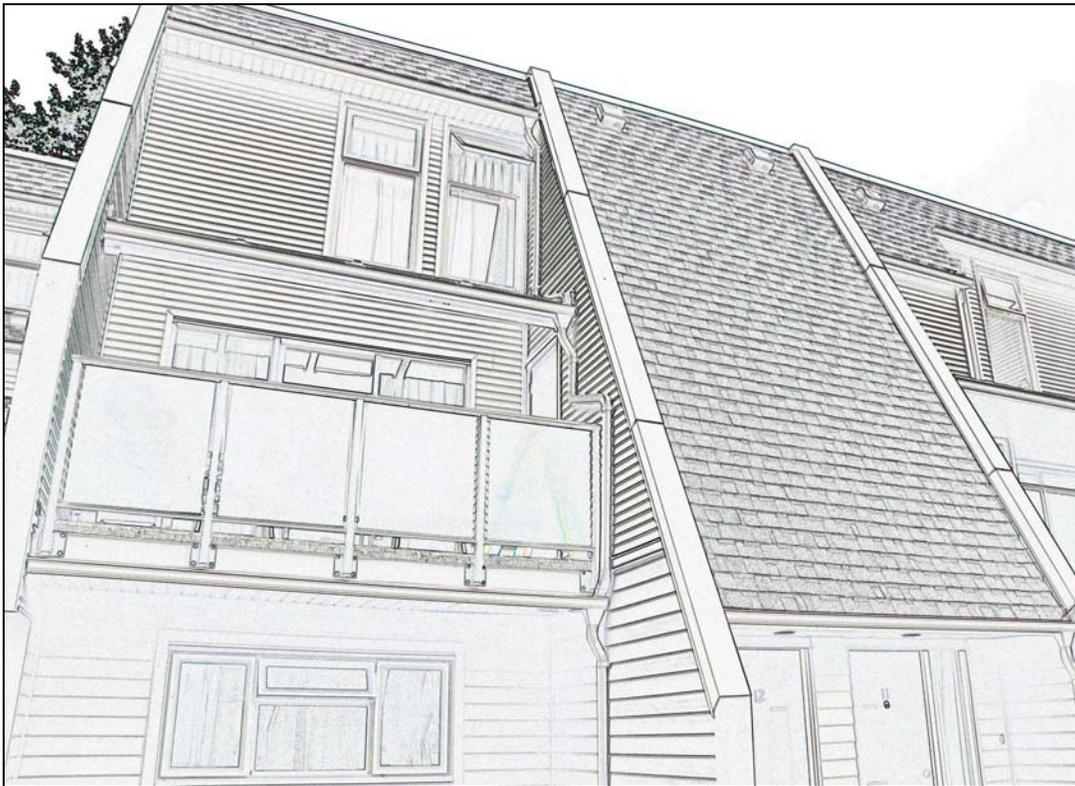


**Building Envelope Maintenance Manual
(Excerpts)
For
Sample Building**

**1234 Pleasant Lane
Burnaby, BC**



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Project Information

Project Description: Sample Building is an eight building complex located at 1234 Pleasant Lane in Burnaby BC. The complex includes seven multi unit three storey residential buildings, as well as a one storey common facilities building. The buildings have recently undergone remedial work to rectify problems associated with moisture ingress and material degradation.

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Building Envelope Consultant: 123 Engineering Ltd.
100 – 1111 Europe Way
Burnaby BC V5R 4F4
Tel: 604-123-4567
Fax: 604-123-4568

Project Number: 123456

Contact: Mr. Engineer

Contractor: General Contractors
Granville Street
Vancouver, BC Canada V1Y 4D4
Tel: 604-123-6789
Fax: 604-123-6788

Completion Date: January 1, 2005

Building Description

Sample Building is an eight building complex located at 1234 Pleasant Lane in Burnaby BC. The complex includes seven multi unit three storey residential buildings, as well as a one storey common facilities building. The wood framed structures are constructed over an at grade concrete slab.

The exterior walls have been clad with proprietary fibre cement panels fashioned to resemble wood siding, as well as rigid vinyl siding. Windows and sliding doors throughout the building are newly installed vinyl framed double glazed units.

The roofs of the residential buildings consist of both a low slope area covered with a modified bitumen membrane, as well as sloped roofs finished with asphalt shingles. Balconies throughout the building have been waterproofed with a sheet applied vinyl membrane.

