



BRITISH
COLUMBIA



BC Housing

Managing Housing Assets Guide

Building Maintenance, Capital Planning,
Capital Renewal and New Construction

Housing Provider Kit

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MANAGING HOUSING ASSETS GUIDE

for Building Maintenance, Capital Planning, Capital Renewal and New Construction

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SOCIETY RESPONSIBILITIES FOR ASSET MANAGEMENT

This guide contains information on building maintenance, maintenance and capital planning, capital renewals (repair/replacement of existing building components), and new construction projects for non-profit housing societies and co-operatives. These resources are designed to increase the capacity of the non-profit housing sector and prolong the useful life of affordable housing developments.

Legislation

Provincial legislation contains regulations that impact maintenance and construction activities at your property. Several of these *Acts* are described in Chapter 1 of BC Housing's [Administration Guide](#), but here is some supplementary information, plus legislation related specifically to maintenance and construction activities.

Residential Tenancy Act

Under British Columbia's [Residential Tenancy Act](#) (RTA), landlords are responsible for:

- › Ensuring rental units and property meet legal standards
- › Keeping the building and property in a reasonably comfortable living condition

Residents are responsible for maintaining reasonable health and cleanliness standards in their rental unit and on common property.

Co-operative Association Act

The [Co-operative Association Act](#) does not contain maintenance regulations. Member and co-operative responsibilities are defined in individual co-operative maintenance and participation policies, and may also be defined in the occupancy agreement each member signs.

BC Safety Authority

BC Safety Authority oversees the safe installation and operation of technical systems and equipment. In addition to issuing permits, licences and certificates, the Authority works with industry to reduce safety risks through assessment, education and outreach, enforcement, and research. Visit the [website](#) for more information.

WorkSafeBC / Hazardous Materials

[WorkSafeBC](#) has online resources that outline an owner's roles and responsibilities under the *Workers Compensation Act*. BC Housing has also developed information to help non-profit societies and co-operatives meet these legislative requirements, including the:

- › [Housing Provider Guide for a Contractor Safety Program](#)
- › [Hazard Management Information for Service Providers/Contractors](#)
- › [BC Housing Asbestos Management](#)

- › Appendix D, Hazardous Material General Information, in the [BC Housing Design Guidelines and Construction Standards](#)

Also, you need to ensure contractors you hire are in good standing with WorkSafeBC. Alternatively, some contractors may not have WorkSafeBC insurance coverage; in this case, you can add the contractor to your own coverage for a fee. You'll find the necessary information online at WorkSafeBC.

Criminal Records Review Act

The *BC Criminal Records Review Act* states that, "All individuals who work with children or vulnerable adults, or have unsupervised access to children or vulnerable adults in the ordinary course of their employment, or in the practice of an occupation, or during the course of an education program, and who are employed by or licensed by, or receive regular ongoing operating funds from the provincial government are covered under the *Criminal Records Review Act*."

The *Criminal Records Review Act* applies to your employees and external contractors you hire to work on the property. Depending on the type of work or the resident mix, you may need an external contractor to complete a criminal record check for any employee attending the site. Criminal record checks can be processed [online](#).

Building and Fire Codes

BC Housing's [Administration Guide](#) contains information on Building and Fire Codes. All maintenance and construction activities must adhere to these codes and to municipal bylaw requirements. Typically, maintenance work does not require a permit, but contact your local municipality before making changes or repairs to the building to determine what, if any, requirements apply (i.e., permits, engineering documents, etc.). Meeting these requirements up front will prevent the need for unnecessary adjustments when the work is done.

Responsibilities

Maintaining Building Records

Non-profit societies and co-operatives are required to maintain timely, accurate information for each development to provide a history of the building condition and support informed decision making.

We recommend you maintain records of the following documents:

- › Building specifications
- › As-built drawings
- › Contract documents
- › Building operating and maintenance manuals
- › Guarantees and warranties for contract work, equipment and appliances
- › Serial and model numbers of equipment and an equipment inventory
- › An inventory of tools and supplies
- › Assessments, including building condition assessments
- › Commissioning reports
- › Short and long term capital plans



- Suite and site inspections, including all resulting work orders
- Records of all maintenance and capital renewal activities for the site, including notes on when work was done, cost, if applicable, and who performed the work;

Building Maintenance

Staying on top of building maintenance is crucial to meet residents' needs, comply with legislative requirements, make cost-effective decisions, and maintain the value of the building. Your developments are part of the local community, so keeping them well-maintained enhances the quality of residents' housing, and reflects positively on your organization and its role in the neighbourhood. Housing providers are responsible for keeping buildings, components, and related systems in good working order.



You also have to make sure people handling building and grounds maintenance have the expertise and training to properly care for the facilities, equipment and property. Important qualifications for maintenance personnel include:

- Formal training in operating building systems
- Experience in plumbing, electrical, HVAC (heating, ventilating and air conditioning) and carpentry
- WHMIS (Workplace Hazardous Materials Information System), first aid and hazmat training
- Interpersonal and conflict resolution skills
- Ability to multitask and respond well under pressure

While volunteers can participate in some maintenance activities (i.e., landscaping or painting), qualified personnel/contractors must complete other maintenance activities to ensure the work is in compliance with legislative requirements.

In addition, BC Housing offers [Skills Plus](#), a property maintenance skills training program, to help provincially-funded non-profit housing providers build capacity among maintenance personnel. The goal is to train your personnel to handle minor repairs instead of hiring outside contractors. The increased capacity can improve service to residents and ultimately lower building maintenance costs.

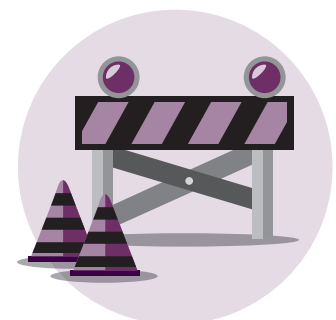
You can access maintenance training and instructional videos at the:

- Homeowner Protection Office's [Maintenance Matters website](#)
- [BC Non-Profit Housing Association's \(BCNPHA\) website](#)
- [Building Owners and Manager's Association's website](#)

Chapter 3 contains more information on maintenance and maintenance planning.

Safety and Emergency Preparedness

Housing providers are responsible for ensuring the safety and security of everyone living in, working at, or visiting the buildings you manage. You have to be prepared to cope with hazards and risks as they arise, and ensure residents and personnel are aware of necessary emergency procedures.



BC Housing's [Security, Safety and Emergency Preparedness Guide](#) contains information on:

- › Developing emergency preparedness plans for your organization's services and properties
- › Managing safety and security
- › Preparing for and responding to emergency events such as fires, earthquakes, floods, power failures and pandemics

Residential Care Licensing

BC's Ministry of Health has developed [Residential Care Regulations](#) to support the health and safety of seniors and people with disabilities in licensed group homes and residential care facilities. The regulations include licence application procedures, policy requirements, health and safety provisions, specific building requirements, and requisite staffing and management levels. The regulations apply to a range of care settings, including:

- › Long term care facilities for seniors
- › Mental health and substance use treatment facilities
- › Hospices
- › Community living facilities for adults with developmental disabilities
- › Acquired injury facilities
- › Residential facilities for children and youth

Community Care and Assisted Living

The [Community Care and Assisted Living Act](#) regulates assisted living facilities that provide supportive and semi-independent living options for seniors/adults with mental health and/or substance use problems, and adults with physical disabilities or acquired brain injuries. The Office of the Assisted Living Registrar requires all operators of assisted living residences to meet [Health and Safety Standards](#), which include maintenance standards.

Building Personnel

While a housing provider's Board of Directors is responsible for strategic direction and oversight, day-to-day management of buildings and properties generally falls to staff or volunteers. The size and complexity of the development will determine the number of personnel required and whether outside contractors also need to be hired.

