

SAMPLE

**CONTINGENCY RESERVE FUND
STUDY**

**123 ANY STREET
ST. ELSEWHERE, BC**

**PREPARED FOR:
THE OWNERS OF STRATA PLAN LMS ***
C/O PROPERTY MANAGEMENT COMPANY**

**209vA0000A
TODAY'S DATE**



Halsall

2009 CONTINGENCY RESERVE FUND STUDY
FOR
YOUR BUILDING
123 ANY STREET
ST. ELSEWHERE, BC

Prepared for:
THE OWNERS, STRATA PLAN LMS ***
c/o Property Management Company
St. Elsewhere, BC V6J 3G7

Prepared by:
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209vA000A

Draft Report Issued:
Approved by Council:
Final Report Issued:

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1 INTRODUCTION

As requested, we have completed the Contingency Reserve Fund Study for your Strata.

2 GENERAL DESCRIPTION OF CORPORATION

The building is located at 123 Any Street in St. Elsewhere, British Columbia. It was constructed in or about 2001 and has 72 residential units. Suites have either a patio, balcony or terrace. There is a split level, 2 storey underground parking garage. The roofs are a combination of sloped and flat areas. Amenities are limited to the entrance lobby, corridors, and one elevator. The fiscal year end of the Strata is December 31st.

2.1 Shared Facilities

We understand that there are no shared facilities or reciprocal agreements with adjacent properties.

2.2 Common Asset Components

The registered Strata Plan includes site and floor layouts, and schedules, which defines the boundaries of units and common assets of the property. Patios and balconies are not included within the Strata Lot boundaries. There is no description of Strata Lot boundaries with respect to floors, roofs, windows, cladding systems, mechanical or electrical systems, or chimneys.

The Strata Property Act states that unless otherwise shown on the Strata Plan, if a Strata lot is separated from another Strata lot, the common property, or another parcel of land by a wall, floor or ceiling, then the boundary of the Strata lot is midway between the surface of the structural portion of the wall, floor or ceiling that faces the lot and the surface of the structural portion of the wall, floor or ceiling that faces the other Strata lot, the common property or another parcel of land. The Act also has easement provisions, reciprocally in favour of each Strata lot and common Strata property, in relation to services such as mechanical and electrical equipment.

Legal interpretations of the repair and maintenance obligations of the Strata Corporation as noted in the Statutes (Condominium Act, Strata Property Act) have generally stated that any component which plays an integral part in the performance, of say, the exterior wall, is generally the responsibility of the Strata Corporation (as opposed to an individual owner) to maintain, repair and replace.

The Strata may wish to have this, and the following section numbered 2.3 reviewed by their solicitor for the appropriateness of our determinations, and our understanding of the unit boundaries and the responsibility thereof. These assumptions define the expenses included in the study.

Our interpretation of the Strata Plan and how we understand the Strata to be operating is that the following building components are the common assets which must be addressed as part of this Contingency Reserve Fund Study:

- ▶ Building and parking garage structures
- ▶ Roofs, balconies, terraces and patios
- ▶ Exterior walls
- ▶ Exterior windows and doors
- ▶ Site finishes
- ▶ Common area interior finishes
- ▶ Common mechanical and electrical facilities

2.3 Unit Owned Assets

We understand that components which are not common assets and are the responsibility of the individual owners include:

- ▶ Interior suite finishes
- ▶ Suite plumbing and electrical fixtures and associated piping and wiring
- ▶ Suite gas fireplaces and electric baseboard heaters

3 FINANCIAL ANALYSIS

3.1 Costing

The construction industry is currently booming in various cities across Canada, but particularly Vancouver, Calgary and Toronto and this is having significant inflationary impact on pricing. For some work, including roofing, plumbing and HVAC projects, it is not unusual for tenders to close 100% higher than a few years ago as contractors seem to have ample work to justify higher margins. Published resources are not currently effective at predicting costs. We try to make every attempt to reflect reasonable pricing for renewal projects, but this is a moving target. For projects occurring beyond the next five years, we have assumed that prices will stabilize to a level somewhat lower than what we are currently seeing. For projects occurring in the next five years, budgets should be seen as rough estimates only. Upcoming projects should be tendered as early as possible to allow lead time for planning in the event that prices are higher than the estimates.

3.2 Physical Description and Budgeting

Items covered by the study are described, including budgets, in Appendix A.

➔ **Appendix A**
for physical description
and budgeting

3.3 Analysis

The Strata Property Act establishes regulations for contributions into the Contingency Reserve Fund based on the operating fund. We cannot cross-check if the Contingency Reserve Fund balance will exceed your annual operating budget as the operating budget cannot be predicted. Regardless, we think this limit can cause under-funding, so we calculate our recommended contributions and presume you will obtain consent from the owners when the fund balance exceeds your operating budget.

There are an infinite number of cash flow plans that can be followed in order to fund the anticipated repairs. We have provided the following 3 options for your consideration. The Council could select from one of these options, or suggest an alternate cash flow plan that suits their needs better:



→ **Appendix B**
for funding scenarios
and expenditures table

The first, Scenario 1 - Inflation-matched Increases, shows the ideal contribution level that would be required so that all expenses related to the Strata Corporation are paid evenly by all owners of the Strata regardless whether they own a unit early or late in the life of the building. This scenario shows the annual contribution level that would be unchanged over the life of the complex (other than keeping pace with inflation and changing to reflect revised assumptions during updates).

The second, Scenario 2 - Phased Increases, shows another approach to reaching the "ideal", inflation-matched contribution level shown in Scenario 1, but rather than achieving this level next year, the necessary increase is phased-in over several years. This benefits existing owners to the detriment of future owners. However, it also gives unit owners time to react to the increase, rather than taking the increase all in one year. Many Councils find this disclosure more reasonable than imposing a sudden increase.

The third, Scenario 3 - Funding by Special Levy, shows the special levies that would be required each year if you continue to contribute at your current contribution level. This is not an ideal solution, nor is it the way that a Strata Corporation should ideally be run. However, it is an option not prohibited by our interpretation of the current Act.

Other funding scenarios such as Funding via Special Levy can also be prepared. This type of funding plan would show the implications of remaining at your current contribution level and the special levies that we predict will be needed in order to keep annual funding levels as they are.

4 ASSUMPTIONS

4.1 Factors Affecting Analysis

The assumptions we have made about hidden conditions, predicting technical performance, and ongoing maintenance needs for the common assets are described in the Appendix: "Repair and Replacement Protocol".

➔ **Appendix D**
for repair and
replacement protocol

4.2 Operating Budget Expenditures

Section 92 of the Strata Property Act states that the operating fund is "for common expenses that usually occur either once a year or more often than once a year" and that the contingency reserve fund is "for common expense that usually occur less often than once a year or that do not usually occur". The Contingency Reserve Fund Study should not duplicate the operating budget expenditures. You indicated that the operating budget includes work items which cost less than a threshold of about \$5,000.

A full inventory of items not budgeted within the Reserve Fund is not provided. If required and/or useful for management or accounting purposes, we recommend others compile an inventory of these operating items.

Operating expenditures should be carefully monitored. Conditions that require increasing expenditure may indicate problems that should be dealt with differently than how we have assumed. Further evaluation may be appropriate to determine if a more comprehensive repair or replacement program should be added to the Reserve Fund, or if programs already planned should be advanced. These types of changes would be reflected in updates.

Please call with any questions.

Respectfully submitted,
HALSALL ASSOCIATES LIMITED

NAME

Project Manager

NAME

Project Principal

Contingency Reserve Fund Study

For

Your Building In BC

123 Any Street

St. Elsewhere, BC

Prepared For:

The Owners of Strata Plan LMS ***

c/o Property Management Company
123 Any Street, St. Elsewhere, BC

Prepared By:

Halsall Associates Limited

112 930 West 1st Street
North Vancouver, BC V7P 3N4

Project Number: 209vA000

1/5/2009

STRUCTURE

Structural Frame

Description:

Most structural elements are concealed by finishes, so comments are limited to visible portions and information provided on the drawings.

Parking Garage: Conventionally reinforced concrete foundation walls, columns, shear walls, and roof slab which also forms the ground floor of the building. See the parking garage section of this report for further discussion on the parking garage.

Remaining Structure: 4-storey wood framed building with wood framed floors, walls and balconies. See the balcony section of this report for further discussion on the balconies.

Drawings indicate the typical floor structure is constructed as follows (from top to bottom):

- floor finish
- 1.5" concrete topping
- 5/8" plywood sub floor
- 2x10" joists complete with 2x2" cross bridging at 16" o/c
- 6" fibreglass batt insulation
- 5/8" gypsum board

Load bearing wall assemblies include:

-2x4" stud walls with either a staggered stud configuration and 2x6" double top and bottom plates or a double wide 2x4" assembly (ground floor).

Non load bearing walls are 2x4" stud assemblies with 2x6" double top and bottom plates.

Condition:

2008: We did not observe any major signs of settlement or structural cracking in the exterior foundation walls or slab-on-grade that would indicate evidence of a problem with the building foundation. The structural frame, excluding the balconies and exposed portions of the parking garage, is generally protected from the weather and is not expected to require major repair within the life of the building. See "Balconies" and "Parking Garage" for further discussion.

The building is located in a zone with relatively high risk of strong seismic activity. We have not completed any structural analysis to check the ability of this building to comply with current codes regarding earthquake resistance. While upgrading to meet current codes is not required at this time, this could be necessary in conjunction with major retrofitting that required a building permit.

Balconies

Description:

Each unit above the ground floor has a balcony or a terrace (similar to a balcony but located over a living space). There are a total of 41 balconies and 7 terraces.

Structure: Plywood decking supported on wood floor joists extending from the building floor structure.

Protection System: A vinyl waterproofing membrane protects the wood framed balcony structures. The membrane is upturned at adjacent building walls, as well as under the door sills. The terraces are protected by a two-ply modified bitumen membrane covered by unit pavers.

Drainage: Surfaces sloped to area drains. Drains are connected to down spouts secured to the exterior walls which discharge at grade. Overflow scuppers also installed at each terrace.

Fascia and Soffits: There is painted wood fascia at balcony perimeters and vented aluminum soffits.

Balcony and Terrace Guardrails: Prefinished aluminum guards with posts, top and bottom rails, and either prefinished aluminum pickets or glass infill panels. Guards anchored at baseplates through the wood fascia into the wood framed structure, and at the ends of the top rail into adjacent walls.

Repair History:

2007: Fascia painted as part of exterior wall repainting project. See "Walls" section of report.

Condition:

2008 (Halsall): No major deteriorated components were detected. The following was noted:
 -insufficient slope to drains typical at 4th floor balconies, some locations have an additional drain installed where water pools; and
 -inadequate tie-in of the existing membrane and new drains resulted in leakage at some of the balconies.

We understand the Strata is addressing the drainage concerns as needed, with costs paid for from the operating budget, so no allowance has been included.

We recommend budgeting for the following over the life of the building:

- membrane replacement, sheathing repairs and an allowance for framing repairs;
- replacement of balcony guards at end of their service life (typically replaced with every 3rd membrane replacement); and
- a periodic balcony condition evaluation including physical testing to allow a more accurate budget and appropriate scope of repair to be developed.

Annual membrane cleaning and patching to address punctures is assumed to be an operating expense, therefore no budget has been included. Budgets for painting of the wood fascia are included in the "Walls" section of this report.