The buildings were constructed circa 1980, and have recently undergone repairs to correct problems related to moisture ingress and material degradation. The remediation work completed at Sample Building, included the removal and replacement of damaged or deteriorated roof and wall components. The new wall assemblies incorporate a drainage cavity, and are commonly referred to as *rainscreen* walls.

Remedial work was conducted in the following areas.

Roofs

In all sloped roof areas, the existing roofing assemblies including the sheathing were removed. New sheathing, roof membranes and asphalt shingles were installed in all locations. New gutters and downspouts were installed. In some locations, new sloped roof overhangs were constructed and finished with asphalt shingles.

In the flat roof areas new sheathing and a new 2-ply SBS modified bitumen membrane roof assembly was installed at buildings 1 and 2. Roof patching was carried out at buildings 3,4,5,6,7,8.

Glass and metal canopies were constructed over balconies throughout the complex.

Walls

In all areas, the existing cladding trim accessories and sheathing paper were removed. New rainscreen walls were constructed and clad with rigid vinyl siding, or fibre cement boards. New flashings were installed as required.

Balconies

In all balcony locations, the existing guardrails, upstand walls, balcony membrane and sheathing were removed. The third floor balcony sheathing was also removed. New balconies were constructed and finished with a sheet vinyl (PVC) membrane. New gutters, downspouts, and guard rails were then installed.

Windows / Doors

In all locations, the existing windows and doors were removed and disposed of. New vinyl framed windows and sliding doors were then installed as required. New swing doors were installed as required throughout the project.

Ground Level Waterproofing

Landscaping material was removed at the perimeter of the buildings to a distance of five feet from the building perimeter. Reglets were saw cut into the concrete slab, and new drains were cored where required. A new waterproof membrane was applied at the building perimeter and tied in to the existing membrane. Landscaping materials were then replaced.