Caretakers

Housing providers managing small developments who don't need a full-time caretaker may benefit from hiring contract staff to perform tasks like grounds work or cleaning common areas. Alternatively, housing providers managing larger or multiple developments may need one or more full-time caretakers, who can move from building to building as needed. To determine your staffing complement, you can review BC Housing's [criteria](#) and [options](#) for retaining caretakers.

Property Management

You can also consider hiring a contractor to perform property management functions such as collecting rent, showing suites and signing tenancy agreements. A contractor hired as an agent for your organization to perform these functions must be licensed by the Superintendent of Real Estate. For more information, please visit the [Real Estate Council of BC's website](#).

MAINTENANCE AND MAINTENANCE PLANNING

The goals of maintenance and maintenance planning are to:

- › Ensure reliability of building components for the health, safety, security and comfort of residents
- › Protect your capital investments by ensuring components last up to or beyond their projected useful service life
- › Reduce or eliminate unforeseen or premature failure of critical equipment
- › Provide appropriate budget and workforce allocations to meet maintenance demands

Types of Maintenance

Maintenance is a combination of technical and administrative activities intended to keep building components in, or restore them to, a functional state. Maintenance is generally described as planned, unplanned or preventive:

1. Planned Maintenance

- › Undertaken to ensure components are performing or remain in good condition
- › Carried out as part of a predetermined plan
- › Carried out at predetermined intervals of time
- › Allows for allocation of resources (personnel and financial) to defined maintenance activities
- › Includes maintenance activities required by an outside agency

Examples: Furnace servicing, repainting, replacement of smoke detectors



2. Unplanned Maintenance

- › Undertaken to correct unexpected issues, deficiencies or failures
- › Intended to restore a component to a functional state
- › Typically a result of a cyclical inspection process or request from personnel or residents
- › Requires estimated budget and resource time to manage unexpected maintenance activities
- › Includes emergency maintenance

Examples: Repairing a toilet that is not flushing, replacing a broken window, responding to a flood or fire

3. Preventive Maintenance

- › A strategic approach to planned maintenance
- › Requires maintenance record keeping for each component (costs, service history, resource allocation) and data analysis to develop effective strategies

- Undertaken to prevent the failure of components that impact health and safety
- Used to keep critical building operation components functioning reliably
- Used when the cost of prevention is lower than the cost of a reactive response
- Useful on critical components beyond their expected useful service life

Examples: Replacement of hydraulic elevators, emergency generators, fire alarm panels or commercial scale boilers

Preventive maintenance helps predict when to replace equipment based on historical maintenance data, where maintenance planning converges with capital planning.

Maintenance Planning

The role of maintenance planning is to:

- Determine the amount of maintenance individual building components require
- Ensure components are performing at an acceptable level based on service requirements

Developing a robust maintenance plan supports resident and personnel health and safety and effective resource use.

Identify Maintenance Requirements

Identify the maintenance requirements of each building component and develop criteria for setting maintenance priorities. You can use the following questions to analyze maintenance needs for each building component:

- What does the component do?
- What failures are likely to occur in the component?
- What are the likely consequences of the component's failure?
- What is the component's useful service life?
- What regular actions are needed to maintain this item?
- Is there a warranty on the component?
- What is the current condition of the component (see Inspections section below)?
- Does an external agency regulate maintenance on this component (described further in Planned Maintenance below)?

For example, with roofing:

- What does the component do?
 - **Protects the building from the elements**
- What failures are likely to occur in the component?
 - **Water leaking through flashings, connections to walls, and areas of damage in the roof membrane**
 - **Plugged drains resulting in pooling water**
 - **Structural issues if heavy loads applied (i.e., water, snow, materials)**



- What are the likely consequences of the component's failure?
 - **Water leaks into wall and roof assemblies, with potential for damage to interior finishes and structural members if not repaired**
 - **Roof collapse if structural issues are not addressed**
- What is the component's useful service life?
 - **25-30 years**
- What regular actions are needed to maintain this item?
 - **Check membrane for any defects**
 - **Clean out roof drains**
 - **Clean moss off roof**
 - **Ensure any materials on the roof do not overload the roof structure**
- Does an external agency regulate maintenance on this component?
 - **No**

You can use the following questions to start setting criteria for which maintenance activities take precedence within resource constraints:

- Is the health, safety or security of residents, personnel or the public at risk if the component fails (this factor is the paramount criterion)?
- Will failure of the component impact other building components?
- Will residents be displaced if the component fails?
- Is there a significant environmental risk if the component fails?
- Will residents' comfort be significantly impacted if the component fails?
- What costs will be incurred if maintenance of the component is deferred?

Inspections

Inspections are crucial to obtain information on the current condition of various building components. Inspections should inform you of:

- Any changes to the condition of components that require maintenance or a plan for future repair or replacement
- Information on any resident-related or safety issues

You will need to perform different types of inspections, including:

- **Annual Site Inspections** - Inspect the entire building and grounds for cleanliness, condition, appearance and standard of maintenance.
- **Annual Suite Inspections** - Inspect all suites for general maintenance, health and safety. Some housing providers have staff bring tools and materials to repair small maintenance issues during the inspection. Though this approach increases the amount of time in each unit, it reduces overall maintenance time by preventing the need for return trips.
- **Preventive Maintenance Inspections** - Conduct daily, weekly and monthly inspections to identify any preventive maintenance needed. For example, check electrical panels and wiring for loose,



frayed, exposed or overloaded wires and plugs monthly, and appliances and finish hardware for damage semi-annually. Use information from these interim inspections to update the regular maintenance schedule.

- **Move-in and Move-out Inspections** - See the [Resident Management Guide](#) for an explanation of these inspections.
- **Fire Protection Equipment Inspections** - See the [Security, Safety and Emergency Preparedness Guide](#) for more on these inspections.
- **Elevator Inspections** - These inspections are a legal requirement and must be performed by certified companies. We recommend you retain an elevator maintenance company to perform regular inspections and servicing on a service contract.
- **Warranty Inspections** - Conduct these inspections before a warranty expires to ensure any deficiencies are rectified within the warranty period.
- **Deficiency Inspection** - See Chapter 4 for more on this inspection.

You need to plan and resource inspections, because competing maintenance demands can often lead to inspection deferral. Deferred inspections can result in more unplanned maintenance and further pressure on your maintenance personnel.

In addition, BC Housing conducts building condition assessments every five years (see Chapter 3 for more information). If you identify a notable change from the most recent building condition assessment during inspections, please contact your Non-profit Portfolio Manager (NPPM). This will ensure any emerging issues are identified in the five years between building condition assessments.

Develop a Maintenance Plan

You need to prepare a maintenance plan to ensure requisite planned and unplanned building maintenance is completed.

Planned Maintenance

Complete regular maintenance activities to ensure each building component remains in good working order. Plan in advance so you can allocate financial and human resources to these activities. Types of planned maintenance include:

- **Cyclical Maintenance** - You can customize the [Maintenance Checklist Template](#), which lists each building component, common maintenance activities and frequencies.
- **Regulated Maintenance** - This type of maintenance is legally required. You need documentation to demonstrate the maintenance activities were performed.
- **Warranty Maintenance** - Complete the maintenance outlined by the manufacturer, supplier, or warranty provider during the warranty period, at the assigned frequency, to ensure you do not void the warranty.

Unplanned Maintenance

Unplanned maintenance includes personnel or resident requests for repairs, or component repairs identified during inspections. People often think of this work as a maintenance department's primary function. Though these activities are unplanned, the volume and potential costs can often be predicted based on historical information.