We do not expect repairs to the aluminum soffits to exceed the thresholds within the term of this study, presuming deterioration that develops will be addressed as needed.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Balcony and Terrace Condition Survey	\$4,725	\$5,014	2012	15 yrs	recurring	3	Forecasted
Repair Balconies	\$162,180	\$179,060	2014	15 yrs	recurring	3	Forecasted
Repair Terraces	\$56,307	\$65,973	2017	20 yrs	recurring	3	Forecasted
Replace Balcony and Terrace Guards	\$93,870	\$187,730	2044	45 yrs	recurring	3	Forecasted

Repair Garage Roof Deck Waterproofing	\$51,870	\$65,784	2021	40 yrs	recurring	3	Forecasted
Replace Garage Roof Deck Waterproofing	\$450,009	\$709,619	2032	40 yrs	recurring	3	Forecasted

BUILDING ENVELOPE

Walls

Description:

The exterior walls are designed as a "rainscreen" system (i.e. with a drained cavity behind the exterior cladding). There are prefinished sheet metal flashings at floor slab edges, above and below windows and above penetrations through the walls. The outer skin of the cladding assembly is primarily vinyl siding. Painted wood trim surrounds windows and doors. Painted wood has also been used as a decorative band at the second floor, and fascia for the roof and balconies. Some painted cement board panels have been provided below windows and painted wood shakes have been provided below some roof gables.

No sealant is present on the exterior cladding joints, including at the perimeter of windows and doors, between dissimilar cladding materials, or at penetrations through the walls. Some exterior sealant is present at flashing joints and joints between cementboard panels. Concealed sealants are also present behind wood trim, used during installation of windows and doors (as seen during recent repainting).

Repair History:

2007: Exterior wall maintenance project included painting wood components and cement board panels, replacing deteriorated wood trim, and painting wood fencing. Cost about \$90,000 including Contractor costs and consulting for design, tender and construction review.

2006: Building envelope evaluation completed, cost about \$3,500.

Condition:

2008 (Halsall): The exterior wall maintenance project completed in 2007 addressed maintenance work identified in our 2006 building envelope evaluation report. With this work complete, we can now report there is no evidence of current problems with the exterior walls. No leaks were observed or reported.

As the exterior cladding is a rainscreen assembly, water which bypasses the exterior skin of the wall is intended to drain out at flashings provided at each floor level and above windows and doors.

We recommend budgeting for the following:

- periodic repainting, including local replacement of deteriorated wood components and sealant;
- eventual replacement of cladding system, with the project phased over 2 years;
- wall condition evaluations, including localized inspection openings in both the inside and outside of exterior walls, periodically throughout the life of the building to assess the performance of the wall assembly and to evaluate the expected time of general cladding replacement.

Periodic cleaning of the vinyl siding is assumed to be an operating expense therefore no budget has been included.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Wall Condition Evaluation	\$6,615	\$7,020	2012	7 yrs	recurring	3	Forecasted
Exterior Wall Maintenance (painting, sealant and some wood replacement)	\$91,944	\$101,514	2014	7 yrs	recurring	3	Forecasted
Cladding Replacement - Phase 1 of 2	\$355,320	\$606,491	2036	35 yrs	recurring	3	Forecasted
Cladding Replacement - Phase 2 of 2	\$317,520	\$552,810	2037	35 yrs	recurring	3	Forecasted

Windows

Description:

Overall: Windows are a mix of fixed and operable units (casement and slider types).

Framing: Vinyl with jamb/sill corners sealed.

Glass: Double glazed sealed insulating glass units (IGU) at fixed and operable windows, with aluminum spacers labelled VITRUM IGMAC 1999.

Drainage: Drainage holes are provided at each corner of the exterior screen track.

Flashings: There are prefinished metal flashings at the windows heads and sills.

Condition:

2008 (Halsall): No evidence of leaks related to windows was noted and no active leaks were reported by management. No failed window units were noted or reported. Window operation seemed acceptable.

We recommend budgeting for the eventual full replacement of windows and frames. Budgets assume the work is undertaken in 2 phases, and in conjunction with cladding replacement to reduce overall project costs.

We have assumed that replacement of failed IGUs and repairs to window components including weatherstripping, internal joint sealing, and hardware repairs will be completed on an as-needed basis out of the operating budget. We recommend tracking the location and timing of IGU failures and weatherstripping work. If failure rates increase to a point where the cost is exceeding your operating budget allowance, then a budget can be incorporated into the Contingency Reserve Fund Plan in future updates.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Replace Windows - Phase 1 of 2	\$116,235	\$198,400	2036	35 yrs	recurring	3	Forecasted
Replace Windows - Phase 2 of 2	\$116,235	\$202,368	2037	35 yrs	recurring	3	Forecasted

Exterior Doors

Description:

Main Lobby Entrance: The entrance off Any Street consists of a commercial window/door assembly with a double swing door in vinyl frame with double glazing.

Suite Sliding Doors (to balconies, terraces and patios): Vinyl-framed sliding doors. Door assemblies have one fixed sash and one sliding panel. Doors are double glazed. Sliding panels have rubber gasket seals and pile weatherstripping.

Suite Swing Doors (to terraces): Metal clad on wood with insulated glazing units (IGUs) in painted wood frames.

Service Doors: Painted insulated steel doors in steel frames at other building exits and service rooms.

Exterior Stairwell Doors: Painted steel doors and frames with pushbar hardware.

Garage door: A single, picket syle door with a torsion opening system. Knee-high photo-cell system just inside the door for safety.

Condition:

2008 (Halsall): Operational issues of the main lobby entrance door were reported by the Strata. There is however no deterioration of the door assembly to warrant replacement at this time. We have budgeted for replacement of the main lobby entrance doors on the assumption that ongoing maintenance will only provide an acceptable level of operation for a few more years. The Strata may decide to replace this door sooner than scheduled should operational problems become unmanageable.

Other doors are generally in good condition and operated well where checked. Budgets for replacement of the suite sliding and swing doors in 2 phases and in conjunction with the recladding project, and replacement of the overhead garage door are included.

General replacement of service doors and exterior stairwell doors is not anticipated within the term of this report. Individual door replacement, if needed, is assumed to be managed as needed out of the operating budget.

We have assumed that replacement of failed IGUs in the exterior doors, and localized repairs to hardware and weatherstripping of all doors will be managed as needed out of the operating budget.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Replace Front Entrance Doors (Lobby)	\$2,625	\$2,841	2013	20 yrs	recurring	3	Forecasted
Replace Swing and Sliding Doors (from balconies, terraces and patios) - Phase 1 of 2	\$63,630	\$108,609	2036	35 yrs	recurring	3	Forecasted
Replace Swing and Sliding Doors (from balconies, terraces and patios) - Phase 2 of 2	\$61,992	\$107,930	2037	35 yrs	recurring	3	Forecasted
Replace Overhead Door	\$7,875	\$9,792	2020	20 yrs	recurring	3	Forecasted

Flat Roofing

Description:

The building roof consists of flat roofing surrounded by sloped roofs protected by asphalt shingles (see "Sloped Roofing" for discussion on this component). The flat roof is divided into an upper and lower roof area. Both areas are protected with an exposed modified bitumen roof assembly.

Drainage is provided by central area drains, which are provided with ballast guards. The roofs have overflow scuppers which discharge through the soffit of the sloped roof overhang.

There are terraces adjacent to some third and fourth floor suites. The construction from top to bottom, is assumed to be the same as the main roof. In addition, there are precast concrete pavers over the waterproofing membrane. Refer to the "Balcony" section for a discussion on the terraces.

The lower flat roof access door is located at the west end of the third floor corridor. A ladder is used to access the upper roof area.

Condition:

2008 (Halsall): No current leaks were observed or reported. There is some moss growth and debris that has collected around area drains.

Regular cleaning around roof area drains and visual reviews of the roof condition are assumed to be an operating expense. We understand the Strata undertakes annual roof maintenance that includes local repairs as well as removing moss and debris from the roofs (flat and sloped areas, and gutters).

We have assumed that local repairs will be completed when necessary out of the operating budget, with replacement and larger type repairs paid from Reserve.

Replacement of the terrace roofs is included in the "Balcony" section of this report.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Repair Flat Roofing	\$33,600	\$37,097	2014	20 yrs	recurring	3	Forecasted
Replace Flat Roofing	\$289,800	\$360,330	2020	20 yrs	recurring	3	Forecasted

Sloped Roofing

Description:

The sloped roofing system is protected by asphalt shingles. Based on the drawings, the roof consists of (from top to bottom):

- asphalt shingles
- roofing paper
- 3/8" plywood and OSB sheathing (backsides were painted white)
- 2x10" rafters (painted white)
- 2x10" ceiling joists (painted white)
- R40 batt insulation (10-12")
- 6 mil polyethylene air barrier
- 2x5/8" gypsum board

This was not confirmed by test cuts, but generally agrees with site evaluation.

There is a vented aluminum soffit beneath the roof overhang and painted wood fascia along the perimeter.

Drainage for sloped roofs includes:

- areas facing flat roofs drain onto main roof
- outer perimeter drains into troughs and downspouts

Condition:

2008 (Halsall): No current leaks were observed or reported.

Identified problem conditions noted within the attics accessed included:

- air leakage through attic hatch perimeters;
- some soffit vents blocked by insulation; and
- staining on the underside of some sheathing, likely as a result of condensation from air leakage up from the suite below and blocked vents trapping moist air in the attics.

We recommend installing weatherstripping around attic hatch perimeters to mitigate air leakage at these locations. We also recommend accessing all attics and moving any insulation blocking perimeter soffit vents. We assume this work can be completed at a cost below the threshold of this report, therefore no budget has been included. If it is not done, extensive damage could result.

On some north facing shingles there was moss growth. This condition is common in the lower mainland. We understand the Strata completes annual roof maintenance that includes cleaning troughs and down spouts, removing moss and other local repairs. We assume this work will continue to occur when necessary, paid for out of the operating budget, and have therefore not shortened the service life of the shingles.

Budgets are included for replacement of the sloped roofing and a more major repair to prolong its service life. We have also included a budget to replace troughs and down spouts, timed in conjunction with the cladding replacement.

We do not expect replacement of the aluminum soffits will be required in the term of this study.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Repair Sloped Roofing	\$10,080	\$10,487	2011	20 yrs	recurring	3	Forecasted
Replace Sloped Roofing	\$95,823	\$110,071	2016	20 yrs	recurring	3	Forecasted
Replace Eavestroughs / Downspouts	\$17,640	\$30,109	2036	35 yrs	recurring	3	Forecasted

FIRE SAFETY

Detection/Alarm

Description:

Edwards System Technology (EST) Fire Alarm system. Annunciator panel located in the lobby indicates the system has 32 zones (includes 9 spare). Main panel, model EST 6632 is located in the main electrical room on the upper (P1) level of the garage.

The fire alarm system is maintained by Voltech Fire Protection, and monitored by ACME Protective Systems Limited.

Pull stations were noted adjacent building exits and in corridors adjacent the stairwells. Detectors were noted in common areas, service areas and suites. We understand the suite smoke detectors are not connected to the alarm system. Signaling devices include bells in the corridors and garage and signal devices in the suites.

Fire plans prepared by Fraser Valley Fire Protection are posted adjacent the elevator at each floor.

Condition:

2008 (Halsall): The alarm system was last inspected by Voltech in July 2007. The equipment tag identifies the next inspection is scheduled for July 2008. The Strata Council reports these inspections occur annually.

No significant concerns were noted or reported. Since this is electronic equipment a visual review does not reveal very much about its working condition. That said, with older fire alarm control panels it becomes increasingly difficult to find replacement parts and therefore replacement becomes justifiable.