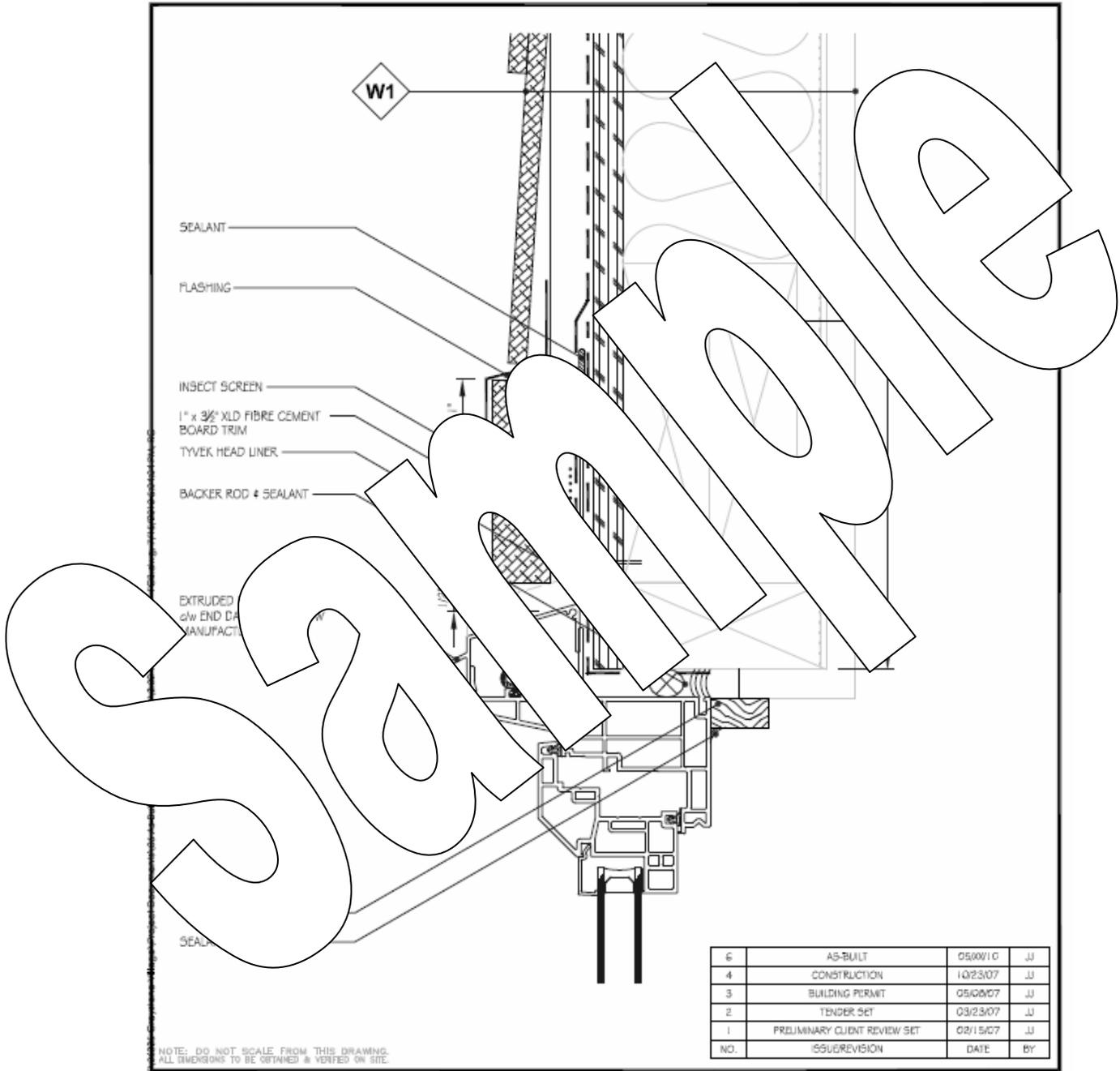
RAINSCREEN WALL DESCRIPTION

In a rainscreen wall, the cladding on the outside of the building is intended to deflect, as much as possible, any moisture that is deposited on the wall. Any moisture that does penetrate the exterior cladding is collected at horizontal cross-cavity flashings, and directed back to the exterior of the building. See attached drawing.

At Sample Building, the newly constructed fibre cement siding and rigid vinyl siding clad walls have been constructed as rainscreen walls. Wood strapping has been used to create a drainage space behind the cladding. The cavity behind the cladding allows for drainage of incidental moisture as well as drying of materials, should moisture be present in these areas.

The following drawing outlines the components used to create the cavity behind the exterior cladding, as well as outlining the location of other related components.

Rainscreen Wall Assembly



Dwg. 1.0 Typical rainscreen wall components as per project drawing 3.00

Maintenance Overview

Building inspection and maintenance is a relentless endeavor, a job that never ends. Regardless of the design, or materials used, all assemblies require maintenance in order to realize their full service life potential. Your building exterior operates in a harsh environment, and must deal with UV exposure, airborne contaminants, and wind driven rain and snow.

The maintenance of building exteriors has long been recognized as an important factor in a structures overall performance. It is referred to in the British Columbia Homeowner Protection Act as a requirement of the buildings owners, as well as a condition of the prescribed warranties.

The following excerpt from CSA S478-95 Guidelines on Durability in Buildings outlines the benefits of a maintenance program.

"For given materials and constructions exposed to identical loads, the design service lives for similar buildings are adjusted depending on the amount and nature of maintenance that the owners commit to carry out during the lives of the completed buildings." Maintenance is defined in this document as "The actions and measures taken periodically to maintain a desired level of performance. Maintenance includes a planned program of cleaning, repair, or replacement of identified components such as paint or gaskets."

The following analogy is from the "Best Practices Guide Wood Frame Envelopes in the Coastal Climate of British Columbia" published by CMHC. *"The concept of maintenance and renewals planning for an envelope assembly is very analogous to the life of automobile tires. Tires will provide 80,000 kms of reliable service if regular care is given to inflation pressure, alignment and abnormal hazards (operations and maintenance). After 80,000 kms tires will continue to perform, although if inspected there will be much less tread and the walls will show signs of cracking. Continued use of the worn tires carries with it well known risks. Risks range from the inconvenience and cost of a flat tire, to that of injury and loss of life as a result of losing control of the vehicle at the time of failure. Prudent automobile owners replace tires at the end of their useful life, and avoid exposure to unacceptable risks (renewals).*

The building exterior is the exposed portion of a wall system, whose function is the separation of interior and exterior environments.

Your exterior maintenance program should address the following areas.

1. Review / Repair / Renew

Visual inspections by on site personnel, as well as qualified professionals, must be carried out at regular intervals in order to assess the condition of the building and its individual components. The identification of signs of deterioration must be noted and problems rectified at the earliest opportunity. Significant changes in a materials condition are an indication that further review or remediation may be required. A regular program of building care includes maintenance, as well as a plan for renewal projects. Renewal planning refers to the regular replacement of components such as roof or deck membranes, caulking or paint. Renewal projects are generally large in scale, such as roof replacement. With advanced planning, renewals costs can be spread out over a longer term, reducing the financial impact of the work. The scheduling of renewal projects will be greatly influenced by the findings of the maintenance reviews.