In addition to providing budgeting and workload information, tracking unplanned maintenance can often feed into preventive maintenance. For example, an increased frequency of specific requests may indicate a component requires repair or signal an imminent failure that requires major repair or replacement.

Emergency Maintenance

Emergency maintenance is a subset of unplanned maintenance that requires a more immediate response to avoid serious consequences. Determining whether a repair is an emergency is based on the:

- Needs of building occupants
- Threat of further damage to the building
- Availability of alternative actions

Typical situations where emergency maintenance would be required include floods, fires or failure of a structural component.

Emergency maintenance is only the initial response to implement a temporary solution to reduce the impact of further damage to the building or occupants' safety.

Determine whether the damage is covered by insurance, which will require the insurance company to be involved in assessing the building, prior to completing any major repairs. Non-profit owned properties need to contact your insurance adjuster directly. For BC Housing owned properties, please contact your NPPM.

Managing Maintenance Activities

Numerous methods are available to plan and schedule maintenance activities, including paper-based systems, electronic tools (i.e., Excel, Outlook), and more complex software systems. Ensure the maintenance planning tools you employ are appropriate for the size of your portfolio and can manage the following tasks:

- Identifying all planned maintenance activities for all building components
- Recording unplanned maintenance items
- Prioritizing maintenance activities based on decision making criteria
- Planning and deploying resources required for maintenance activities
- Recording decisions on deferring maintenance and prompting personnel to ensure repeated deferrals do not occur
- Recording all maintenance activities, including key dates, activities undertaken, personnel involved (whether internal or external), and any future actions required
- Assigning future actions to personnel to ensure resources are put in place for those activities



To manage maintenance effectively, you require:

- Documentation of processes throughout the maintenance cycle, from logging requests to the completion of maintenance activities
- Training for all personnel involved and clear rationales for the process

- Ensuring a feedback loop is in place to continually improve the process
- Tracking and recording all maintenance activities and strategies so information is easily accessible

A system to track all maintenance work and adherence to maintenance processes will:

- Give you a holistic picture of maintenance
- Enable you to develop preventive maintenance strategies and operational efficiencies

Resource Planning

Housing providers typically have limited resources for maintenance. Strategies to project costs and plan effective resource use may include:

- Identify the type of maintenance work your personnel have the skills to undertake, the volume of work, and the complexity of your building systems. Ensure internal personnel have the credentials required by law or health and safety regulations. BC Housing has a [resource guide](#) outlining personnel qualifications required for mechanical systems maintenance.
- Understand and log duties performed by each external supplier and employee to ensure no overlap of services.
- For unplanned maintenance:
 - Create maintenance contracts with contractors with pre-agreed terms and rates (often multi-trade contractors who handle small plumbing, electrical and carpentry issues), so work can be undertaken quickly and for a reasonable price
 - Create contracts with local suppliers to allow your personnel to pick up and pay for materials at pre-agreed rates
- For planned maintenance, set up service agreements with specialized contractors vetted for relevant industry skill levels, rate comparisons for call-outs and all-in service rates for various components
- Regularly review maintenance expenditures to assess potential cost-effective alternatives such as:
 - Hiring a staff member with a specific skill set, instead of hiring external contractors
 - Purchasing equipment so your personnel can complete the maintenance instead of external contractors

Documenting Maintenance Activities

Set up a system for recording maintenance work by internal personnel and/or external contractors. This information will feed back into maintenance planning and can also be used as supporting documentation in residential tenancy disputes and for insurance/warranty purposes. Record the following maintenance information:

- Purchase and/or work order number, to track activities related to a specific task
- Unit or area of the site where the work occurred
- Building system being serviced (e.g., HVAC system, roof system, etc.)



- A brief description of the work request (this would need to be reviewed/revised once work is done to reflect any changes from the original request)
- Date of request and name of requestor for unplanned maintenance
- Date assigned to maintenance personnel or external contractor
- Name of person/company work is assigned to
- Date work was initiated and completed

Backlog Management and Deferred Maintenance

Maintenance backlogs are not unusual, and typically occur when you experience spikes in maintenance requests. To manage the backlog effectively, have your maintenance department prioritize activities, based on your organization's decision making criteria.

As buildings age, backlogs may become more chronic. Deferring maintenance is a viable option in some instances; for example, if operating funds are an issue and delaying the task does not add significant risk to health, safety or resident comfort. However, continuous maintenance deferral can impact staff workloads and resident satisfaction, and lead to replacements being required earlier. Record deferrals in a category such as "service not performed" and note the rationale in your maintenance planning and tracking system to ensure maintenance is not deferred indefinitely or repeatedly.

If backlogs become routine rather than an exception, you need to take action to address the situation, such as:

- Bundle similar work and engage an external contractor
- Increase intervals for maintenance on non-essential items for a defined period
- Replace high maintenance items with low maintenance products (particularly applicable to grounds and landscaping)

Maintenance Procurement Process

Establish a maintenance procurement process to secure competitive bids from competent, qualified contractors. Here is a list of standard types of maintenance projects and the recommended procurement methods for each:

- **Lower value, one-time projects** - Obtain quotes from suppliers. Best practice is to request quotes from three contractors to gain an accurate understanding of what the work should cost.
- **Specialized or repetitive work** - Develop a list of qualified suppliers by identifying contractors based on references and previous work, or holding a procurement process to prequalify suppliers for maintenance contracts.
- **Cyclical maintenance** - Enter into service agreements with qualified suppliers through a procurement process, with established rates for various types of services (i.e., gutter cleaning, changing furnace filters) or established labour rates for future work requests.

BC Housing's [Procurement Guidelines for Non-Profit Housing](#) explain how to develop more complex procurement processes using an Invitation to Tender (ITT) or Request for Proposal (RFP) for maintenance contracts or service agreements. You'll find additional procurement-related information and resources for non-profits in the [procurement section](#) of BC Housing's [website](#)

Hiring Suppliers

When hiring suppliers, request a quote or complete a procurement process based on the work you need done, your expectations and any legal terms. This approach will ensure the pricing you receive from suppliers is comparable and will minimize the potential for disputes. Include the following in your request:

- A statement of work (see below for further information)
- The terms and conditions your organization sets for contractors
- The agreement term and renewal terms for maintenance contracts and service agreements. A typical agreement is one or two fixed years, with up to four renewable one-year terms (not to exceed a total of five years). One to three months notice of intent to renew/not renew is standard. Automatically renewing agreements may seem convenient, but can become problematic if you're not satisfied with the service and are locked into a contract. Your best option is an agreement with a finite term that can be extended or terminated based on the contractor's performance.
- Submittal requirements (specific forms you require the supplier to provide, government mandated submittals, warranty documents, etc.)
- Requirements for specialized trades
- Unit pricing for any items with a quantifiable and reproducible scope (e.g., scheduled inspections, window replacements)
- Hourly rates (regular and overtime) for all types of anticipated labour (e.g., tradesperson, apprentice, labourer)
- WorkSafeBC Letter of Good Standing

If your personnel do not have expertise in procuring services, you can use the following list to source potential suppliers:

- BC Non-Profit Housing Association's [Supplier Directory](#)
- [Better Business Bureau](#)
- [Greater Vancouver Home Builders Association](#)
- [Vancouver Island Construction Association](#)
- [BC Construction Association North](#)
- [Vancouver Regional Construction Association](#)
- [Southern Interior Construction Association](#)
- [Roofing Contractors Association of BC](#)
- [BC Floor Covering Association](#)
- [Master Painters and Decorators Association](#)

To ensure the supplier you retain has the right qualifications and experience, request a CCDC 11 - Contractor's Qualification Statement, a standard form from the Canadian Construction Document Committee.

BC Housing can also offer technical assistance. Please contact your NPPM, who will direct you to the appropriate contact at BC Housing.