Fire alarm systems are moving toward proprietary systems, where the ULC rating only applies if the panel, wiring and devices are all supplied by the same provider. Traditionally the panels have been changed, reusing the existing wiring and devices, with devices replaced only as required during annual reviews. Because of this trend towards proprietary systems, we now recommend budgeting for replacement of the panel every 20 years, and for replacement of all the wiring and devices with every third panel change. Budget provided are based on discussion with Voltech.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Replace Fire Alarm Panel and Some Devices	\$19,845	\$25,168	2021	20 yrs	recurring	3	Forecasted
Replace Fire Alarm Wiring and Devices	\$85,008	\$238,050	2061	60 yrs	recurring	3	Forecasted

Suppression

Description:

Standpipe system in both the east and west stairwell. The west stairwell standpipe extends up to the roof level. Standpipe fire department connection located at the main entrance walkway on Any Street, across the street from a municipal fire hydrant.

Sprinkler systems: The building is protected with combination of dry and wet type hydraulic systems. Sprinkler controls and pumps located in the garage level mechanical room.

The dry type system protects the garage and garage level service rooms. The garage system incorporates two distribution lines with dry valves, a pump and an air compressor. We noted seismic bracing on main sprinkler lines in the garage.

The wet type system protects the remainder of the building including suites, common and service areas. Heat tracing cables line the wet sprinkler lines in the garage level mechanical room.

5lb. ABC type fire extinguishers are mounted on the walls of the common areas and service rooms.

Condition:

2008 (Halsall): No significant concerns were noted or reported. Fire extinguisher labels indicate they were last inspected by Voltech Fire Protection in June 2007. The pressure gauges on the standpipe systems indicate about 125 PSI at the top of the east and west stairwells, and about 150 PSI in the garage mechanical room.

The maintenance requirements for this kind of system include testing and maintaining the valves at least once every year and testing and maintaining the low point drains at least once every year in the fall before the cold weather begins.

We have provided an allowance for replacement of valves and renewal of the system on a phased basis.

Fire extinguishers have to be inspected annually and periodically tested. They occasionally require replacement if they fail the pressure test. The cost of replacing the hand held fire extinguishers is about \$150 each, therefore we assume replacement will be an operating expense.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Replace Suppression System Pumps and Air Compressor	\$5,198	\$5,971	2016	15 yrs	recurring	3	Forecasted
Replace Standpipe System Valves	\$13,860	\$19,407	2026	25 yrs	recurring	3	Forecasted
Suppression Systems Repair Allowance	\$7,500	\$13,857	2040	8 yrs	recurring	3	Forecasted

Emergency Power**Description:**

Emergency lighting is provided by battery packs serving remote heads in the corridors, stairwells and service rooms.

Condition:

2008 (Halsall): A random check of the emergency lights was completed as part of our review and no problems were noted. We recommend all emergency lights continue to be checked on a regular basis.

General replacement of the battery packs and remote heads is expected to be managed on an as needed basis out of the operating budget.

FINISHES, FURNITURE AND EQUIPMENT

Entrance Lobby

Description:

Entrance Lobby, located off Any Street (north side of building), has carpet and stone tile flooring, painted walls and painted ceilings.

Lobby furnishing includes 1 Sofa, 1 Armchair, 2 Coffee Tables and 2 Potted Plants.

Aluminum mailboxes are mounted in the wall.

Repair History:

2008: Interior painting (cost, as reported by Strata, was \$12,253 to repaint all corridor, lobby and stairwell walls, excluding doors and trims)

Condition:

2008 (Halsall): Lobby carpet is original and council reports it is difficult to keep clean.

Budgets for periodic refurbishment (painting and carpet replacement) and replacement of furniture have been included. Budgets and timing of refurbishment of the common areas is difficult to predict as they are largely dependent on aesthetic conditions and usage, rather than the performance of individual components. We assume periodic repainting and miscellaneous repairs between cycles of refurbishment will be handled from the operating budget.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Refurbish Entrance Lobby	\$17,993	\$20,668	2016	15 yrs	recurring	3	Forecasted
Replace Lobby Furniture	\$7,056	\$7,341	2011	12 yrs	recurring	3	Forecasted

Corridors

Description:

Floors: Carpet floors with ceramic tile at elevator lobbies.

Walls: Painted.

Ceilings: Painted stipple finished.

Lights: Wall mounted fixtures with compact fluorescent bulbs, and pot lights over suite entrance doors.

Suite Entrance Doors: Painted solid wood with wood frames and stainless steel hardware and numbering. Doors have a compression seal gasket on three side.

Mill work: Painted wood baseboards and casings around suite entrance doors.

Repair History:

2008: Interior painting (cost, as reported by Strata, was \$12,253 to repaint all corridor, lobby and stairwell walls, excluding doors and trims)

Condition:

2008 (Halsall): Conditions appear consistent with age. There are localized areas where the carpet is starting to reveal localized wear.

Budgets for refurbishment of corridors and replacement of suite door hardware have been included.

We have assumed that ceramic tile in the elevator lobby will be replaced as needed out of the operating budget because it is limited in area.

Lighting fixtures in the corridors are assumed to be replaced as they fail rather than as part of a general replacement project.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Paint Suite Doors (Exterior Side)	\$5,080	\$5,080	2009	N/A	One time	3	Forecasted
Replace Corridor Carpet	\$35,932	\$37,384	2011	12 yrs	recurring	3	Forecasted
Repaint Corridors - Walls, Ceilings, Doors	\$16,963	\$21,091	2020	12 yrs	recurring	3	Forecasted
Replace Suite Door Hardware	\$33,869	\$42,112	2020	24 yrs	recurring	3	Forecasted

Stairwells/Service Areas

Description:

Stairwells: Stairwells have painted walls and painted ceiling with stipple finish. Floors above grade are carpeted. Floors below grade are concrete. Handrails include an outer handrail, and inner handrail continuous from floor to floor.

Service Corridors: Painted concrete and concrete block walls.

Service Rooms: There are electrical, mechanical, elevator and garbage rooms in the garage. Service rooms are generally unfurnished with a combination of concrete and concrete block walls, and concrete floors.

Garage: Generally unfinished concrete floors. Painted walls, columns, stall lines and numbering.

Storage Lockers: Locker room located adjacent to the parking garage on the P1 level. The room is generally unfurnished. Locker partitions and doors are wood.

Interior Stairwell/Corridor Doors: Painted steel doors and frames with round handles (door knob style) hardware.

Lighting in Stairwells and Service Areas: Lighting: fluorescent 4ft T-8 tube fixtures.

Repair History:

2008: Interior painting (cost, as reported by Strata, was \$12,253 to repaint all corridor, lobby and stairwell walls, excluding doors and trims)

Condition:

2008 (Halsall): Finishes are consistent with age.

Budgets for stairwell refinishing including carpet replacement and repainting of walls and ceilings have been included. It should be noted that carpet in stairwells is not normally permitted unless it has a low flame speed rating. We did not confirm whether your carpet meets this criteria.

Lighting fixtures in the stairwells and service areas are assumed to be replaced as they fail rather than as part of a general replacement project.

No allowance for refurbishment of service rooms, garages or storage lockers has been included. We assume they will be maintained as needed out of the operating budget.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Replace Stairwell Carpets	\$7,980	\$8,468	2012	12 yrs	recurring	3	Forecasted
Repaint Stairwells	\$6,300	\$7,990	2021	12 yrs	recurring	3	Forecasted

SITE

Site Features

Description:

Site features are located above and adjacent to the garage roof slab.

Exterior Stairs, Walkways and Patios: Cast-in-place concrete stairs and walkways at the east and west ends of the garage provide pedestrian access to Any Street. A set of concrete stairs also provides access from the west walkway to the rear landscaped area. Unit pavers at ground floor patios, exterior stairs, walkways, and connecting the sidewalk to the main building entrance.

Exterior Railings/Guardrails: There are painted steel picket guards and steel handrails on either side of the concrete stairs. The same style of guard is also mounted onto the concrete retaining walls at the south suite ground floor patios.

Landscaping: There are several planting beds, small shrubs and trees.

Refer to separate report sections for discussion on Fencing and Retaining Walls.

Condition:

2008 (Halsall): Problem conditions noted:

- Some trees along the west property boundary appear to be unstable and may pose a falling hazard.
- Grass at north ground floor yards appears very worn and muddy. Strata indicated that the sod has never taken since installed.
- Shrubs/hedges along the north property line are becoming overgrown while some areas are thinning.

Site features and landscaping are typically managed from the operating budget. All landscaping located over the parking garage will be replaced at the time of garage deck waterproofing (see "Parking Garage" section of this report). A landscaping allowance has been included to cover a more major renewal of landscape features than would be accommodated in the operating budget, but not full replacement. Minor repairs such as localized relaying of pavers to correct settlement are expected to be managed out of the operating budget.

Replacement of concrete stairs and walkways is not anticipated within the term of this report. Local repairs to concrete and painting of steel railings/guards is assumed to be an operating expense.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Landscaping Allowance	\$13,650	\$13,923	2010	10 yrs	recurring	3	Forecasted

Fences

Description:

Wood privacy fences separate ground floor yards.

The north perimeter of the site has painted aluminum picket style fence. The gates are secured to cast-in-place concrete posts, clad with a decorative stone veneer.

A 6' chain link fence lines the west end of the site.

Repair History:

2007: Wood fences painted as part of Exterior Wall Maintenance Project. Cost \$3,150.

Condition:

2008 (Halsall): Conditions generally acceptable, consistent with age.

All landscaping located over the parking garage will be replaced at the time of garage roof deck waterproofing. (see "Parking Garage" section of this report)

Replacement of aluminum picket style fences and gates is not anticipated within the term of this report.

Budget for repainting and local repairs to the wood fencing in lieu of general replacement. Repairs between cycles of painting are assumed to be managed as needed out of the operating budget.

Part of the chainlink fence is overturned. Budget for replacement.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Repaint and Locally Repair Wood Fencing	\$7,849	\$8,666	2014	7 yrs	recurring	3	Forecasted
Replace Chain Link Fence	\$3,622	\$3,694	2010	20 yrs	recurring	3	Forecasted

Retaining Walls

Description:

A combination of cast-in-place concrete and unitized concrete block retaining walls enclose the east and south site boundaries. A unitized cast-in-place concrete retaining wall lines the west building extent.

Timber landscaping retaining wall line the south end of the site adjacent to the alleyway.

Condition:

2008 (Halsall): No overturning or deterioration of the retaining walls was noted or reported.

Budget to replace the timber walls as they will deteriorate with time. Other walls are not expected to require replacement within the term of this report.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Repair Timber Retaining Walls	\$32,760	\$44,972	2025	30 yrs	recurring	3	Forecasted

HVAC

General HVAC

Description:

Suites: Electric baseboard heaters with individual thermostat controls, and gas fireplaces. No cooling system provided.

Common and Service Areas: Electric baseboard heaters with thermostat controls in lobby, stairwells and service rooms. Roof-top make-up air units also provide heating to the corridors (discussed in "Make-Up Air Unit" section).

Condition:

2008 (Halsall):

Suites: The HVAC (heating, ventilation, and air conditioning) systems are the responsibility of the individual unit owners, therefore, a review of these systems was beyond the scope of this study. Discussion on the fireplace chimney flues which are assumed to be common property is included in the "Chimney" section of this report.

Common and Service Areas: No operational problems were noted or reported. General replacement of the baseboards is not anticipated within the term of this report. Baseboard repair or replacement is assumed to be managed as needed out of the operating budget.