One of the keys to a successful program is documentation. Recording the findings of all inspections, as well as the remedial action taken, will prove extremely helpful in evaluating maintenance and renewal plans. Documentation of maintenance work completed is also a requirement of the warranty.

2. Building Operating Procedures

Exterior operating procedures should be reviewed in order to minimize potential problems, and reduce the exposure of building components to harmful conditions. Plants or trees in contact with exterior walls can reduce drying, augment mould growth, and speed the degradation of materials. Piling snow directly against an exterior wall, especially if laden with salt, can also negatively affect the service life of materials. High pressure water used improperly can damage coatings or sealant if too great a pressure is used.

As outlined above, it is important to appreciate the various factors that affect the long term durability of building components. All building operations should be considered for their impact on the durability of building materials.

Sample Building is not covered by a third party warranty, and is not subject to the conditions of the Homeowner Protection Act of British Columbia. However, as the Homeowner Protection Act of British Columbia is widely recognized, the portion of the act that refers to maintenance responsibilities has been excerpted below for reference purposes only.

The Act regulations clearly state that one of the key responsibilities of building owners is the maintenance of exterior building components covered by warranties. Damage that occurs as a result of a lack of proper maintenance can be excluded from coverage as noted in the following sections from the regulations.

Permitted exclusions – defects

11 A warranty provider may exclude any or all of the following items from home warranty insurance:

(e) any damage to the extent that it is caused or made worse by an owner or third party, including

(i) negligent or improper maintenance or improper operation by anyone other than the residential builder or its employees, agents or subcontractors,

A failure to deal with maintenance items in a timely manner can result in damage to other building components, both interior and exterior. A proactive approach to monitoring and maintaining the building exterior will prolong the service life of the building components, and avoid premature deterioration. Eliminating premature failures of building components protects your investment, and preventing problems is far more cost effective than reacting to and repairing them.

Renewal Plans / Replacement Reserve Fund

Overview

An effective long term plan for building care includes a Renewals Plan and a related Replacement Reserve Fund. The objective of this plan is to provide an effective plan to deal with ongoing expected replacement of material

Reserve funds are not part of the annual operating budget and are typically not used for day-to-day operations. Reserve funds are meant to protect property by providing a means to replace deteriorated capital assets in an appropriate manner before they become problematic.

Renewals Plans should outline the life expectancy of major building components, estimate a replacement cost at the end of their useful service life. As the expense of these projections are difficult to make certain and they are subject to be adjusted on an ongoing basis. Financial projections should include some information with which to estimate the cost of replacement. The Reserve fund study should be continually updated. The Reserve fund factors can easily change, which would affect the accuracy of the reserve fund.

Life Cycle Savings Plan
Replacement Reserve Fund
The development of a detailed plan regarding the funding and use of Replacement Reserve Funds. The information can be found in Chapter Six of the "Home Maintenance Manual" produced by BC Housing.

It is central to the effective long term operation of all buildings that the inevitable replacement of deteriorated components is planned for and the funds to complete such work be available in accordance with the BC Housing requirements for Replacement Reserve Funds.

Renewals Timeline

The following Renewals Timeline information provides an estimated service life for exterior materials and systems used on the building. The expected service life time frames are based on available manufacturers' literature, warranties, and theoretical or historical industry standards. All systems and components are subject to a wide variety of factors that affect their life expectancy, including quality of installation, quality of manufacture, weather conditions, and the quality of the ongoing maintenance program. As a result of these factors, systems and components demonstrate variations in their predicted service life, while some may out live their predicted life, others may not.

The expected service life of products should be updated periodically through ongoing maintenance reviews. As previously outlined a professional Service Life Study should take into account factors such as inflation and adjust the predicted service life accordingly.

The following list outlines typical life spans for exterior materials and systems taken as an initial guideline only.

Material	Expected Service Life	Notes
Roof – Modified Bitumen Membrane	10 - 15 years	Full replacement
Roof – Single Ply Membrane	10 - 15 years	Full replacement
Balcony – Concrete	2 - 3 years	Replacement
Sealant	8-10 years	Full replacement
Exterior Paint	5 - 7 years	Recoat
Window – Vinyl	30 - 40 years	Replacement

Exterior Materials Information

1. Roofs
2. Flashing
3. Sealants
4. Fibre Cement Panels
5. Rigid Vinyl Siding
6. Paint
7. Windows / Doors
8. Balcony Membrane / Patio Membrane
9. Grounds

Roofs

Roof systems are directly exposed to the harshest conditions the environment can offer. Snow, rain, ultraviolet light, heat and chemicals, all combine to test and age the components of a roofing system. Roofs begin to age the minute they are installed. Due to the importance of sound roofing on a structure, roofs are the component that generally receives the most attention from a maintenance standpoint. Prolonging the life and preparing for the replacement of a roof is the goal of an effective roofing maintenance program.