Developing Statements of Work

The statement of work should define the:

- Area of the building where work is to be completed (unit number/site location)
- List of tasks you expect the contractor to complete, in enough detail to reduce assumptions by either party about included or excluded work (i.e. state priming and two coats of paint, versus paint the wall)
- Any specific materials you want the contractor to use (i.e., paint colour/type, flooring type)

A statement of work includes a level of detail to ensure the supplier understands your expectations, which will reduce miscommunication, change requests, and schedule extensions, resulting in a more successful project.

Develop templates for statements of work, tailor templates to current project needs, and document project results to improve templates by adding missed items or clarifying content.

Statements of Work for Maintenance Contracts and Service Agreements

External maintenance contracts and service agreements are used to identify and retain suppliers to service your equipment instead of hiring staff to do the work. The following questions can help you determine any additional requirements you need to include in the statement of work beyond those listed in the previous section:

- What is the appropriate level of maintenance for this equipment/system?
- How often must this equipment be serviced (e.g., annually, quarterly monthly, etc.)?
- Are certifications required and/or do we want a certified tradesperson to supervise and/or perform the tasks?
- What maintenance is being performed by internal personnel and what additional maintenance is required by the supplier?

Housing providers need to understand the condition of building components as buildings age. This information enables you to develop a plan for addressing imminent and future repairs and replacements. The plan will reduce unexpected events and support informed decision making on operations, maintenance and capital renewals.

To effectively plan for renewals, consider two time horizons:

- **Short Term Capital Planning** - What components will need to be replaced over the next five years?
- **Long Term Capital Planning** - What components will need to be replaced over the next 25 to 30 years?

As part of your operational agreement with BC Housing, you are required to create and maintain a Short Term Capital Plan. Though not required, a Long Term Capital Plan is also best practice and will enable you to support the long term viability of your building.

BCNPHA provides capital planning resources, curriculum and training for non-profit societies. You'll find the information on their [website](#).

The Canadian Mortgage and Housing Corporation also has a number of capital planning resources available [online](#), including access to free capital planning software and Excel templates.

What is Capital Planning?

Capital planning is the process of prioritizing the capital renewal needs of your assets—the buildings and grounds—and creating a multi-year strategy to renew those components over the useful life of the building. Capital planning should answer the following questions:

- What components will need renewal?
- When will each component renewal be required?
- What will it cost to renew the component?

A simple way of understanding a building's capital renewal needs is to think of owning a building like owning a car. Like cars, buildings are made of components with a useful service life that require maintenance and repairs to achieve. Once a component has reached its useful service life, it must be replaced for a car (or building) to continue operating. For example, it's best to replace the brakes on your car before there are none left. The same principle applies to buildings.

Maintenance planning and capital planning are interdependent and, therefore, should not be managed in isolation, whether handled by one or many people. Capital planners need information and advice from maintenance planners and vice versa, so decisions to proceed or defer renewal are based on understanding the true costs. In some instances, components may need to be maintained past their useful service life while seeking capital funding. In others, you may need to accelerate plans to replace failed equipment to avoid major impacts to building operations (e.g., having to move residents out).

Capital Planning Process

Like any projection over a long period, capital planning is less accurate the farther ahead you look. Some components may perform better or worse than expected for a variety of reasons. Various factors will alter the costs or priority of renewals. Performance expectations or the building's purpose may also change over time. As a result, the planning process should be flexible enough to respond to change.

The steps involved in capital planning are:

- Identify building/site components (modeling)
- Determine the current condition of components (site assessments/maintenance history)
- Identify the costs to replace and end of expected life cycle for each component
- Prioritize renewal needs by year (capital plan development)
- Regularly update the plan based on information gathered during inspections and logging completed renewal work

Modeling and Building Condition Assessments

Every five years, BC Housing conducts modeling and building condition assessments that involve:

- Compiling existing data available to BC Housing on your building
- Conducting onsite building condition assessments to validate the data
- Conducting interviews with your personnel to capture the building history and currently known capital renewal needs



If you are unsure when your building is scheduled for assessment, please contact your NPPM.

Your participation is important during the building condition assessment to ensure the assessor collects accurate, quality information on the condition and history of your property. It will also help identify any urgent projects that may be eligible for funding and added to our Provincial Priority List for capital renewals. BC Housing may request information on:

- Operating and maintenance practices and issues
- The age and original construction of the building
- Reports or documentation related to the components' condition
- Maintenance and repair history including ongoing issues
- A copy of your current capital plan

BC Housing uses information collected in the assessment to create an Asset Inventory, a report that identifies capital renewal needs for the various components in your building. Your personnel can use this information to develop short and long term capital plans. In addition, we will use the data to prioritize any critical projects in BC Housing's Provincial Priority List.

Developing a Capital Plan

A capital plan needs to contain general information on the site and individual buildings, as well as detailed information on the components of each building. Building information should include the:

- Year built

- Number of units
- Number of storeys
- Construction type (e.g., wood frame, concrete)
- Asset type (e.g., apartment, townhomes)

We identify this information during the building condition assessment, and use it to develop the Asset Inventory. It also gives you information on the methods and materials used in the original construction, including any asbestos-containing materials and potential options/hindrances for repairs.

Information on individual components should include the:

- Current condition of each component
- Date of the last major repair or replacement of the component
- Next action required for the component (replacement, repair, etc.)
- Priority of the action required (low, medium or high urgency)
- Estimated cost of replacing the component
- Year the component is likely to be at the end of its expected life cycle
- Number of components (e.g., 20 windows)

The Asset Inventory contains the majority of this information and:

- Bases the schedule and budget for each component renewal on the industry standard for useful service life and costing
- Provides material and labour costs for replacing components only; owner costs and costs of hazardous materials abatement or potential seismic upgrades are not included

The Asset Inventory provides sufficient detail to develop a long term capital plan, but only contains part of the information you need for the short term capital plan (see next section).

Short Term Capital Plan - Five years

A short term capital plan enables you to allocate project funding based on available resources and short term capital renewal needs. Year one and two projects should be based on currently available funding. In years three to five, the source of renewal funds may not yet be determined, but you have time to source funding.

The short term plan should accurately project planned projects for the five-year period, with a high level of certainty in the budget, scope and schedule:

- **Budget** - Develop detailed budgets using current industry data and incorporate all costs required to complete the work, including owner costs and contingencies.
- **Scope** - Review the Asset Inventory for the next 10 years and bundle projects to minimize disruption to residents and/or achieve cost savings (e.g., replace gutters at the same time as a roof replacement). Identify potential energy saving opportunities and modify the scope to include future operational cost considerations.
- **Schedule** - Determine how long it will take to complete the work (e.g., two weeks, 16 months, etc.) to develop accurate cash flows.

Long Term Capital Plan - 25 to 30 years

A long term plan enables you to prepare for large capital renewal projects, with strategies to manage future needs and longer term budget allocations.

Long term plans are more subject to changing circumstances, so you need to develop an accurate picture of future capital renewal needs without spending a lot of time on detailed budgets, scopes and schedules.

- **Budget** - Use Asset Inventory data with a factor for soft costs and inflation
- **Scope** - Use Asset Inventory actions by component, with adjustments for changes to component condition and repair history
- **Schedule** - Base the schedule on useful service life, with adjustments and educated predictions for current condition and maintenance history

Maintaining the Capital Plan

BC Housing produces new Asset reports every five years. In between, continue to update the capital plan to reflect changes in the condition of building components as they occur. Integrate information on:

- All work completed on building components. For example, if a flood occurs and a number of suites are refurbished to repair damage, update the capital plan to include the new components.
- Inspections completed by your personnel or external contractors. For example, annual suite inspections show the linoleum needs to be replaced in two years instead of four, as expected in the plan. Update the plan to include the premature failure of the linoleum.