Make-up Air Unit(s)

Description:

Two roof mounted make-up air units with gas fired heating provide fresh air to the corridors. These units are rated at 100,000 BTUH (east unit) and 125,000 BTUH (west unit), manufactured by Engineered Air. No cooling system provided.

Repair History:

2008: Replacement of drive train in east unit scheduled for spring 2008, cost about \$2,500 (as reported by the Strata).

Condition:

2008 (Halsall): The make-up air units were operational at the time of our review.

Budget for replacement after their anticipated service life. Replacement of individual parts in order for the units to maintain operation is assumed to be an operating expense.

We noted some surface corrosion on the equipment housing. Repainting of the units is assumed to be an operating expense.

We understand the interior of the ducts are insulated. Council reports they received a recommendation from the mechanical contractor to insulate the ducts on the roof to reduce heat loss during the colder months of the year. Insulating the ducts is likely to be below the threshold of this report, therefore we assume it is an operating expense, if undertaken.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Replace Make-up Air Unit(s)	\$21,840	\$27,698	2021	20 yrs	recurring	3	Forecasted

Exhaust System

Description:

Suite exhaust fans include bathroom fans and kitchen exhaust hoods, individually ducted. In-suite dryers also have individually ducted exhausts. Where checked, bathroom fans were controlled with timers and on/off switches. Exhaust hoods on the roof are galvanized.

The garage has two fans which exhaust air from the upper (P1) garage level through ducts to the exterior on the south side of the garage.

Other exhaust fans service the following common / service areas:

- Elevator machine room;
- Garbage room;
- Storage room;
- Electrical room; and
- Mechanical room.

Condition:

2008 (Halsall):

Suite fans: The suite fans are the unit owners responsibility, therefore, a review of these components was beyond the scope of this report. The roof mounted exhaust hoods were free of corrosion, where checked. Replacement of the hoods is included in the roof replacement budget.

Common / Service Areas: The fans were functional at the time of our site visit. No operational problems were reported. The garage exhaust fans, because of their size, are more expensive to replace than the other fans. Therefore we have included an allowance for their eventual replacement. Replacement of the other fans is assumed to be managed as needed at a cost below the threshold of this report.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Replace Garage Exhaust Fans	\$7,350	\$9,322	2021	20 yrs	recurring	3	Forecasted

Chimney(s)

Description:

Stainless steel fireplace chimney flues serving units on the 3rd and 4th floors exhaust at the roof. The chimneys are wood framed with a galvanized metal cap flashing, vinyl siding and wood trim.

Fireplaces at 1st and 2nd floor units have direct exhaust through the exterior wall.

Condition:

2008 (Halsall): Our review of the chimneys and stacks was limited to portions visible from the roof and exterior walls. No corrosion of the stacks or cap flashing was noted, but key concerns would be within the stacks which are not visible without more detailed analysis.

To mitigate the infiltration of water into the chimney, cap flashing sealant replacement will be required from time to time. This work is assumed to be managed as part of routine maintenance.

Budget to replace the fireplace flues. Corrosion of the flues has been a problem in the industry, therefore they should be inspected on a regular basis (operating expense).

Sometimes when flues are replaced, other fire separation issues become apparent. The budget shown does not allow for any work of this nature. We recommend proceeding with a mock-up several years before full replacement to get a better understanding of the full scope and to modify the budget if found to be needed.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Replace Chimney Flue(s)	\$78,246	\$130,938	2035	35 yrs	recurring	3	Forecasted

PLUMBING

Hot Water Storage Tanks/ Heaters

Description:

The domestic hot water systems includes two (2) gas fired hot water heaters, described as follows:

- 85 US gallon tank, rated at 399,900 BTUH, manufactured by Ruud; and
- 100 US gallon tank, rated at 275,000 BTUH, manufactured by AO Smith.

Repair History:

2007: One gas fired hot water heater replaced with the new AO Smith unit, cost not provided (as indicated by installation date on tank).

Condition:

2008 (Halsall): No problems with the domestic hot water heating system were noted.

We understand the Strata has considered an upgrade to the domestic hot water system that would include replacing the hot water heaters with a boiler and storage tank type system. The benefits of a boiler type system generally include a longer service life and more energy efficient units. Quotes recently obtained by the Strata to undertake the replacement ranged from about \$17,000 to \$25,000. We have budgeted for this work based on the quotes received and discussion with Council, on the assumption that the work would occur once the remaining original hot water heater fails which is likely to occur over the next few years.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Replace Domestic Hot Water Heating System	\$26,565	\$27,096	2010	25 yrs	recurring	3	Forecasted

Domestic Water Piping, Valves and Pumps

Description:

Domestic hot and cold water distribution piping is copper, type unknown as it was insulated, where checked. Within the suites PEX piping connects the distribution lines to the fixtures.

The suspended ceiling space above the corridor in the 2nd floor contains the recirculation line for the hot water distribution system. Also within the suspended ceiling space are shut-off valves for the hot and cold water distribution piping, located above access hatches.

There is a re-circulation pump in the mechanical room that mixes recirculated hot water and a new supply of cold water before it enters the domestic hot water heaters.

The incoming water service enters the building through the north wall of the upper (P1) garage level.

Repair History:

2007: Plumbing repair at the 2nd floor to address leaking elbow connection in copper piping (as reported by Council).

Condition:

2008 (Halsall): Council reports there has not been a history or leakage problems. The leak that occurred in 2007 was reported to be an isolated problem associated with a deficiency at the time of construction.

The lower mainland has the reputation of having some of the worst problems with domestic water systems in North America. Due primarily to the softness of our water, the mode of failure is typically a pitting type corrosion that is accelerated in the presence of heat (therefore, higher water temperatures cause the piping to fail sooner). In order to prolong the life of the domestic hot water piping, we recommend keeping the water temperature in the piping system as low as practical (but high enough to prevent Legionaries disease) and to reduce the size of recirculation pumps where possible.

We typically find that domestic water piping systems remain in service for about 20 years. We recommend budgeting to undertake a condition evaluation of the piping, including removing some sections of pipe to check the wall thickness of the copper pipe and look for signs of corrosion to better establish the year in which the piping should be replaced. Pending completion of the evaluation, the plan includes budgets for complete replacement of the copper domestic hot and cold water distribution system. The PEX piping is within the suites and therefore the responsibility of the unit owners.

As an alternative to pipe replacement, epoxy lining can also be considered as a way to extend the service life the hot water piping. This is now commonly done in the lower mainland and is typically about 75% of the cost of completely replacing the existing distribution system. The epoxy lining typically causes less damage to the building because the fewer walls have to be cut open to expose the existing pipe. There are however limitations on where epoxy lining can be undertaken. The feasibility of undertaking epoxy lining can also be evaluated in conjunction with the recommended condition evaluation.

Periodic repairs and pump replacement are assumed to be managed as needed at a cost below the threshold of this report.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Domestic Water System Condition Evaluation	\$5,250	\$6,031	2016	20 yrs	recurring	3	Forecasted
Replace Domestic Water Piping and Valves (hot and cold copper piping)	\$266,616	\$325,003	2019	20 yrs	recurring	3	Forecasted

Sump Pumps

Description:

A sanitary sump pit with one pump is located in the garbage room. The pump control is manufactured by Simplex.

Condition:

2008 (Halsall): The pumps were not visible for our review. No operational problems were reported.

Sump pumps are maintenance intensive and critical to the safe operation of the building. We recommend that the sump pump be inspected and tested frequently to ensure that the level switches and alarms remain functional. Depending on the actual site conditions it may be necessary to clean the sump pit. The service life of a sump pump is a function of the site conditions, but it is generally around 10 years.

The cost to replace a sump pump is below the threshold of this report therefore no budget has been included. The timing of this project should be confirmed by your service contractor during the next pump service.

Drainage Piping/Drains

Description:

Buried piping providing storm and sanitary water discharge, and potable water supply enter the building at the garage level.

Heat tracing cables protecting various drains and pipes in the parking garage.

Condition:

2008 (Halsall): The condition of the buried and concealed piping cannot be evaluated visually. No problems were reported.

General replacement of the services is not anticipated within the term of this report. Due to the fact that portions of the services are buried underground, beneath concrete floor slabs and inside of wall cavities they can be very expensive to repair. If drains are not well maintained or problems develop with the drains or incoming services, replacement budgets may need to be added in future updates to this study. Periodic cleaning/flushing and scoping of the storm and sanitary lines, about every 1 to 3 years, is assumed to be an operating expense.

ELECTRICAL

Electric Supply and Distribution

Description:

Power is fed underground from a pad mounted transformer located at the rear of the building, adjacent the alley. The transformer is labelled BC Hydro.

The main electrical room, located on the upper (P1) garage level, contains the following components:

- Main switchgear with 1200 Amp, 3 phase and 4 wire service, with three sub-switches (400 Amp "House" switch, two 600 Amp switches)
- 200 Amp, elevator switch
- 400 Amp distribution panel
- 1 meter for "House" services, labelled BC Hydro.

There are electrical closets in the 2nd and 3rd floor corridor. Each closet contains the following components:

- 225 Amp panel with 15 - 20 Amp breakers which services the common and service areas.
- 18 meters for suites with 100 Amp service.

The elevator machine, located on the upper (P1) garage level has a 200 Amp switch which is fed from the main electrical room.

Each suite has an electrical panel, rated at 125 Amp, 120/240 V, 1 phase and 3 wire, with various 15 - 40 Amp breakers.

Copper distribution feeders and wiring, where checked.

Condition:

2008 (Halsall): No operational problems were reported.

In general, most of the electrical equipment should remain in service for the term of this report. However, with breakers and disconnect switches there is a concern that after several decades of service that the equipment will not function properly in the event of an electrical fault. Therefore, regular maintenance is required to ensure that the equipment will always perform when it is needed. The maintenance should include cleaning and testing of the main components of the electrical distribution systems. We also recommend that infrared scans be undertaken every 2 to 3 years to ensure that electrical terminations are properly secured. The cost of the scans, and related repairs found to be needed (assuming minor tightening etc) is not expected to exceed the capital threshold of this report.

Budget to replace the main switchboard and for periodic repairs to the distribution system. Replacement of the smaller service panels and switches is assumed to be managed as needed out of the operating budget.

The suite electrical panels are assumed to be the responsibility of the unit owner, therefore, a review of these panels was beyond the scope of this report.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Electrical Distribution System Repair Allowance	\$15,120	\$23,375	2031	10 yrs	recurring	3	Forecasted
Replace Main Switchboard	\$26,250	\$54,618	2046	45 yrs	recurring	3	Forecasted

Lighting**Description:**

Exterior light fixtures consisting of wall mounted HID fixtures around rear of building, and smaller low voltage lights along the walkways. Balconies, terraces and patios have a wall or soffit mounted fixture.

Parking garage and service room light fixtures consisting of T-8 fluorescent tubes.

Exit lights in common areas: LED lights.

Interior light fixtures - see Fixtures, Furniture and Finishes section of the report.

Condition:

2008 (Halsall): No lighting concerns were reported. We did not measure light levels as this is beyond the scope of our evaluation; however, the lighting levels appeared reasonable.

We assume that replacement of light fixtures will be completed as needed out of the operating budget.

CONVEYANCE

Elevators

Description:

One hydraulic elevator, manufactured by Richmond elevator, services the garage P1 and P2 levels, and residential floors 1 through 4.

The elevator machine room, located on the lower (P2) garage level (behind the garbage room), contains the elevator control panel and hydraulic pump. The control panel has a microprocessor control system, manufactured by RAM Manufacturing, model D6SS. The hydraulic pump is rated at 30 HP. The cylinder is an in-ground type.