The low slope roofs at Sample Building have been waterproofed with a 2-ply SBS modified bitumen membrane. The membrane at all buildings was patched as a part of the remediation work completed in 2010, with the exception of the roofs at buildings 1 and 2 which were completely replaced. The low sloped roofs drain into surface drains located in the field of the roof.

Sloped roofs at the building perimeter have been finished with newly installed asphalt shingles (IKO Cambridge LT.). These sloped roofs drain into a gutter and downspout system. In some locations new roof overhangs have been constructed at the second and third floor as a part of the remedial work completed in 2010.

SBS Modified Bitumen Membrane

Modified bitumen membranes are a rolled material applied in sheets. The membrane is typically adhered to the substrate by heating with a torch. Granules are embedded in the cap sheet membrane to protect it from ultra violet (UV) light.

As moisture and UV rays age the membrane, symptoms such as blistering, ridging, and splitting may begin to occur. The protective granules can be worn away and the seals at seams or service penetrations can begin to fail. Preventative maintenance of the roofing membrane will extend the service life of the material, as well as giving some indication of long term life expectancy.

Drainage of the low slope roof occurs at surface drains. It is important to regularly check these drains to ensure they are clear and free flowing. The roof should also be checked for signs of ponding water or a build-up of dirt and organic material. Maintaining a clean, freely draining roof membrane will provide a greater service life from the roofing materials.

As with all membrane covered areas, it is important to clear away any sharp debris such as nails or screws. Organic growth such as moss should also be removed, and can be treated with commercially available zinc pellets. **Chlorine bleach solutions should not be used to clean roof membranes.**

Regular reviews by site personnel should be conducted to assess the condition of the roof, with particular attention paid after storms, or high rain periods. A visual review should generally be conducted every three months.

Modified Bitumen Membrane Inspection

The following cursory roof inspection should be carried out by qualified personnel.

1. Clean all debris from the surface of the roof. This includes debris that has gathered around vents, drains, and any other roof penetrations. Debris has a tendency to hold water, and standing water will accelerate roof deterioration. Dirt and debris can also facilitate the growth of organics such as plants, which can easily damage the roof membrane. Check roof surface for areas of ponding water.
2. Check all flashings and sealants making sure that they are not deteriorated and that no holes or open cracks are present.
3. Check around all penetrations including vents and skylights looking for openings or membrane joint bond failure. All penetrations through the membrane should be well sealed and flashed.
4. Check for blisters or cracks in the membrane. (Do not puncture blisters) Also check membrane for ridges, tears, punctures, cracking or de-lamination at seams.
5. Check the modified bitumen membrane for deterioration of ultraviolet protection (excessive granule loss).
6. Check to ensure drains are clear of debris or other obstructions. Drains should be covered by screens or protected by other means to eliminate drain blockage.

Asphalt Shingles

Asphalt shingles are the most commonly used roofing in sloped roof applications. The lifespan of a shingled roof is affected by numerous factors including exposure, attic temperature, roof traffic, surface degradation, and debris accumulation. The quality of shingles is based on manufactured properties such as thickness, spacing, and will be reflected in the manufacturer's life expectancy, typically ranging from 20 to 40 year range. The shingles applied to the sloped roof at Sample Building are covered by a manufacturer's limited lifetime warranty.

The sloped roof areas drain into a gutter and downspout system. It is important that where present, these gutters are checked on a regular basis to ensure they are unobstructed. Debris in the gutters should be cleaned away to avoid drain clogging and prevent possible moisture problems.

Regular visual reviews by a person should be conducted to assess the condition of the roof with particular attention paid after high rain periods.

When inspecting your roof for cracked, curled or missing shingles, look for all as any excessive loss of granules. This inspection can be carried out from the ground if a ladder to access areas is not available. Have any damaged or faded shingles replaced. Look for growth of moss or algae, which can be controlled with zinc strips. As part of this review, there is no need to walk on the sloped roof. Walking on the roof is dangerous and can damage your roof.

In addition to the regular maintenance of the shingles, the entire roof system including gutters, soffits, downspouts, and flashing requires continuous attention. Signs of staining at gutter ends, or downspout joints is an indication of overflow and should be investigated to determine their cause.

