter into agreements with various parties for routine inspections, periodic maintenance and eventual renewal services relating to the building assets. The types of agreements will depend on the role the owners and property manager wish to take in the ongoing maintenance program and long-term administration of the building assets. The types of service contracts will also be determined by the desired standard of care that the owners wish to achieve as well as the owners' tolerance for risk.

The typical OMSI package may comprise several hundreds of pages of support documents. Keep all components of the OMSI in an electronic format for long-term archiving and access purposes. Storing documents in a single repository is also recommended. If any documents are removed from the repository they should be immediately copied and returned to the repository. The document repository can take the form of a software database or filing cabinet.

Moving From Hand-over to Hands-on

Sometimes the package of hand-over documents includes what is referred to as a maintenance manual. Although most people are familiar with maintenance manuals that come with the purchase of a new car or appliance, it is helpful to distinguish between some maintenance terms that are used interchangeably. Distinctions should be made between four closely related concepts:

- **Maintenance Manual:** This handbook contains instructions, rules or guidelines for performing particular maintenance tasks. For example: "Inspect the roof drains and remove any vegetation and debris that is obstructing the drainage path." A maintenance manual is required as part of the hand-over documents for both new and rehabilitation construction projects.
- **Maintenance Policy:** This is a formal statement committing the owners to a particular standard of maintenance. The policy is intended to guide future decision-making for developing and implementing the maintenance plan. For example: "It is our policy to wash the exterior inaccessible window glass twice each year."
- **Maintenance and Renewals Plan:** This plan helps owners to coordinate and group all maintenance and renewals tasks within a prescribed timeline. It often takes the form of tables. For example, a single line entry in a table might specify: "Replace our roof during the dry summer months" and a particular year for this task. A maintenance and renewals plan is not necessarily provided with the hand-over documents and may need to be developed by the owners with assistance from a qualified consultant.



- **Maintenance Program:** This is the commitment of the owners' financial resources to a specific plan of maintenance and renewals activities for a particular time frame. It is the final step of planning for the effective and ongoing building asset administration. For example, owners should be able to say: "We have an approved budget, including the consultants and contractors, to undertake the work, and have a monthly schedule of activities to ensure that we can complete all the necessary maintenance and renewals work for this fiscal year."

The specific instructions contained in the maintenance manual are organized into a broader "plan." The plan is then implemented through the coordinated activities in the "program." Without a program, the manual will likely gather dust on a shelf.

Owners of homes with home warranty insurance could limit or jeopardize their coverage as a result of negligent or improper maintenance to the home. Licensed Residential Builders and warranty providers have a responsibility to provide maintenance information to the original buyers of a home, if they want to make home warranty insurance coverage conditional upon proper maintenance. The Homeowner Protection Act regulations* do not specify the contents, standards and organization of these maintenance manuals. This is generally left to the best judgement of the design and construction team. Therefore, it may be necessary to

enhance the content of the manual that is received.

Owners of strata-titled homes also have a legal obligation to maintain the strata property under the Strata Property Act.** The owners should incorporate the manual into the existing set of governance documents, such as by-laws and the annual operating budget. The maintenance and renewals plan (and the associated OMSI package) must be treated as a living document. Therefore, it should be periodically updated.

One of the most significant challenges facing owners is the effective transition of the maintenance and renewals "plan" into a maintenance "program." Essentially, the owners must "plan the work and work the plan."

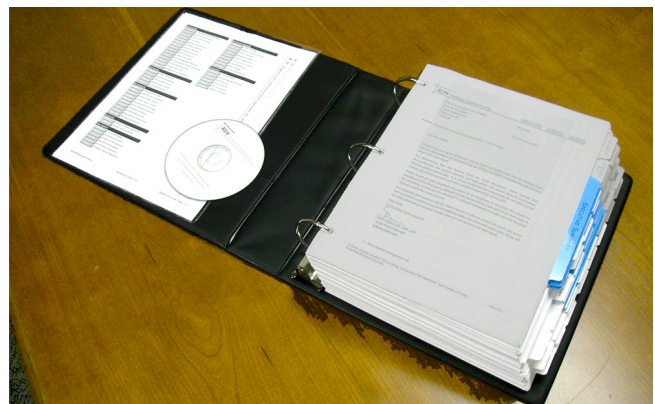
An effective maintenance program requires the owners to support the maintenance manual through the establishment of maintenance standards, maintenance policies and an approved budget. These various facets must all be carefully balanced so as to avoid any weak links that may undermine the maintenance strategy. For example, if the maintenance budget does not match the intent of the maintenance policy, then the maintenance program is headed for trouble.

Who Makes It Happen?

The owners must establish who will oversee the implementation of the maintenance and renewals



When coordinated together, a depreciation report and annual maintenance plan are valuable tools for budgeting, contingency reserve planning, and maintenance and renewal scheduling.



Maintenance and renewals manual

* The Homeowner Protection Act regulations are available at www.bchousing.org

** The Strata Property Act is available at www.housing.gov.bc.ca

plan. The program administrator is a term used to represent the party that is responsible for safeguarding the maintenance and renewals plan and for overall coordination, management and supervision of the maintenance activities. The program administrator is essentially the “timekeeper” and the “gatekeeper” of the maintenance and renewals program.

The program administrator requires certain skills and resources in order to manage the recommendations of the maintenance and renewals plan. The following are some of the potential candidates for this role:

- the property manager
- a committee of volunteer owners, or
- a third-party consultant.

It is most common for the property manager to have the responsibility for implementing the maintenance and renewals plan. However, increasingly there is recognition that the custodian role is complex and requires particular knowledge and skills to be undertaken effectively.

Over the life of a building, the appearance, performance and costs associated with the building envelope (and indeed all systems that comprise the building) are dependent on the implementation of an effective maintenance and renewals plan. This is not a trivial task and requires the ongoing commitment of the owner group, with the support of the maintenance custodian, to a process of information gathering, planning, funding and periodic updating of the plan.

Action Plan Tips

- Be proactive about your building maintenance and renewals needs.
- Notify your property manager if you believe there is a maintenance problem with the building envelope.
- Gather and maintain key documents that are critical to the effective maintenance of the building envelope.
- Ensure that the building has a maintenance and renewals plan.
- Commit to the plan and implement a maintenance program.
- Update the maintenance and renewals plan.
- Ensure that you have a program administrator for your maintenance and renewals program.

More Information

- › Strata Property Act, available at www.housing.gov.bc.ca
- › Depreciation Reports, available at www.choa.bc.ca
- › Refer to your building’s maintenance manual
- › Subscribe to receive Maintenance Matters bulletins at www.bchousing.org

Notice to Readers

This bulletin is intended to provide readers with general information only. Issues and problems related to buildings and construction are complicated and may have a variety of causes. Readers are urged not to rely simply on this bulletin and to consult with appropriate and reputable professionals and construction specialists before taking any specific action. The authors, contributors, funders, and publishers assume no liability for the accuracy of the statements made or for any damage, loss, injury or expense that may be incurred or suffered as a result of the use of or reliance on the contents of this bulletin. The views expressed do not necessarily represent those of individual contributors or BC Housing. 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. It is important for the property owner to read and review their warranty documents to understand how to file any claims and correspondence in the proper written form directly with the warranty company. Refer to your home warranty insurance documentation or contact your warranty insurance provider for more information.