The elevator has a BC government ID tag, labelled No.19034, and Capacity of 2500 lbs.

Elevator doors have push bar safety edge, rather than a photo cell controlled door operator.

Finishes in the elevator cab include ceramic tile flooring, and laminate wall panels with stainless steel trim.

Condition:

2008 (Halsall): Conditions and quality of operation appeared consistent with age. A maintenance log in the elevator machine room indicates inspections occur monthly by Eltec Elevator Ltd. The service contractor, did not advise of any conditions that might require special repair.

The BC safety authority operating permit found in the elevator machine room indicates an expiry date of November 2008.

Consideration could be given to installing photo cell controlled door operators as a safety upgrade in lieu of the existing push bar safety edge. A budget for this upgrade has been included in conjunction with replacement of the door operators after their anticipated service life.

A budget to modernize the elevator control system and replace the pump has been included. Replacement of the hydraulic cylinder has also been included; however, the timing of replacement is very difficult to predict. We recommend the elevator service contractor monitor the level of hydraulic fluid within the system in conjunction with regular maintenance activities as a significant loss of hydraulic fluid often requires either relining or replacing the cylinder. The budget shown does not allow for any soil remediation.

Conditions of cab finishes appear consistent with age. No excessive damage warranting replacement was noted. Include allowance for renewal in conjunction with elevator modernization. Budgets can vary widely depending on desired design. The allowance assumes moderate finishes.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Replace Elevator Door Operators	\$7,875	\$9,046	2016	15 yrs	recurring	3	Forecasted
Elevator System Modernization	\$56,700	\$85,938	2030	30 yrs	recurring	3	Forecasted
Refurbish Elevator Cab	\$12,600	\$19,097	2030	30 yrs	recurring	3	Forecasted
Replace Hydraulic Cylinder	\$37,800	\$68,469	2039	40 yrs	recurring	3	Forecasted

MISCELLANEOUS

Waste Disposal/Collection

Description:

The garbage room, located on the lower (P2) garage level has one garbage bin, one cardboard recycling bin, and various smaller recycling containers.

No garbage chute or compactor provided.

Condition:

2008 (Halsall): No concerns were noted or reported.

Garbage and recycling bins are assumed to be maintained and replaced as needed out of the operating budget.

Security System

Description:

The building has the following security/access control systems:

- Visitor access: Intercom panel with keypad at the main entrance that dial the phones in the suites. The door access is controlled with a mag-lock. The Enterphone 2000 control panel is located in the main electrical room.
- Resident access: Standard key entry for common doors. Access through the overhead garage door is by remote controls.
- CCTV system: 8 security cameras with a digital video recorder

Condition:

2008 (Halsall): No operational problems were noted.

Budget an allowance for a major program of renewal to replace the intercom and garage door controls, and limited wiring.

Some buildings are moving towards keyless entry systems. No allowances to install these upgraded systems are included at this time.

Replacement of security cameras is assumed to be undertaken as needed at a cost below the threshold of this report, therefore not budget for general replacement of the system has been included.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Replace Intercom and Garage Access Control System	\$12,600	\$14,473	2016	15 yrs	recurring	3	Forecasted

Contingencies

Description:

We recommend budgeting a periodic allowance for unexpected expenditures that can be funded from the Contingency Reserve Fund.

Condition:

2008 (Halsall): A contingency allowance has been included as identified on the questionnaire provided by Council.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Contingency	\$7,200	\$7,641	2012	5 yrs	recurring	3	Forecasted

Consulting Services

Description:

Engineering fees related to the updates to the Contingency Reserve Fund Study.

Condition:

2008 (Halsall): We recommend budgeting for periodic Contingency Reserve Fund Study updates at least every 3 years alternating between updates with and without site visits.

Project Name	Present Cost	Inflated Cost	First Occur.	Cycle	# Occurrences	Class.	Status
Reserve Fund Study without Site Visit	\$3,675	\$3,823	2011	6 yrs	recurring	3	Forecasted
Reserve Fund Study with Site Visit	\$5,250	\$5,796	2014	6 yrs	recurring	3	Forecasted

Item	Description	Class	Status	Present Cost	First Occur.	Cycle No.	Occurr.	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1 STRUCTURE																						
1.1	Balcony and Terrace Condition Survey	3	Forecasted	\$4,725	2012	15					\$5,014											
1.2	Repair Balconies	3	Forecasted	\$162,180	2014	15							\$179,060									
1.3	Repair Terraces	3	Forecasted	\$56,307	2017	20										\$65,973						
1.4	Replace Balcony and Terrace Guards	3	Forecasted	\$93,870	2044	45																
1.5	Parking Garage Condition Evaluation	3	Forecasted	\$5,565	2015	15								\$6,267								
1.6	Resurface Garage Suspended Slab Waterproofing	3	Forecasted	\$50,708	2011	10				\$52,757											\$64,310	
1.7	Repair Garage Roof Deck Waterproofing	3	Forecasted	\$51,870	2021	40															\$65,784	
1.8	Replace Garage Roof Deck Waterproofing	3	Forecasted	\$450,009	2032	40																
2 BUILDING ENVELOPE																						
2.1	Wall Condition Evaluation	3	Forecasted	\$6,615	2012	7					\$7,020							\$8,064				
2.2	Exterior Wall Maintenance (painting, sealant and some wood replacement)	3	Forecasted	\$91,944	2014	7							\$101,514								\$116,607	
2.3	Cladding Replacement - Phase 1 of 2	3	Forecasted	\$355,320	2036	35																
2.4	Cladding Replacement - Phase 2 of 2	3	Forecasted	\$317,520	2037	35																
2.5	Replace Windows - Phase 1 of 2	3	Forecasted	\$116,235	2036	35																
2.6	Replace Windows - Phase 2 of 2	3	Forecasted	\$116,235	2037	35																
2.7	Replace Front Entrance Doors (Lobby)	3	Forecasted	\$2,625	2013	20						\$2,841										
2.8	Replace Swing and Sliding Doors (from balconies, terraces and patios) - Phase 1 of 2	3	Forecasted	\$63,630	2036	35																
2.9	Replace Swing and Sliding Doors (from balconies, terraces and patios) - Phase 2 of 2	3	Forecasted	\$61,992	2037	35																
2.10	Replace Overhead Door	3	Forecasted	\$7,875	2020	20															\$9,792	
2.11	Repair Flat Roofing	3	Forecasted	\$33,600	2014	20									\$37,097							
2.12	Replace Flat Roofing	3	Forecasted	\$289,800	2020	20															\$360,330	
2.13	Repair Sloped Roofing	3	Forecasted	\$10,080	2011	20				\$10,487												
2.14	Replace Sloped Roofing	3	Forecasted	\$95,823	2016	20									\$110,071							
2.15	Replace Eavestroughs / Downspouts	3	Forecasted	\$17,640	2036	35																
3 FIRE SAFETY																						
3.1	Replace Fire Alarm Panel and Some Devices	3	Forecasted	\$19,845	2021	20															\$25,168	
3.2	Replace Fire Alarm Wiring and Devices	3	Forecasted	\$85,008	2061	60																
3.3	Replace Supression System Pumps and Air Compressor	3	Forecasted	\$5,198	2016	15									\$5,971							
3.4	Replace Standpipe System Valves	3	Forecasted	\$13,860	2026	25																
3.5	Suppression Systems Repair Allowance	3	Forecasted	\$7,500	2040	8																
4 FINISHES, FURNITURE AND EQUIPMENT																						
4.1	Refurbish Entrance Lobby	3	Forecasted	\$17,993	2016	15									\$20,668							
4.2	Replace Lobby Furniture	3	Forecasted	\$7,056	2011	12				\$7,341												\$9,310
4.3	Paint Suite Doors (Exterior Side)	3	Forecasted	\$5,080	2009	99	1	\$5,080														
4.4	Replace Corridor Carpet	3	Forecasted	\$35,932	2011	12				\$37,384												\$47,412
4.5	Repaint Corridors - Walls, Ceilings, Doors	3	Forecasted	\$16,963	2020	12															\$21,091	
4.6	Replace Suite Door Hardware	3	Forecasted	\$33,869	2020	24															\$42,112	
4.7	Replace Stairwell Carpets	3	Forecasted	\$7,980	2012	12					\$8,468											
4.8	Repaint Stairwells	3	Forecasted	\$6,300	2021	12															\$7,990	

GENERAL COMMENTS

Concealed Conditions: The performance and durability of many building components is often dependent upon the condition of concealed elements. These cannot be evaluated by visual review. Dis-assembly and/or testing would be required. Expected future performance and the scope and timing of repairs and replacements are based on judgement influenced by visual appearance, experience with performance of similar components at other buildings, and the performance history at this building as discussed with property management and/or service contractors.

Changes to the plan may be required to incorporate findings from future testing and/or repair programs. We recommend further investigation or testing where identified to be necessary to develop an appropriate management strategy. Resulting changes to budgets will need to be incorporated into reserve fund updates.

Comprehensive Service Contracts: Comprehensive Service Contracts can promote proper maintenance and require the service contractor to replace specific components as is necessary to restore service to the specified level. In some instances, these replacements also lead to building component renewal, reducing the need to draw upon the Reserve Fund for repairs or replacements.

We identify components which are expected to be replaced outside of the Reserve Fund based on reviewing the Contract scope(s), and discussion with Property Management to check the history of previous replacements undertaken by the service contractor. We do not complete a legal review of the Service Contract to evaluate the conditions and limitations associated with replacement under the Contract(s).

Even where service contracts exist, our experience has been that there is still a need for budgeting for major programs of repair or replacement. Service Contracts only cover limited periods of time. Once major equipment has reached the end of its service life, has become obsolete or is otherwise impractical to maintain, it may not be possible to renew the Contract at the end of the term. Replacement from the Reserve Fund then becomes necessary.

Adequate Maintenance: Prior to the time of an identified program of renewal, local repairs, replacements and maintenance are necessary as part of the operating budget. These are assumed to be diligently completed to assure that the expected remaining service life is achieved. If performance is poorer than expected, increased levels of repair or an earlier time for renewal may need be accommodated by the reserve fund. This should be reflected in future reserve fund updates.



STRUCTURE

Foundations: Unless problems with settlement or deterioration are detected, building foundations are generally not expected to require repair or replacement within the foreseeable future.

Leakage problems may develop if ground water drainage systems become plugged and/or waterproofing treatments which may be applied to below grade walls or floors become rigid and split at cracks or penetrations. These types of problems can usually be managed by local excavation to allow waterproofing or restoring drainage, or by periodic injection sealing from the interior. Unless general problems with leakage develop, only an allowance is provided to accommodate these types of local repairs.

Main Building Structure: It is assumed that the original structural design and construction met applicable Building Codes. The structure is generally contained within the building envelope, and protected from the deteriorating effects of weather. Except as otherwise noted, the main building structural elements are generally not expected to require repair, replacement or upgrading within the time frame of this study. This relies upon proper maintenance and repair of other building components to assure that conditions which might lead to deterioration do not develop.

Parking Structure Concrete Deterioration: Parking structures can deteriorate aggressively, primarily from the effects of vehicles depositing de-icing salts and moisture. When exposed to these elements, steel reinforcing contained within concrete elements can begin to corrode. This leads to concrete cracking and spalling, requiring repair to restore structural integrity.

For structures which are not contaminated with salt, a pro-active repair and maintenance program is required to avoid general problems with structural deterioration. This requires prompt repair and replacement of waterproofing systems to protect the structure. Local repairs are expected to be managed as part of operations. General waterproofing replacement must be timed to occur before performance degrades and allows widespread leakage. Only limited structural repair would then be expected to be necessary. Concrete deterioration would typically occur at cracks and joints which may have been exposed to excessive leakage prior to repair.