Canopies

Metal and glass canopies are present at various locations around the buildings. While these canopies do not act as environmental separators, neglecting to maintain the canopy and related gutters and downspouts can lead to future problems.

The canopies slope towards the building, where a metal gutter collects water and drains it through a downspout located at the ends of the gutter. It is important that these gutters are reviewed and cleaned on a regular basis to ensure that the drains remain unobstructed. Should any water be observed overflowing the gutter sides, the appropriate personnel must be notified, and the gutters cleaned. The condition of the paint coating on the metal frame should also be inspected as a part of the annual maintenance review.

When reviewing canopies, the glazing and framing should be checked. Should any signs of damage or failure be noted, repairs should be conducted immediately. Glass panes that are cracked or damaged should be replaced immediately.

Regular reviews by site personnel should be conducted to assess the condition of all roofs, with particular attention paid after storms, or high rain periods. These reviews are visual only, and are intended to spot issues such as poor drainage, organic growth, or physical damage.

Notes:

- 1. Newly installed roof systems at Sample Building are covered by an RCABC 5 year warranty (Roofing Contractors Association of BC), and as such are subject to an RCABC inspection approximately two years after installation. This inspection is carried out on behalf of, and scheduled by the RCABC**
- 2. The roof can be a dangerous work environment, and should only be accessed by persons familiar with appropriate safety precautions.**
- 3. Contact a professional roofing contractor certified with the Roofing Contractors Association of BC (RCABC) regarding maintenance and repairs of your roof. Any repairs conducted during the warranty period should be coordinated through the general contractor in order to avoid affecting the warranty.**
- 4. In all areas regular reviews and cleaning must be carried out at gutters, downspouts, and drains.**

Maintenance Scheduling

Typically, the changing of the seasons presents an excellent opportunity to review a building's exterior components and assess the impact of the latest environmental conditions on its performance. It is important that building occupants be aware of the aging of their building, and report issues such as staining, blistering, peeling, or failed windows to the appropriate personnel. **It is also essential that regular reviews of all building components by an experienced individual be scheduled, in order to assess the condition of the building exterior. Where semi-annual inspections are required, the fall and the spring are the most appropriate times to conduct such inspections.**

Building maintenance does not begin and end with cleaning. However, regular cleaning of your building does provide an excellent opportunity to observe building materials up close. As with your automobile, when you wash it, you become aware of paint chips and blisters. The same is true for building exteriors. Cleaning not only provides an immediate aesthetic gain, it also removes organic growths and pollutants, and allows for a close examination of paint, cladding and sealant.

The following information outlines the minimum frequency of inspections to be conducted in order to assess the noted components. Although it is impossible to itemize all the potential scenarios that may constitute a problem with given materials, major points of inspection are listed. The following is not intended as a complete listing of possible problems, but as a guide to the more common areas of concern.

Component	Areas to Review
Roof	Inspect roof for physical damage, debris, splitting or bridging of membrane. Inspect shingles for physical damage. Check all roof drains and penetrations. Check related gutters and downspouts for debris accumulation.
Flashing	Inspect flashing for corrosion, slitting, or failure. Inspect associated sealants.
Sealant	Inspect sealant for cracking, loss of adhesion, or pulling away.
Fiber-Cement Siding	Inspect panels for signs of cracking, splitting, or failure. Inspect for signs of insect damage. Check cross cavity flashing.
Vinyl Siding	Inspect panels for physical damage, cracking, or splitting. Inspect for signs of insect damage. Check cross cavity flashings, base of walls, and window/door frames.
Paint	Inspect for signs of peeling, chalking, or discoloration.
Windows	Inspect window frames, weatherstripping, seals, frames and weep holes.
Doors	Inspect door hardware, weatherstripping and painted finish.
Balcony Membrane	Inspect membrane for signs of wear, peeling, blistering, or splitting. Check perimeter flashing, and railing fasteners.
Exhaust Vents	Inspect exhaust vents for lint accumulation, moisture and corrosion.
Drains	Check all patio and roof drains for debris accumulation.
Grounds	Inspect grounds including vegetation condition, sprinklers, and ground water drainage at the building perimeter.