The Asset Inventory is the only record BC Housing has of your building. Consequently, you need to bring significant changes in condition to our attention through your NPPM. We will use the information to reprioritize projects and update the Provincial Priority List.

Facility Condition Index

The Facility Condition Index (FCI) is the ratio of capital liability (the value of capital renewal needs) to the replacement value of the building. The FCI provides a snapshot into the real condition of a site or portfolio of properties. The formula to determine the FCI is:

$FCI = \text{Capital Liability (\$)} \div \text{Benchmark Asset Replacement Value (\$)}$

- Capital liability represents the total value of all capital deficiencies and renewal costs (at any given point in time)
- Benchmark asset replacement value is defined as the total amount required in current dollars to replace the facility

The higher the FCI, the larger the capital liability due to the building condition, which increases the likelihood of:

- Risk of failure to components
- Greater maintenance and operating costs
- Negative impact on personnel and residents

FUNDING MAINTENANCE AND CAPITAL RENEWALS

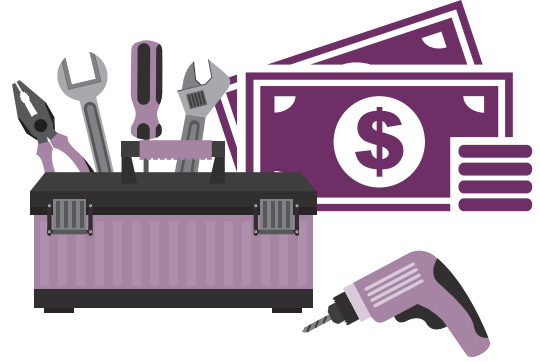
Funding Maintenance

Maintenance costs are expensed to either the operating budget or replacement reserves. The difference between the two funds is:

- **Ongoing Maintenance** - normally covered in the operating budget
- **Cyclical Replacements** - normally covered in the replacement reserve

BC Housing's [Financial Management Guide](#) explains how to develop an operating budget and other options for funding maintenance.

Funding for emergency or extraordinary expenditures may also be available in some circumstances. For more information, please contact your NPPM.



Replacement Reserves

Replacement reserves fund the cyclical replacement of components that are typically replaced several times during the life of a building. The primary reason for establishing a replacement reserve is to account for these costs separately from ongoing operating costs. By funding an annual provision to the replacement reserve in the operating budget, you have stable funding to replace items as they wear out.

Replacement reserves are distinct from capital planning; the reserve does not fund the replacement of all the building's components during its useful life. Instead, costs to replace major building components are considered one-time expenses that form part of your capital plan. Replacement reserves are a mechanism to ensure funds are available for specific types of capital needs.

The [Financial Management Guide](#) contains information on how to manage replacement reserves. The [Program Guide](#) also outlines broad provisions for replacement reserves under various housing programs.

Funding Capital Renewals

Capital renewal costs can be funded through BC Housing's capital renewal programs and alternate funding models, depending on eligibility requirements.

BC Housing Capital Renewal Programs

BC Housing's capital funding programs, project eligibility criteria, and budgets often vary. However, we track and prioritize all requests for major renewal projects in the Provincial Priority List.

Contact your NPPM to find out if funding is available for major capital repair projects or building renovations and to ensure the project is prioritized on the list, if eligible.

Alternative Funding Models

Other funding options for capital renewal projects include:

- 1) **Government Incentive Programs** - Agencies like [Fortis](#) and [BC Hydro](#) periodically offer energy upgrade programs, which provide rebates or supplemental funding for installing energy efficient components. You'll find more information on the agency websites and in the [Energy Section](#) of BC Housing's website. Your NPPM can also help identify programs you may be eligible for.
- 2) **Debt Financing** - BC Housing can help analyze your ability to debt service a loan to cover the costs of a major capital repair.
- 3) **Other** - There may be additional ways to generate revenue or reduce operating expenses to offset the cost of major capital repairs, depending on the type of project and funding program the building operates under. Please contact your NPPM to discuss the options.

Capital renewals include any building component replacements that are not part of a regular maintenance program, and can range from replacing a hot water tank to a full building envelope repair. This chapter outlines best practices for conducting a capital renewal construction project.

Capital renewal projects include the following stages:

- 1) **Project Initiation** - Determine the initial scope of work, project parameters and budget
- 2) **Design** - Confirm and further define scope of work, budget and schedule
- 3) **Procurement** - Hire contractors to perform the work
- 4) **Construction** - Implement the project
- 5) **Post-construction** - Ensure deficiencies are addressed and all documentation is received

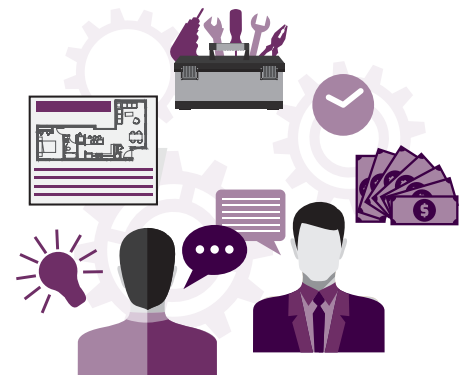
BC Housing can directly manage a capital renewal project for housing providers, or play a support role with your personnel leading the project. Please contact your NPPM to request assistance.

Project Initiation

Developing Scope of Work and Project Parameters

The initial scope of work for capital renewal projects is based on your capital plan (see Chapter 3). You will also need to refine the scope of work to include any specific project parameters for the building:

- Scheduling considerations, such as weather conditions, completion deadline, etc.
- Impact on residents: will people need to be moved out or does the contractor need to work with the building occupied?
- Do the components contain any hazardous materials that will be disturbed during the project?
- Availability of materials: how much lead time is required for delivery?
- Confirm the full scope of work; for example, building envelope projects will probably involve repairing an unknown quantity of deteriorated wood framing
- Are local trades available to complete the work or will outside contractors be required?



Once you understand the project parameters, plan strategies and appropriate budgets to manage them.

Developing a Budget

A number of resources are available to help you develop capital renewal budgets, including design consultant costing, industry information, cost consultant reports, and/or BC Housing's Asset Inventory, which provides hard construction costs for the project. If you would like assistance developing the budget for a self-funded project, contact your NPPM, who will connect you with BC Housing's technical staff.

BC Housing develops budgets for capital renewal projects that we manage and fund. BC Housing is also required to report on how funding is used when we provide funds.

External Consultants

Once you have decided to proceed with a capital renewal project, determine who to involve and what external resources you need. These questions will help you determine if you require a design consultant on the project:

- Do my personnel have the capacity, technical knowledge, and contract administration skills required to manage the project?
- Do my personnel have the time available to effectively manage the project?
- Do my personnel have a good understanding of construction companies in our area capable of doing the work?
- Do my personnel have a good understanding of our legal responsibilities when retaining contractors?
- Will the work involve developing drawings and specifications?
- Does the repair need to be designed and signed off by a design professional under the Building Code and/or city bylaws?



You may wish to hire a contractor and have your personnel administer the contract. Typical projects that can be managed without some involvement by an external consultant:

- Involve the work of a single contractor or general contractor,
- Have a lower dollar value, and
- Have a scope of work the contractor can price, based on a detailed description in a statement of work alone.

Painting and cabinetry work are good examples of projects that may not require design consultants. You will likely require a design consultant for some portion of all other projects, even if just to provide drawings or inspection services.