For structures identified to be contaminated with salt (chloride) and which are demonstrating problems with structural deterioration, cost effective and durable repair strategies vary. Special testing and evaluation becomes necessary to identify options and associated costs.

Parking Garage Traffic Deck Protection Systems: Traffic deck waterproofing systems include a flexible waterproofing membrane covered by a traffic surface to resist wear and tear. Construction joints and cracks usually require special treatment to allow the membrane to stretch across them with movements. With age, membranes can become less flexible and split, allowing leakage.

The wear course is subject to deterioration from vehicles. Areas may erode away or crack. Asphaltic systems are vulnerable to softening from petroleum spills or leaks.

Local repairs to defects can usually help to defer the need for a general program of replacement. Depending on the expected magnitude of this work, this may or may not require a reserve item. General renewal of these elements is required before increasing problems with leakage or water and salt ingress occurs and leads to structural deterioration problems.



Parking Garage Roof Deck Waterproofing: Parking garage roof decks are normally provided with a waterproofing membrane to prevent leakage and contamination from de-icing salts (chloride). Construction joints and cracks usually require special treatment to allow the membrane to stretch across with movement. The membrane tends to become rigid with age and may split. This happens at cracks, joints and penetrations where movements occur with changes in temperature, or changes in loadings. Expansion joints which may exist can be a particular problem as a result of the magnitude of movement. Repairs to local problems can often defer the need for general rehabilitation.

Structural Elements Exposed to Weather: Where structural elements extend beyond the building envelope, exposure to weather is likely to lead to deterioration. Elements which are exposed at some buildings include balconies, columns, shear walls and slab edges.

Exposed reinforced concrete elements can deteriorate with concrete carbonation. This is a chemical alteration related to carbon dioxide. The concrete surface progressively carbonates, the rate and depth varies with concrete quality. If the layer of carbonated concrete extends deep enough to contact embedded steel, corrosion occurs. This leads to concrete cracking and spalling, and the need for repair to restore structural integrity.

Predicting future carbonation damage would require special testing to identify variations in concrete quality and the depth of concrete cover protecting embedded steel. In the absence of this information, expected future repair is based upon judgement related to available information, observations as to past performance and experience at other buildings.

Structural steel elements which are exposed to weather require regular application of a protective coating (paint) to prevent deterioration. With this maintenance, major repair or replacement would not be expected to become necessary.

Wood elements lose protection as resins, penetrants or coatings are washed away. Splitting (checking) occurs as the wood dries and is exposed to thermal cycles. While repainting or resealing can prolong the service life, elements exposed to regular wetting are expected to eventually require replacement.

Balcony Guards and Dividers: Balcony guards are subject to deterioration from exposure to weather. Painted finishes degrade from UV (sunlight) and moisture. Wear and tear imposed by residents and maintenance activities causes damage. Steel elements can begin to corrode (rust). Gaskets or seals which may be present can become rigid and split.

If a pro-active program of repair and maintenance is implemented to limit deterioration, it is often possible to defer the need to replace the guards. However, appearance tends to degrade with repeated re-painting and repair programs. Planning for future replacement is generally recommended to avoid escalating repair cost, and to maintain acceptable aesthetics.



BUILDING ENVELOPE - CLADDING, WINDOWS AND DOORS

General Requirements: The exterior walls include components which resist wind and rain, and thermal insulation to assist in maintaining interior comfort. Many elements are concealed. A visual review is only able to check for evidence of problems which may have developed. A more comprehensive evaluation usually requires test openings and/or performance testing.

Local leakage may occur from time to time. This may be adequately addressed by local repair under the operating budget. If we expect the magnitude of these repairs to be significant enough, we include a periodic repair allowance as part of the reserve.

Insulation is usually incorporated within the cladding assembly. Most common types of insulation do not deteriorate providing they are not exposed to frequent or excessive wetting as may occur with rain or air leakage. Upgrading thermal insulation may become desirable in the future in response to rising energy costs, but is not included in this plan unless a specific need were identified. If this were to be considered, this would usually be completed in conjunction with interior finish replacement or general cladding renewal.

An "air barrier" is required in modern cladding systems. This limits energy loss from air leakage, as well as helping to resist rain water penetration, moisture accumulation (condensation) and insect ingress (cluster flies). Many buildings, particularly those constructed prior to about the late 80s may have a poor air barrier. However, unless specific and general problems related to air leakage are detected, upgrading by air sealing defects is not included in the plan. Performance testing should be completed to identify typical problem areas and the potential benefits related to air sealing. If required, maintaining air seals that may include interior caulking at windows, seals between floors and walls and seals at outlets or other penetrations is assumed to be completed as part of the operating budget.

Vapour barriers are also required to be incorporated within cladding to resist moisture flow into the cladding. These are generally seen to be less critical to wall performance than the air barrier.

Water shedding details frequently play an important part in promoting durability. Details that allow rain water to run onto adjacent components should be identified to consider whether they need to be corrected to promote durability. Improvements and repairs required to promote water shedding are assumed to be managed as part of maintenance, or in conjunction with other repair programs.

A cleaning program (a supplement to regular maintenance such as window washing) may become desirable to remove pollutants which may collect on the cladding to maintain an acceptable appearance. This is a discretionary item. Whether or not this becomes necessary is a function of the cladding finishes, details related to water shedding, and local environment. We include this work only where we expect appearance to degrade excessively so that this is desired by owners.

Sealants and Caulking: Exterior sealants are generally relied upon to provide a weather seal. These tend to become rigid and split with age and exposure to UV (sunlight). Various degrees of defects are also incorporated at the time of application as a result of poor workmanship. There are also industry problems with respect to poor or improper detailing, particularly with window systems. It is often found that a program of local repair can be effective at deferring the need to complete a program of general replacement. Depending on the expected magnitude of this work, this may or may not require a reserve item. Before general problems with deterioration develop, renewal should be completed. This work is best timed in conjunction with other exterior repairs or replacements. High performance sealant materials should be employed to prolong the service life.



Paint and Coatings: Paints and other architectural coatings provide varied performance that depends on factors including quality of material, workmanship in preparation and application, exposure to moisture, UV (sunlight), and wear and tear. Unless problems with inadequate bond are detected, it is generally assumed that re-finishing can occur over the existing finishes with limited surface preparation. Use of a high performance coating to obtain a longer service life is generally recommended as the least cost strategy.

The timing for re-finishing is somewhat discretionary. As long as the underlying materials are not allowed to become exposed and allow progressive deterioration, timing may be deferred as long as the degrading appearance is deemed to be acceptable.

In conjunction with re-finishing, an allowance should be provided to accommodate local repairs to the substrate which may be necessary to provide a sound and even surface.

Wood Siding and Trim: Wood performance is dependent upon being maintained in a dry condition. It relies upon the protective finish, and the design and workmanship of the overall installation. Unless problems are detected, it is assumed that the design and construction are acceptable and do not result in premature deterioration.

Programs of local repair and repainting are expected to be capable of deferring the need to replace the wood siding. This may require local replacement at areas which deteriorate prematurely. However, deterioration is expected to increase with time, leading to general problems such as rot, splitting, warping, and corrosion of fasteners. Replacement or cladding over the existing becomes necessary as it will eventually no longer be practical to maintain the siding or achieve an acceptable appearance by repainting.

Vinyl Siding: Vinyl siding durability is primarily a function of the manufactured quality and exposure to UV (sunlight). Plasticizer loss is expected to eventually result in the siding becoming brittle. The appearance of the finish may become unacceptable as a result of chalking and staining. This can be a particular problem with darker colours. Underlying sheathing wrap, sheathing, and/or siding fasteners may begin to deteriorate from long term exposure to moisture. A program of removal and replacement is expected to become necessary.

Window and Door Systems - General: Window and door performance as mandated by building codes is often found to be inadequate. Leakage problems can develop with wind driven rains. Performance testing would be necessary to check the level of resistance to leakage. Unless reported or observed to be a general problem, we assume that acceptable performance is managed by maintenance.

With weatherstripping wear, the effectiveness of the weather seal degrades. Replacement becomes necessary to provide a reliable level of resistance to leakage, to control energy loss and maintain comfort. It may be preferable to undertake a program of general weatherstripping replacement rather than replacing it in a piecemeal fashion. This allows greater quality control. Performance testing should be completed to identify the full scope of work which will be necessary. Drainage improvements, and hardware maintenance would likely be included in this rehabilitation program.

Glazing tape seals at glass and metal panels become less effective with thermal movements and pumping action from winds. The glazing tape tends to be pushed out of the joint. If leakage develops, an increased rate of sealed insulated glass unit (IGU) failure may occur. However, these seals are also replaced in conjunction with IGU replacement. Exterior cap sealing (needle glazing) is recommended if leakage problems are expected and the IGU are generally expected to have sufficient remaining service life to warrant this investment.



Some window systems have internal seals located within drained pockets which are necessary to avoid leakage. These seals tend to become rigid with age and may split with thermal movements and require re-sealing. Leakage may become evident on the interior, or may drain into cladding systems and lead to concealed deterioration. Detailed evaluation and testing would be necessary to check for current problems. This is recommended in conjunction with planning for a general program of rehabilitation.

If proper maintenance and repair is implemented to protect windows and doors, it is expected that replacement could be deferred to beyond the time frame of this study. Where we expect maintenance and repair to become too costly, and/or inadequate to meet owners expectations, we recommend replacement. In addition, owner considerations with respect to aesthetics, comfort and ease of operation may create a discretionary desire to upgrade and replace these elements. This decision should be made prior to investing in other related repair programs so that the related portions of the reserve fund can be put towards the replacement cost.

Vinyl Framed Windows and Doors: Vinyl window systems are expected to deteriorate with exposure to weather and ultraviolet light. Loss of plasticizer results in the vinyl becoming brittle. Welded joints may give way.

Sealed Insulating Glazing Units (IGU): Sealed window units fail when the perimeter seal allows moisture to penetrate the cavity between the panes of glass. This moisture obscures vision by condensing on and scumming the inside surfaces. Replacement becomes necessary for aesthetic reasons. Factors which affect IGU durability include the quantity of desiccant available in the spacer to absorb penetrating moisture, the vapour resistance provided by the perimeter seal, and the extent to which the IGU is exposed to moisture penetrating the glazing pocket. This moisture can arise from deteriorating external seals, or problems with interior condensation. It is expected that these conditions will be promptly corrected so that accelerated deterioration does not occur.

In most residential window systems, sealed units are replaced from the interior of the building. However, in some systems replacement is completed from the exterior, requiring the higher cost of access. Some windows are "channel glazed", which can also require sash replacement when the IGU fails.

IGU failure tends to occur in a distributed fashion, requiring replacement on a frequent basis. Early failures tend to occur where there are local problems with poor workmanship in manufacturing or installation, or where there is greater exposure to moisture. We attempt to budget for progressive replacement, based on the apparent performance and experience at other buildings. Property management should maintain records to enable monitoring the actual IGU replacement rate.

Steel Clad Doors: Steel clad doors provide good resistance to wear and tear. The painted finish can be maintained. However, these doors frequently provide poor resistance to leakage unless sheltered or provided with a storm door. Unless specific problems are detected, we generally do not expect these doors to require repair or replacement within the time frame of this study.