Maintenance Schedule (Sample Building)

Item	Monthly	3 Month	6 Month	Annually	Years
1.0 Roofing					
Visually inspect drains, gutters and downspouts	O				
Inspect roofing membrane and drainage			X		
2.0 Flashings					
Inspect and repair					
3.0 Sealants					
Inspect and repair			O	X	
Full replacement approximately					8 - 10
4.0 Cladding (Fibre Cement / Vinyl)					
Inspect and repair				X	
Clean				X	
5.0 Paint					
Inspect and touch up				X	
Repairs requiring					5 - 7
6.0 Windows / Doors					
Inspect and repair hardware				O	X
Window and door seals			O	X	
7.0 Balconies					
Inspect and repair				X	
Clean surfaces and membranes		O			
8.0 Grounds					
Inspect, maintain				X	
9.0 Miscellaneous					
Inspect all vents / drains and clean where required	O			X	
Review strata maintenance plan			O	X	

The preceding table lists maintenance items covered by a professional review, as well as items to be attended to by qualified site personnel.

O = Qualified site personnel or owners
X = Professional review

Appendix

1. Warranty / Bonding Information
2. Owners Inspection List
3. Professional Inspection List
4. Sample Maintenance recording form
5. Elevation Drawings

ON-SITE PERSONNEL / OWNER INSPECTIONS

Item To Inspected	Inspection Frequency	Inspect for	Completed
Roofing / Drainage	Monthly	A cursory monthly check is intended to spot physical damage and moisture problems. This check is purely a visual inspection looking for moisture staining, overflowing gutters or blocked drains.	
Flashings	Semi annual	Physical damage. Look for flashing which may have been damaged or broken by gardeners, window cleaners or other operations around the building.	
Sealants	Semi annual	Look for damage or obvious sealant failure when checking windows and doors.	
Cladding	Semi annual	Inspect the cladding for signs of damage, cracking, warping or buckling. Look for openings that may have formed in the cladding, as well as signs of moisture intrusion from the exterior siding.	
Paint	Semi annual	Observe condition of paint on exterior walls, doors and windows. Look for peeling, blistering or fading.	
Windows	Semi annual	Observe condition of windows. Sweep and clean window tracks regularly. Check for signs of water damage or mold.	
Doors	Annual	Doors should be checked for to assure the hardware and the perimeter are in good condition. Check for loose trim or peeling paint. Damaged doors should be repaired.	
	Quarterly	Check for cracks or physical damage on cleaning. Check for signs of water damage or mold.	
		Where exterior air vents are present, they should be vacuumed monthly, and painted annually. The lint screen in the dryer should be cleaned every 30 days. Dirty, blocked vent covers can lead to moisture accumulation in the pipe, and can cause leakage and deterioration. All vents should be checked annually.	
Plants / Grounds		Plants growing directly adjacent to or in contact with the building exterior can contribute to the deterioration of the exterior cladding, and increase the risk of problems. Keep plants and shrubs away from exterior walls. Debris on decks can contribute to the buildup of organic debris. All leaves and debris should be cleared away on a regular basis. Inspect grounds including vegetation condition, sprinklers, and ground water drainage, including patio drains.	
Walls	Monthly	Report any staining or moisture on the drywall side of exterior walls. Note the weather conditions when the moisture appears.	

These tenant inspections are not intended to replace regular professional inspections. The frequency of inspection stated is a minimum, and should be increased should conditions warrant. The guidelines listed above are for individual tenants, and should not be confused with the guidelines for professional reviews.

Any maintenance work to be performed on the building should be coordinated through the Strata Council, and the General Contractor in order to avoid affecting existing warranties.

Inspection conducted by: _____ Date: _____

Professional Inspection Checklist

Inspection Date / Time _____

Conducted by: _____

Weather Conditions: _____

Component	Areas to Review	Acceptable	Not Acceptable
Roof	Inspect roof for physical damage, debris, splitting, warping, or ridging of membrane, missing or damaged shingles, and associated flashings, and penetrations. Check related downspouts for debris, or blockage.		
Flashing	Inspect flashing for corrosion, proper slope, joint failure, sealant failure and damage.		
Sealant	Inspect sealant for cracking, loss of adhesion, or loss of flexibility.		
Fiber Cement Siding	Inspect panels for physical damage, cracking, or peeling. Look for openings that indicate moisture penetration behind the cladding, as well as moisture or mold behind the siding.		
Rigid Vinyl Siding	Inspect panels for physical damage, warping, splitting, or cracking. Check for signs of moisture penetration behind the siding. Inspect flashings for proper installation and sealant. Check for evidence of staining, discoloration, fading, or chalking. Check for peeling, or delamination.		
	Inspect window and door weatherstripping, seals and weep holes. Check for flashing and sealant.		
	Inspect window and door weatherstripping, seals and weep holes. Check for flashing and finish.		
Balcony Membrane	Inspect membrane for signs of wear, peeling, blistering, or splitting. Check railings and fastening points. Check soffit for moisture.		
Exhaust Vents	Check exhaust vent screens for lint collection. Clean if required.		
Drains	Inspect balcony, deck and roof drains for debris, blockage and leaks.		
Grounds	Check vegetation and operating conditions, including sprinklers, and ground water drainage.		