Construction Delivery Method

You will need to determine the construction delivery method (construction management, design-bid-build, etc.) for projects with external consultants to ensure the design and construction stages flow smoothly. The method you choose will:

- Determine when you need to retain various professionals
- Impact scheduling the various stages

The traditional delivery method for capital renewals is design-bid-build, where you retain a consultant to design the project and then send it out for contractors to bid on. Part 4 of BC Housing's [Procurement Guidelines for Non-Profit Housing](#) describes the four main construction delivery methods, the contractual relationships involved, and the pros and cons for each method.

Design

The design process for capital improvement projects has two phases:

- **Design Development** - Preliminary drawings and reports with repair options and you select a preferred option.
- **Construction Documents** - A complete set of working drawings and specifications with sufficient information to support comparable supplier pricing quotes. Drawings need to clearly denote existing and new components for capital renewals.

You can refer to the [BC Housing Design Guidelines and Construction Standards](#) for more information on standards, technical guidelines for design and construction, and what to expect from your consultant.

Procurement

BC Housing developed the [Procurement Guidelines for Non-Profit Housing](#) to help housing providers with procurement for construction projects. We also have a number of other documents in the [procurement section of our website](#) you can use to get suppliers.

When you request pricing from a contractor, also obtain the following documentation:

- Proof of WorkSafeBC coverage
- Consent of Surety for Performance and Labour and Material Bonds (if applicable)
- Proof of Comprehensive General Liability insurance and Third Party Legal Liability insurance
- Names of subcontractors and a description of the work they will perform
- Schedule of Work
- Schedule of Values - Breakdown of pricing by various components

Construction Phase

Managing the construction phase of a capital improvement project involves several elements to ensure a successful result:

Project Management

Project management is a critical phase for all projects, and involves coordinating project stakeholders, managing issues, monitoring budgets, monitoring schedules and ensuring quality control.

Budget Control and Invoicing

To manage the overall project budget, ensure you budget for all project costs to prevent overruns and pay only for work that is actually done. Put a system in place that:

- Lists all of the costs associated with the budget
- Tracks all budget commitments (commitments are the values of all signed contracts)



- Tracks all payments for each contract
- Tracks changes to each contract

When you pay invoices:

- Require a Statutory Declaration with each invoice from the contractor. This is a sworn statement from the contractor that all labour and material suppliers have been paid to date.
- If work is shown as 85-90% complete, conduct a full review of that component before approving payment to ensure any deficiencies are repaired before the work is fully paid for.

Goods and Services Tax (GST)

Building or substantially renovating social housing is taxable. Depending on your tax status, a portion or all of the GST paid on a construction project will be recoverable. Non-recoverable tax will form part of the budget. You will receive the recoverable portion back from the government upon filing. Refer to the [GST Guide for Social Housing Providers](#) for more information.

On BC Housing-funded projects, we will pay the total value of the tax to suppliers, unless otherwise agreed to by the housing provider. Any recoverable portion of the tax will show as an accounts receivable on your account. Once you have received payment for the recoverable tax, forward the funds to BC Housing.

Health and Safety

Safe and healthy working conditions on construction sites are paramount to protect everyone onsite and prevent accidents. BC Housing produced the following materials to help housing providers meet WorkSafeBC health and safety requirements and control workplace hazards during a construction project:

- [Housing Provider Guide for a Contractor Safety Program](#)
- [Hazard Management Information for Service Providers/Contractors](#)
- [BC Housing Asbestos Management](#)

Quality Control

Quality control includes all efforts to ensure a project is completed in accordance with the approved design. Quality management techniques include:

- Monitoring contractor performance
- Regular inspection of the work
- Review and approval of mock-ups
- Testing materials such as windows, membranes, etc.



Contract Management

Once a successful bidder is selected, sign a formal contract outlining the rights and obligations of both parties based on terms identified in the tender. The contract becomes the primary tool for managing this relationship, especially if there are any disagreements regarding terms and conditions.

Personnel responsible for managing projects must understand these terms and conditions to prevent or manage disputes within the context of the contract.

Lien Act

The *Builder's Lien Act* mandates a lien holdback to pay out any liens placed on the project by contractors, subcontractors, suppliers and/or workers involved in the construction. In addition, the holdback provides some level of protection by limiting the owner's liability for any liens filed.

Here are the rules for lien holdbacks;

- The *Act* requires owners to retain 10% from each of the contractor's invoices and place the funds into a joint account between the contractor and owner, until the lien period is over.
- Near the end of the project, the contractor will request that the project be deemed complete. Within 10 days the contract manager, either the consultant or the owner if there is no consultant, must review the request.
- The information from the review is used to prepare a deficiency list and determine the deficiency holdback value for the project. If this deficiency value is less than the value determined under the *Lien Act Completion Formula*, the contract manager must issue a Certificate of Completion. To calculate the value using this formula, add:
 - 3% of the first \$500,000 of the contract price (\$15,000); plus
 - 2% of the next \$500,000 of the contract price (\$10,000); plus
 - 1% of the balance of the contract price
 - For example, for a \$1.5 million project, the cost to complete remaining work must be less than \$15,000 + \$10,000 + \$5,000 ($\$500,000 \times 1\%$) = \$30,000 for the project to be deemed to be substantially complete
- Within seven days, a copy of the Certificate of Completion must be provided to the contractor and posted in a prominent spot at the building.
- The lien period is 55 days from the date of the Certificate of Completion. Any companies or persons wanting to file a lien for the project must do so within 45 days of the Certificate of Completion date.
- Before paying out the lien holdback, complete a lien search to ensure no liens have been placed on the building. You must [complete a search of both the Court Registry and Land Titles Office](#).

A couple of items related to the lien holdback are often misunderstood:

- The lien holdback amount is 10% of the value of work completed by the Certificate of Completion date, *not* 10% of the total contract value. Consequently, you need to deduct the deficiency holdback from the total contract value *before* the lien holdback is deducted.
- The lien holdback cannot be used to pay for deficiency work the contractor has not completed.

Construction Deficiencies

Review the work for construction deficiencies to:

- Ensure the value invoiced is appropriate, based on completion and compliance with the design
- Reduce the potential for disputes, by allowing the contractor to rectify issues early on with minimal deconstruction

Conduct construction deficiency reviews:

- › During the course of the project as components or portions of work are completed
- › Before allowing residents or the public access to the completed area
- › When the contractor requests the project be certified complete, to develop a deficiency list and determine the deficiency holdback value for the project
- › Before the warranty expires

The deficiency holdback is the value of the remaining work to be completed and is set up before issuing the Certificate of Completion:

- › Costs are calculated based on what it will cost the owner to do the work if the contractor defaults. The contractor provides their own value to complete the work, which is much less than what it would cost to retain another contractor to complete the work.
- › The holdback should also include costs to complete project closeout submittals (i.e., maintenance manual documents, as-built drawings, etc.)

Post-construction Phase

Post-construction includes all work undertaken in the final stages of construction and beyond to ensure the building can be properly maintained and managed when finished.

Project Closeout Submittals

As part of the project requirements, obtain the following documents before making the final payment:

- › As-built drawings and specifications
- › Maintenance and Renewal Plan
- › Fire Safety Plan

The [BC Housing Design Guidelines and Construction Standards](#) contains a full description of these closeout submittal documents. The level of detail required in these documents will vary, depending on the complexity of the capital improvement project.

Ensure these documents are developed during construction, so you receive them at the end of the project, not after construction is complete.



Warranties

Two types of warranties are provided on most construction projects:

- › **General Contractor's Warranty** - This is a warranty for the full scope of work identified in the design documents. The standard warranty period in CCDC documents is one year beyond the issuance of the Certificate of Completion.
- › **Manufacturer Warranties** - These warranties are provided by manufacturers for various building components.