Overhead Doors: Overhead doors tend to require repair as a result of frequent use and impact damage. Required repairs and replacements of components are assumed to be managed as part of the operating budget. If the cost of ongoing repair becomes excessive, replacement with a more durable, less maintenance intensive system would be appropriate. We estimate the time this may be required.



BUILDING ENVELOPE - ROOFING

Flat (Low Slope) Roofing Systems: Low slope roofing system performance varies. Variables that influence performance can include workmanship in the original application, wear and tear from maintenance activities, and maintenance quality.

The waterproofing element (membrane) tends to lose flexibility with age. Problems with splitting or debonding can occur with thermal movements. Once moisture ingress into the system begins, progressive deterioration may develop. For most systems, testing is necessary if current conditions were to be established to try and more accurately predict future performance.

If promptly identified and completed, local repairs are often effective in prolonging service life. However, before excessive degradation in performance occurs and leads to excessive or frequent problems with leakage, a program of renewal becomes necessary. The expected repairs and the timing for general renewal are based upon judgement related to available information, visual observations as to current performance, the expected ability to be effective in deferring replacement by local repair, and experience with similar roofing systems at other buildings. Annual inspection and minor related repairs are assumed to be an operating expense.

Sloped Asphalt Shingled Roofing: Sloped asphalt shingled roof performance is influenced by variables that include shingle quality, exposure to sunlight, the substrate quality, and ventilation beneath the roofing. Manufacturers often assign specific warranty ratings to shingles (such as 15, 20 or 25 years). In many cases, these are expected to be conservative service lives, actual performance should exceed these ratings.

While local repairs can be completed to areas which deteriorate sooner than the field of the roof, the ability to do so is limited because of difficulties sealing to adjoining brittle shingles, and resulting unacceptable variations in appearance. Removal of all existing shingles prior to applying new is best practice, promoting performance and avoiding increased future disposal costs. Employing high performance shingles at the time of re-roofing to achieve a long service life for the new roof is generally recommended as it reduces ownership costs.

Sheet Metal: Sheet metal components may include sloped metal roofing systems, protective metal flashings, and drainage systems such as eaves troughs and down spouts. These elements are subject to wear and tear from ice and maintenance activities. Where the resulting damage affects function or becomes aesthetically unacceptable, replacement becomes necessary. Replacement of many of these items becomes necessary in conjunction with roof renewal.

Painted finishes degrade with exposure to UV (sunlight) and exposure to pollutants. While field painting to renew the appearance may be possible in some instances, the quality of finish is generally not as aesthetically pleasing or as durable as the original finish. As a result, this is generally only considered as an option where it is expected the resulting appearance would be acceptable and the cost for deferring replacement could be justified.

Soffits and Fascia Trim: Prefinished aluminium fascia trim and soffits is expected to have a lifespan up to about 40 years. The soffits are protected and the material should be able to perform as intended indefinitely. The material is often replaced as part of overall programs of cladding rejuvenation in order to blend aesthetically. We generally assume these components will eventually be replaced. The timing can vary considerably. Replacement is not expected if the cladding is masonry.



FIRE SAFETY

Egress: Unless specific problems are detected, fire safety components related to egress are assumed not to require general replacement or upgrading within the time frame of this study. This includes fire separations around exits, exit doors with associated hardware, stairwells with guards and handrails, exit signs, and emergency lighting. Ongoing maintenance from operating budgets is assumed to be completed to keep these components in acceptable condition. No audit or design check was completed to confirm that these meet current code requirements unless otherwise noted.

Separations: Unless specific problems are detected, fire safety components related to fire separations are assumed not to require general replacement or upgrading within the time frame of this study. This includes structure fire protection, wall and floor fire separations, suite doors with associated hardware, fire stopping and smoke sealing at penetrations (if provided), fire dampers at ducts or pipes.

Local repair and replacements as part of the operating budget are assumed to be completed to keep these components in acceptable condition. No audit or design check was completed to confirm that these meet current code requirements unless otherwise noted.

Detection: Detection systems include the fire alarm system, smoke and heat detectors, signalling devices, and associated wiring. In conjunction with annual testing completed as part of the operating budget, local repairs and replacements are required. These activities are expected to lead to renewal of some devices. However, advances in fire alarm and detection technology tend to result in systems becoming obsolete. Once compatible replacement parts are no longer manufactured, it becomes difficult to continue to maintain the system. In addition, advances in fire safety may lead to upgrading being necessary. A general program of renewal is expected to become necessary

The actual scope of the renewal will need to be identified. It is normally expected that many components could be salvaged, particularly those renewed as part of operations. Components which may be salvaged are expected to include wiring, and some devices.

Some manufacturers are requiring replacement of all end-devices and wiring when their system is installed. Whether or not this is a long-term trend is unknown. Until more information is available, we only budget for replacement on a case-specific basis.

Suppression: Suppression systems include sprinkler systems, the standpipe, and associated pumps, valves, fire hoses and cabinets.

These systems are not subject to regular use. Unless problems with deterioration are detected, the base piping for these systems are assumed not to require replacement within the term of this study. Local problems with corrosion which may develop are assumed to be addressed as part of annual repairs associated with the operating budget. If general problems with internal pipe corrosion were to be detected, changes to the reserve fund plan would be required. Air compressors, small pumps, sprinkler heads and other small components are generally assumed to be managed from operating budgets.

Valves tend to require replacement as a result of seizing or developing leakage as seals age.



Sprinkler heads have occasionally been recalled by certain manufacturers. However, since this cannot be predicted with any certainty, we have not included repair budgets associated with potential recalls. If such costs are incurred, they likely can be paid from the reserve fund and would be addressed as part of future updates of the study.

Fire hoses and fire extinguishers are assumed to be repaired or replaced as required as part of operations. As fire hoses age, they can deteriorate and develop leaks. In some instances, local replacement occurs in conjunction with annual inspection and testing as part of the operating budget so that reserve fund budgeting is not necessary. Where there are a substantial number of hoses that may require a larger program, we include a budget for replacement unless there is evidence that this will be managed from operations.

Fire pumps boost pressure so that there is adequate water to fight a fire at upper levels of the building. Jockey pumps act to maintain pressure within a sprinkler system. Pumps eventually require replacement due to impeller erosion, bearing and/or seal failure. While maintenance repairs might defer replacement, this is eventually becomes impractical.

Jockey pumps should be managed out of operating budgets.

Fire hydrants can be owned by the local municipality, or by the Corporation. We generally assume that hydrants located within the property lines of the complex are the responsibility of the Corporation.

Emergency Batteries: Batteries provided for emergency power tend to lose effectiveness as they age, or associated parts may become unavailable. Local replacements tend to be completed on an as-needed basis as part of annual maintenance, so that reserve fund budgeting may not be necessary. The exception would be central battery systems or AC to DC inverters, in which case, we include a Reserve Fund item.



INTERIOR FINISHES

General Comments Regarding Finishes: Replacement of common element interior finishes becomes necessary when wear and tear becomes excessive, and/or to meet the expectations of owners regarding maintaining acceptable aesthetic qualities. As discretion can be applied in selecting the actual timing and scope of these projects, the Board of Directors should review the reserve fund items to keep them current with their plans and owner expectations.

While finishes tend to have different service lives according to varying levels of wear, a comprehensive renewal program that includes treating all components in the area is often desired. This avoids subsequent disruption and risk of damage. For example, while wall and ceiling finish renewal might be deferred to a time later than carpet replacement, it is often completed at the same time.

Where not subject to wear and tear, interior finish components may not require replacement within the time frame of this study. Local maintenance or repairs in conjunction with other finish renewal programs are assumed to be adequate. This can include drywall, stippled finish, stucco, and trim.

Carpets: Carpets fade, stain and wear from traffic. Costs for replacement carpet can vary considerably according to the quality and application techniques selected. We estimate a budget based on our expectations, and experience with what has been selected at other buildings. When the time for this work approaches, the budgets should be revised according to actual plans.

Painted Finishes: Painted finishes require renewal as a result of fading, staining and wear and tear. Deterioration may also occur if areas are exposed to moisture. Local repainting necessary to defer general renewal programs is assumed to be completed as necessary as part of operations. Whether or not a painting allowance is included in the Reserve Fund depends on the expected size of the project. Small painting projects are assumed to be managed as part of operations.

Ceilings: While ceilings tend to be exposed to little wear and tear, some damage can occur from time to time, particularly if interior leakage occurs. Re-painting drywall and stippled finish is possible. Drop tile ceilings can be maintained by local replacements, and would only require general replacement if matching original tile became difficult as a result of fading or if matching tile were no longer available.

Ceramic Tile and Natural Stone Finishes: Hard finishes such as ceramic and stone are very durable. However, problems can develop with time including mortar joint staining and erosion, debonding, cracking, scratching and impact damage. Local repairs that become necessary may not match the original materials. We generally expect that a program of replacement will become necessary to maintain an acceptable appearance.

Cabinetry, Millwork and Hardwood: The need for renewing cabinets and millwork is dependent upon the level of wear and tear that they are subjected to. Options for renewal usually include refacing or complete replacement. Natural wood floors and millwork can usually be re-finished. Whether or not an allowance is included in the Reserve Fund depends on the expected size of the project.



SITE

General Comments: Repairs to exterior site finishes are required to maintain safe conditions and an aesthetically pleasing environment. The scope and timing of work varies according to owner expectations, and the extent to which repairs and replacements are completed as part of operations. We attempt to judge the extent to which maintenance activities are likely to maintain acceptable conditions, and assume that a reasonably diligent program will be provided.

Repair and replacement programs related to site finishes need to be carefully coordinated with other programs. Work that requires removal of site finishes (such as underground roof deck re-waterproofing) or which may risk causing damage should be completed in advance of site finish renewal.

Concrete Curbs and Walkways: Concrete elements can deteriorate with sub-base heaving, long term exposure to weather, and impact damage. However, assuming adequate concrete quality was provided, some areas may not require repair or replacement within the time frame of this report. Some repairs and replacements are expected to be completed in conjunction with other site work such as re-paving. An allowance is included in the Reserve Fund if costs for this work are expected to become excessive.

Unit Pavers: Unless general problems with deterioration are detected, unit pavers are not expected to deteriorate within the time frame of this study. This assumes that there is adequate sub-base drainage and concrete quality. Local areas of settlement or damage which occur can normally be addressed by local replacement and re-setting as part of operations or in conjunction with other repairs. If costs for this work are expected to become excessive, an allowance is included in the Reserve Fund.

In situations where unit pavers are a dominant part of the site finishes, such as unit drives and roadways, a different strategy may be adopted. In such cases, Owners often choose to replace unit pavers for aesthetic reasons as colors and patterns become "dated". Maintenance of larger areas also tends to result in a patchwork appearance as original pavers may no longer be available from the manufacturer. In these cases, Reserve allowances for full replacement can be considered.

Landscaping: Annual plantings and local replacement of dead items is expected to be managed as part of the operating budget. However, with age, trees and shrubs can become overgrown, root structures may become too large at areas, and planting beds may lose nutrients. If landscape maintenance is inadequate to address these problems, a general program of renewal may become necessary. Judgement is used to determine whether this needs to be included. The scope and budgets for these types of programs vary, only an expected order of magnitude budget can be established pending landscaping design.

Landscape Irrigation System: Landscape irrigation piping can fail due to aging, plastic embrittlement and stress from thermal expansion/contraction and ground movements. Localized replacement of damaged sprinkler heads and piping is assumed to be handled from the operating budget as part of normal maintenance.

Wood Fences, Decks and Gazebos: Wood fences, decks and gazebos are subject to deterioration or rot over time with continued exposure to moisture. Regular application of protective coatings can act to prolong the service life. However, general problems eventually develop with long term weathering and may include rot, splitting, warping, and corrosion of fasteners.