Any component deemed not acceptable should be explained on the reverse of the form, or accompanying sheets.

Maintenance Report Form

Project: Sample Building

Date: _____

Maintenance Required:

Reported by:

Location:

Action Taken:

Completed on / Cost:

Observations:

Signed: _____

Date: _____

Note: Completed forms should be filed in the Maintenance Manual and copies forwarded to the appropriate parties should action be required.

MATERIAL / CONTRACTOR SUMMARY SHEET

Section	Material	Product	Data Sheet Included	Manufacturer / Supplier	Contractor	Number	Warranty Duration	Issued By
02470 Landscape Carpentry	Wood	Fencing	No	Sunbury Cedar 10008 River Rd. Delta BC V4C 2R3	Delta Fencing River Rd. Delta BC V4C 2R3		N/A	N/A
02515 Unit Concrete Pavers	Concrete	Texada Light Shot Blast Finish Natural	No	Abbotsford Concrete Products 3422 McCallum Road Abbotsford, BC V2S7W6 (604) 852-4967	Ellan Paving Ltd. 1160 Patullo Rd. Abbotsford BC 604-539-5399		Compliance Letter	Contractor
02950 Landscaping	Trees, Shrubs, Groundcover	N/A	No	N/A	Maple Landscaping 10th Ave Delta BC V4R 1A1 604-451-1111		1 Year	Contractor
05720 Aluminum Railings	Aluminum and Glass	6 Mil Tempered Glass Powder coat 7009-38	No	G & P Metal Works Ltd. 1160 St. James St. Surrey BC V4A 1A7	G & P Metal Works Ltd. 1160 St. James St. Surrey BC V4A 1A7 604-599-0978		N/A	N/A
07311 Asphalt Shingles	Asphalt Shingles	IKO Cambridge LT. Harvard Slate	Yes	IKO Roofing 1160 St. James St. Surrey BC V4A 1A7	IKO Roofing 1160 St. James St. Surrey BC V4A 1A7 604-433-4322		Ltd. Life 5 Year 5 Year	Manufacturer Contractor RCABC
07460 Fibre Cement Siding	Cementitious Panels	Hardiplank 6 1/4" Heather Me		Hardiplank 2200 St. James St. Surrey BC V4A 1A7 #250, 604-599-0978	Oakridge General Contractors 5088 Granville Street Vancouver BC V6M 3B4		50 Years	Manufacturer
07464 Rigid Vinyl Siding	Vinyl Siding	Kaycan Plastic Siding	Yes	Kaycan Plastic Siding 1160 St. James St. Surrey BC V4A 1A7	Oakridge General Contractors 5088 Granville Street Vancouver BC V6M 3B4		50 Years	Manufacturer
07511 Liquid App. Waterpro	Elasto Waterproof Coating	Bakol Block 770-06		Harvard Many Heat arter 9000 Alveda Blvd. Edmonton AB T6A 90245 tel: 780-955.9200	Oakridge General Contractors 5088 Granville Street Vancouver BC V6M 3B4		10 Years 2 years	Manufacturer Contractor
07552 Modified Bitumen Membrane	Flam Traff 0		Yes	Soprema (Canada) 1511 Derwent Way Delta V3M 6M4	Harvard Industries Ltd. 5651 - 198th Street Langley BC V3A 1G5		10 Year 5 Year 5 Year	Manufacturer Contractor RCABC
07570 PVC Decking	Vinyl Decking	Deco 0	Yes	Skyline Building Systems 261185 Wagon Wheel Way Rocky View Alta. T4A 0E2	Arbutus Vinyl Ltd. #150 - 8711 Beckwith Rd. Richmond BC V6X 1V4		10 Year 5 Year	Manufacturer Contractor
07620 Sheet Metal	Aluminum 0	outs	Yes	Gentek Building Products Ltd 1001 Corporate Drive Burlington, Ontario L7L5V5 1-905-319-5609	Advantage Gutters Inc. 23018 24th Ave. Langley BC		40 Year 5 Years	Manufacturer Contractor