During the warranty period, you are required to complete the maintenance outlined in the Maintenance and Renewal Plan. Failure to complete the maintenance may void the warranty. With warranties:

- Maintain a list of components and their warranties to ensure any issues are flagged and managed through the warranty process.
- Inspect the scope of work or the component before the end of the warranty period. If any deficiencies are found, notify the contractor/manufacturer in writing so the deficiencies can be addressed.
- If a component fails during the warranty period, the warranty can often be extended to the date the component was repaired.

The stages for new construction are similar to those for capital renewals:

- 1) **Project Initiation** - Determine the initial scope of work, project parameters and budget
- 2) **Design** - Confirm and further define the scope of work, budget and schedule
- 3) **Procurement and Construction** - Hire contractors and implement the work
- 4) **Post-construction** - Ensure deficiencies are addressed and all documentation is received

Project Initiation

Developing Scope of Work and Project Parameters

Project parameters for new construction are related to the building form and operating models. BC Housing's [Social Housing Cost Target Framework](#), [Operating Cost Target Framework](#), and [Housing Need and Demand Study Document](#) outline the factors to consider to determine project parameters for a new construction project.

Developing a Budget

Due to the number of variables involved, standard practice is to retain a cost consultant to help develop a project budget for new construction. Depending on the project, you may retain a cost consultant during the schematic design phase or further along in the design process. Your development consultant can assist with this process.

BC Housing has produced various tools to explain the average cost range for the type of building you plan to develop:

- **New Construction Capital Budget Form** - Outlines the various cost categories to consider when developing a budget.
- **Social Housing Cost Target Framework** ([guide](#) and [worksheet](#)) - Generates a target project cost based on project data and allows social housing proponents to assess the projected cost against this target. Use this tool at the schematic stage.

Construction Delivery Method

As with capital renewals, determine the construction delivery method you will use to complete the project, so the design and construction stages flow smoothly. The construction delivery method will determine when you need to retain various professionals and impact scheduling.

Construction management and design-build are the common models used for new construction projects. Part 4 of BC Housing's [Procurement Guidelines for Non-Profit Housing](#) describes the four main construction delivery methods, the contractual relationships of each, and the pros and cons for each method.

Design

You can refer to the [BC Housing Design Guidelines and Construction Standards](#) for information on standards, technical guidelines for design and construction, and what to expect from your consultant.

The design process for new construction projects has three phases:

- **Schematic Design** - Sufficient information to evaluate the project's basic design concepts in relation to the program design guidelines and project cost framework.
- **Design Development** - Preliminary drawings, outline specifications, and other documents required to conform with BC Housing's Design Guidelines and Construction Standards and confirm the construction budget.
- **Construction Documents** - A complete set of working drawings and specifications, with sufficient information to get supplier pricing. These drawings are typically reviewed at 50% and 100% completion.

Procurement and Construction Phase

The information on capital renewal procurement and construction in Chapter 5 also applies to new construction projects. With most new construction, non-profit providers hire consultant inspectors or development consultants to undertake portions of the work on their behalf.

Goods and Services Tax (GST)

Housing providers building new social housing developments must register for the GST, which enables you to recover all of the GST incurred in developing the project for:

- Land acquisition, if any. If you buy land for social housing, GST may be payable on the purchase, but will be fully recoverable. However, GST does not apply when the land for a social housing project is leased from another entity such as the Provincial Rental Housing Corporation, a municipality or a health authority.
- Feasibility, architectural, engineering and other consulting costs.
- Construction costs.
- Landscaping and other finishing costs.

However, you also become liable for the GST once the project is completed, under federal "self-supply" rules:

- Generally, GST applies to the selling price of newly constructed or substantially renovated residential housing.
- Developers are required to pay the GST as if they had purchased the housing.
- A housing provider is considered both seller and buyer for new developments funded by BC Housing.
- These rules mean you have supplied yourself with housing (self-supplied), and must assess and pay the amount of GST owing.

BC Housing will calculate the GST owing at the interest adjustment date (IAD) based on specified development costs (land acquisition, any improvements made to the property, and construction costs such as materials, supplies, equipment, contractors and consultants).

Refer to the [GST Guide for Social Housing Providers](#) for more information.

Post-construction Phase

Again, post-construction includes all work undertaken in the final stages of construction and beyond to ensure the building can be properly maintained and managed when finished.

Project Closeout Submittals

As part of the project requirements, obtain the following documents before making the final payment:

- As-built drawings and specifications
- Operating and Maintenance Manual
- Fire Safety Plan

You'll find a full description of the closeout submittal documents in the [BC Housing Design Guidelines and Construction Standards](#). And the [Building Handover Guide](#) includes a list of closeout submittals for new construction projects.

Ensure these documents are developed during construction, so you receive them at the end of the project, not after construction is complete.

Commissioning and Building Handover

You can refer to BC Housing's [Building Handover Guide](#) for information on the commissioning and building handover processes for a successful transition from construction to occupancy.

Warranties

The information on warranties for capital renewals in Chapter 5 also applies to new construction projects.

GLOSSARY

Amortization Period - Assets with a long but limited life are amortized or depreciated over the life of each asset, to show the asset as a cost of operation and recognize the cost over its useful life.

BC Housing - BC Housing is the provincial agency responsible for administering subsidized housing in British Columbia. BC Housing owns and manages 7,400 affordable housing units for families, seniors, and people with disabilities, and provides rent subsidies for affordable non-profit and co-op housing developments and some private market units.

BC Non-Profit Housing Association - BCNPHA is an umbrella organization of non-profit housing societies that manage affordable housing developments across the province. The BCNPHA takes a leadership role in representing the non-profit housing sector's interests to government and the public.

Canada Mortgage and Housing Corporation - CMHC is the national housing agency of the federal government.

Capital Planning - the process of prioritizing the capital renewal needs of your assets—the buildings and grounds—and creating a multi-year strategy to renew those components over the useful life of the building.

Capital Replacements - Capital items that need to be replaced as their useful life wears out, such as appliances, flooring, etc. These items are included in the standard list of eligible items for the Replacement Reserve Fund.

Co-operative Housing Federation of BC - CHF BC is an association of housing co-ops and related organizations in mainland BC. The CHF BC offers education services and conferences for member co-ops to develop democratic management practices and self-sufficiency.

Debt Financing - BC Housing can help analyze your ability to debt service a 2nd mortgage or other loan instrument to potentially cover the costs of a major capital repair;

Emergency Maintenance - Emergency maintenance is a subset of unplanned maintenance that requires a more immediate response to avoid serious consequences.

Maintenance Planning - to determine the amount of maintenance individual building components require and ensuring components are performing at an acceptable level based on service requirements.

Planned Maintenance - Undertaken to ensure components are performing or remain in good condition; Carried out as part of a predetermined plan and at predetermined intervals of time.

Replacement Reserves - a fund for the cyclical replacement of components that are typically replaced several times during the life of a building. The primary reason for establishing a replacement reserve is to account for these costs separately from ongoing operating costs.

Unplanned Maintenance - Undertaken to correct unexpected issues, deficiencies or failures and is intended to restore a component to a functional state; typically a result of a cyclical inspection process or request from personnel or residents.

APPENDIX A

Online Links

Acts and Legislation

- › [BC Building and Fire Codes](#)
- › [Cooperative Association Act](#)
- › [Health and Safety Standards](#)
- › [Criminal Records Review Act](#)
- › [Employment Standards Act](#)
- › [Fire Services Act](#)
- › [Residential Tenancy Act](#)
- › [Workers Compensation Act](#)
- › [Occupational Health and Safety Regulations](#)
- › [Vancouver Building Bylaws and Fire Bylaws](#)

BC Housing

Additional Housing-related Guides and reference material

- › [Financial Management Guide](#)
- › [Program Guide](#)
- › [Resident Management Guide](#)
- › [BC Housing Design Guidelines and Construction Standards](#)
- › [GST Guide for Social Housing Providers](#)
- › [Security, Safety & Emergency Preparedness Guide](#)
- › [Procurement Guidelines for Non-Profit Housing](#)
- › [Building Handover Guide](#)

BC Non-Profit Housing Association

Canada Mortgage and Housing Corporation (CMHC)

Co-operative Housing Federation of BC

Residential Tenancy Branch

- › [Residential Tenancy Act](#)

WorkSafe BC

- › [Workers Compensation Act](#)
- › [Occupational Health and Safety Regulations](#)



Sample Maintenance Checklist

YEAR: _____

GROUPS (See Note 1 at the end of the checklist)	FREQUENCY (See Note 2)	INSPECTION/MAINTENANCE PROCEDURES	DATE (3)	REFERENCE (4)	SERVICE CONTRACT (5)
Playground Equipment	Annually	Inspect for loose cracked parts, sharp edges, rot and fall protection.		02880	(6)
Planting	Annually	Inspect for plant and tree growth against building.		02900	(7)
Concrete Patios and Retaining Walls	Annually	Inspect for cracks, shifting, water damage and drainage		-	(8)
Sidewalks and Driveways	Annually	Inspect for cracks and trip hazards.		-	(8)
BUILDING EXTERIOR (#9)	FREQUENCY	INSPECTION/MAINTENANCE PROCEDURES	DATE	REFERENCE	SERVICE CONTRACT
Crawlspaces, Concrete Foundations	Annually	Inspect for dampness, vermin, inspect beams and posts for rot. Inspect foundations for cracks, shifting, water damage.		-	(10)
Masonry Veneer	Annually	Inspect for efflorescence (white powder), inspect sealants.		04200	(10)
Porches and Balconies	Annually	Clean and inspect for cracks, rot, trip hazards, secure railings and steps.		-	(8)
Wood Siding, Fascias and Trim	Annually	Inspect for cracks, water damage, deteriorated finishes and vermin.		06100	(8)
Attic Roof Sheathing	Annually	Inspect for water damage, mildew, condensation.		-	(10)
Attic Insulation	Annually	Inspect for moisture, vermin, voids, compressed insulation.		-	
Attic Ventilation	Annually	Inspect for obstructions, rot, vermin.		-	
Vinyl Decks	Annually	Check for lifting, water damage, damaged flashing.		07100	(8)
Concealed Waterproofing (parkade)	Annually	Check underside of slabs for evidence of leaks.		07100	(10)
Stucco	Annually	Check for signs of water leakage, mould, mildew and staining.		07240	(10)
Roof Shingles	Annually	Check for curled or missing shingles, excessive moss, damaged flashing, clean gutters.		07300	(11)
Vinyl Siding	Annually	Inspect for damaged siding and water damage.		07460	(8)



BUILDING EXTERIOR	FREQUENCY	INSPECTION / MAINTENANCE PROCEDURES	DATE	REFERENCE	SERVICE CONTRACT
Steel Siding	Annually	Inspect for water damage and damaged sheets.		07465	(8)
Flat Roofs	Annually	Inspect for ponding, loose flashing, plugged drains, air pockets, blisters, debris.		07500	(11)
Roof Hatch	Annually	Inspect for forced entry, hardware operation, leaks and weather stripping.		07700	
Metal Doors and Frames	Annually	Inspect for forced entry, correct hardware operation, weather stripping and sealants.		08100	(8)
Wood Doors and Frames	Annually	Inspect for forced entry, correct hardware operation, weather stripping and sealants.		08210	(8)
Automatic Door Openers	Semi-Annually	Inspect for damage, forced entry, wear, and test all safety features.		08710	(8)
Overhead Parkade Doors	Semi-Annually	Inspect for proper operation and damage to components, test safety features.		08360	(8)
Aluminum Entrances and Storefront	Semi-Annually	Inspect for forced entry, hardware operation, closer adjustment		08410	(8)
Windows and Doors	Annually	Inspect for leaks, hardware operation, sealing.		08500	(10)
Hose Bibs	Semi-Annually	Inspect for damage and winterize in advance of freezing temperatures.		15400	
Outdoor Outlets	Semi-Annually	Test ground fault plugs.		16000	
Dryer Vents	Monthly	Clean bird screens monthly and vents as required.		15500	
Floor and Trench Drains	Annually	Clean out drains and trenches.		15400	
Chimneys	Annually	Clean and check for cracks, loose bricks, leaks or damage. Include fireplaces and wood stoves.		-	(8)
BUILDING INTERIOR AND SERVICES (#12)	FREQUENCY	INSPECTION / MAINTENANCE PROCEDURES	DATE	REFERENCE	SERVICE CONTRACT
Door Handles, Hinges and Closures	Semi-Annually	Check hardware for proper function, check and test fire exit hardware.		08710	(8)
Residential Appliances	Semi-Annually	Check fridge seals and drain tubes. Check stove burners and wires for electrical shorting or grease build up. Check hood fans for filters, venting, grease build up and fire hazards.		11450	(8)
Walls and Ceilings	Annually	Inspect for mould, water damage, holes, cracking, paint and humidity levels.		09250	(8)



BUILDING INTERIOR AND SERVICES (#12)	FREQUENCY	INSPECTION / MAINTENANCE PROCEDURES	DATE	REFERENCE	SERVICE CONTRACT
Elevators	Monthly / Quarterly (Subject to licensing requirements)	Have an elevator contractor service and maintain the elevator equipment		14200	(6)
Boiler - Large Building	Monthly	Service monthly, including circulating pumps. Adjust for seasonal temperatures.		15500	(6)
Boiler / Furnace - Small Building	Annually	Service annually, plus filter changes 3 to 4 times per year. Adjust for seasonal temperatures.		15500	(6)
Air Conditioning	Annually	Inspect for damage, icing, noise, leaks. Clean condenser.		15500	(6)
Ductwork	Annually	Clean and inspect for rust or damage.		15500	(8)
Gas Piping	Annually	Inspect for leaks and clearance between gas fired fixtures and combustibles.		15400	
Hot Water Tank	Annually	Open drain, inspect pressure reducer valve for leaks.		15400	
Electrical Panel and Wiring	Monthly	Inspect for loose, frayed, exposed or overloaded wires / plugs. Test ground fault plugs monthly.		16000	(8)
Electrical Radiant Heater	Annually	Inspect for damage.		16000	
Fire Alarm System, Extinguishers, Hoses, Sprinklers, Heat and Smoke Detectors	Daily / Weekly / Monthly / Annually	Inspect annually using a qualified inspection firm. Have staff conduct daily, weekly and monthly checks from Fire Safety Plan.		16000	(8)
Emergency Generators	Weekly / Semi-Annually	Run emergency generators once per week for 20 minutes, and have inspected by a qualified firm every 6 months. Maintain fuel supply.		16000	(8)

NOTES:

1. Includes site improvements outside the building envelope.
2. The recommended maintenance or inspection interval.
3. The date you complete the inspection and / or maintenance procedures.
4. The reference section found in the Design and Construction Standards and the building operating and maintenance manual submitted by the contractor. Review the manual to determine if product is still covered under warranty.
5. A purchase order or service contract to carry out independent inspection, maintenance, repair or re-construction.
6. Have the equipment manufacturer or subcontractor attend to the repairs.
7. Have the landscape maintenance service perform the work.
8. Employ a specialist trade contractor to perform the repairs.
9. Includes foundation walls, roofs, windows, and doors.
10. Employ an independent building envelope inspection agency to review suspect conditions.
11. Have an independent roof inspection agency inspect roof every 5 years. Have roofing contractor perform repairs annually as required.
12. Includes building services and interior finishes.