Wrought Iron Fencing: Wrought iron fences are generally not expected to require replacement within the time frame of this study providing local repairs and painting are diligently carried out to address problems with rust.

Iron fences with a factory vinyl coating are generally not expected to require replacement within the term of this report.



Chain Link Fencing: Chain link fencing will require replacement when it corrodes, the linking becomes excessively worn, or it sustains physical damage. With vinyl coated fencing, the vinyl on the post/rails tends to shrink/crack and expose the underlying steel.

Masonry Landscape Walls: Brick or stone masonry landscape walls deteriorate as discussed in Section 3. These walls often deteriorate more aggressively than building walls as a result of increased exposure to rain water, ground water wicking, or cracking from shallow foundations that allow movement.

Retaining Walls: Retaining walls can be vulnerable to gradual overturning, particularly if not properly engineered to resist pressures applied by the earth and frost. In our experience, there are no standard construction guidelines, and these structures are often built without an adequate structural design. Deterioration can also occur with exposure to rain and ground moisture, and with freezing. Timber retaining walls provide a limited service life. Unless problems are detected, concrete retaining walls are assumed not to require replacement within the term of this study. For other retaining walls, we allow for replacement after a long service life, but this is really impossible to predict, as the ties and drainage system which define the service life are fully concealed from view.



HEATING, VENTILATION AND AIR CONDITIONING

Boilers: Boiler interior components are subject to deterioration as a result of the high temperatures and corrosive conditions which develop. Heat exchangers, tubes and pipes can crack, erode or become blocked internally by deposits. Insulating materials may crack or crumble. Vents (exhaust stacks) will corrode (rust) with contact from wet combustion gases. While it is often possible to continue to maintain this equipment by locally replacing failed components on an as-needed basis as part of the operating budget, this eventually becomes impractical. Replacement becomes necessary from the Reserve Fund. Factors which prompt replacement can include: unreliable and degraded performance; escalating maintenance costs; parts becoming unavailable as a result of obsolescence, and; energy savings related to replacing with modern, efficient equipment.

Heating, Cooling and Air Distribution Units: Heating, cooling and air distribution units such as fan-coils require local repair and component replacement as part of the operating budget to assure they provide adequate service. However, a program of renewal becomes necessary once the extent of deterioration becomes excessive, or if parts are no longer available to continue with repair. This may also be desirable to take advantage of more energy efficient equipment.

In some instances, a phased or annual replacement program can be implemented to deal with units in a progressive manner (generally for a large number of units). However, a general replacement program may be preferable to improve the ability to apply quality control to the project, and to assure uniform equipment to simplify maintenance (generally for less than 50 units). The reserve fund includes the type of replacement program expected to be appropriate and adequate to meet owner expectations.

Starting in about 2002, a risk of mould growth on the insulation inside in-suite fan coil units or heat pumps has become known to the industry. Periodic investigation should be scheduled from operating budgets to test for the presence of mould. This mould cannot be detected through visual review only. Until the industry as a whole reveals the extent of this concern, we will only include a reserve expenditure in buildings where testing has revealed a concern. If you have never tested for mould, a test should be completed soon.

Pumps: Pumps generally require replacement due to erosion of the impeller, failure of the bearings, failure of seals, and to take advantage of more energy efficient modern equipment. Small pumps of fractional horse power, such as those for recirculation are expected to be replaced when required as part of operations.

Air Supply and Exhaust Fans: Air supply and exhaust fans require cleaning, re-balancing and local repairs as part of maintenance managed from the operating budget. This includes addressing motors, dampers, belts, coils, cabinets, filters, etc. However, with advanced age, general replacement is expected to become necessary to provide reliable service.

Small units not included in the reserve fund plan are expected to be repaired or replaced on an as-needed basis as part of the operating budget. This can include items such as service room exhaust fans and common area bathroom fans.

The parking garage exhaust fans remove carbon monoxide (CO) from vehicles so that it does not pose a risk to residents. These must either run continuously or be provided with CO detectors that control the fans. The fan components are assumed to be replaced as required out of the operating budget.



If there is a CO detection system, maintenance will require testing, yearly calibration, and replacing failed components as part of the operating budget. However, a general renewal of this control system is expected to become necessary once the controls fail and/or this equipment becomes obsolete.

Fireplace Chimney Flues: Insulated stainless steel chimney fireplace flues (B-Vents) have been found to corrode. This is a particular problem with older chimneys as a result of the insulation contained within the flue being corrosive and/or poor installation practices. Corrosion requires replacement, the rate that this becomes necessary depends on chimney use and exposure to rainwater rather than based on a standard service life. A chimney evaluation would be necessary to check internal and concealed conditions.

Clay or masonry flues typically only need to be replaced (or lined) if they are deteriorated or the equipment they serve is converted to gas. Periodic inspection is recommended.



PLUMBING

Site Services: Site services include buried piping to supply water to the building (for fire and potable purposes), storm sewers to drain away rain and ground water, sanitary sewers to drain away waste. Periodic maintenance including pressure flushing and camera inspection is assumed to be managed as part of the operating budget.

Unless problems are detected, we do not expect there will be a need for widespread replacement within the time frame of this study. However, repairs may be needed to correct local problems that may develop, such as local collapse or breakage with ground settlement, leakage or major blockage or restrictions from deposits, or deterioration such as corrosion of steel piping. Identifying the actual locations, quantities, types and conditions related to these buried services would require further investigation. An allowance which is expected to be reasonable to accommodate limited problems is included in the Reserve Fund.

Sump Pumps: Sump pump repairs are expected to be managed from the operating budget on an as-needed basis. An allowance for replacement is only included if cost is expected to exceed the threshold.

Drainage Plumbing: Drainage lines are generally not expected to require replacement within the time frame of the study unless specific problems with deterioration are identified. Flushing of all risers and main lines should be carried out every one to two years as an operating expense to avoid major expenses which can result from not flushing.

Domestic Water Distribution System: The domestic water distribution system includes piping, valves and insulation. Problems which develop as the system ages include:

- Seizing or leakage of valves
- Damage to insulation
- Corrosion, pitting, erosion and/or embrittlement of piping. This can be affected by the quality of materials used, impurities in the water, stray currents, etc.
- Fatigue and failures related to thermal movements

Local repairs and replacements are initially managed as part of the operating budget. However, with increasing rates of failure or blockage, larger sections would also need to be replaced, requiring budgets from the Reserve Fund. The actual rates of failure and budgets necessary will need to be determined.

Type 'M' copper piping (common in the 70's to present) is thin-walled piping which is found to develop problems with pinhole leakage. In addition, the wall thickness of the new piping was reduced over time as a cost-saving measure. In the case of type M, we budget for 100% replacement in a fairly short timeframe starting with the hot water and recirculation lines, dependent on performance and date of installation. For piping installed in the early 80's, a 15 to 20 year service life can be expected for the hot water system. For piping installed in about 1990, when the wall thickness was even less, the service life is closer to 10 to 15 years, and in some extreme cases, pipe replacement has been needed in less than 10 years.

For type 'L' copper piping, which has a thicker wall, an allowance is included for replacement of the hot water recirculation lines then the hot water supply lines and finally the cold water supply lines, over a significantly longer time period.



More unusually, there may be galvanized steel piping which starts to corrode once the zinc coating is consumed, leading to obstructed flow and pressure drop. Hot water piping deteriorates more rapidly than cold water piping. For galvanized piping, 100% replacement is included.

Backflow preventer gauges, controllers and isolated valves are all expected to be replaced out of the operating budgets, assuming periodic maintenance.

Boilers and Pumps

See Section 7.

Domestic Hot Water Storage Tanks: Domestic hot water tanks store hot water to ensure there is adequate supply in times of high demand. Storage tanks tend to require replacement with deterioration of the liner and/or corrosion of the tank body, leading to obstructions and leakage. Repairs such as re-lining interior concrete surfaces are often able to prolong the service life of the tank.

Small tanks (120 gallons and less) should be replaced from operating budgets.

Common Area Fixtures: Common area fixtures such as faucets, sinks, water closets, etc. are expected to be repaired or replaced as part of operations, or in conjunction with interior finish renewal programs.



ELECTRICAL SYSTEMS

Electrical Distribution: Insulation used on distribution wiring tends to become brittle with age and is expected to crack and split. Connections tend to deteriorate where subject to increased heating or stress from thermal movements. Power surges related to the utility service or lightning strikes can hasten deterioration. Maintenance including electrical thermography and local repairs is expected to be completed as part of the operating budget. This should be completed at least every three years, and more frequently for systems incorporating aluminium wiring. Once aged, portions of the system are expected to require replacement from the reserve fund. An allowance for a phased program of replacement is included. Further monitoring and evaluation will be necessary to establish the actual scope of work and rate of replacement which will be necessary.

Buried electrical supply lines, typical of townhouse complexes, are subject to aging of the wires leading to brittle cracking and splitting. Connections tend to deteriorate. Phased replacement should be budgeted in the Reserve Fund.

Transformers: Transformers tend to fail abruptly once aged. This can be related to deterioration of insulation. Oil filled transformers should be scanned as part of the routine electrical thermal scans. Some transformers are owned by the local utility (generally pole mounted units, or those located in vaults owned by the utility). No costs should be incurred related to this equipment unless additional power becomes needed, requiring a transformer upgrade, or the equipment is damaged by uncontrolled leakage that is deemed to be the Corporation's responsibility. The Reserve Fund study therefore includes no allowances for utility-owned transformers.

Outlets and Switches: Local devices including electrical outlets, switches, and mechanical switchgear are assumed to be replaced as required as part of the operating budget, or in conjunction with programs of interior finish renewal or equipment replacement.

If there is aluminium wiring, then connections to receptacles and switches should be checked regularly to see if contacts are deteriorating. This should be an operating expense.

Light Fixtures: Light fixtures tend to require replacement as the associated finishes fade and deteriorate, as electrical insulation embrittles and cracks, with corrosion if exposed to exterior moisture, with vandalism, or if desired for aesthetic reasons. The discretion applied to the timing for light fixture replacement, and the quality of materials that are available varies considerably. Programs that are expected to be appropriate given the apparent quality desired are estimated.

Local repairs including replacing ballasts, bulbs, switches or timers are assumed to be managed as part of the operating budget.

Light fixtures in stairwells and service rooms are assumed to be replaced as-needed from operating budgets, as these are generally not included in any aesthetic upgrade plans.

Intercom and Card Access Systems: The intercom system will require replacement when excessive repairs become necessary, replacement parts become unavailable, or newer technology is desired.

Individual card access readers will require replacement as required from the operating budget. Complete renewal of the system will be required when the system becomes obsolete, and/or when an upgrade to an alternate technology is desired.



Closed Circuit Security Systems: Closed circuit security systems continues to evolve rapidly, making existing systems obsolete, and impractical to repair. We make allowances for expected replacements.

Electric Heating: Electric heating cables provided to prevent freezing pipes or for de-icing surfaces are expected to eventually fail and require replacement from cracking of the covering and wire. Local electric heaters provided for space heating isolated areas are assumed to be repaired or replaced as necessary as part of the operating budget.

Telephone and Cable Television Systems: Allowances for replacement of telephone communication wiring or coaxial cable are generally not included in the Reserve Fund. While future re-wiring may be desirable to meet technological advances, this could be considered an upgrade that may not be appropriate to finance through the Reserve Fund. Ownership of these systems can be a complex legal issue, they are generally not considered common elements, but rather the property of other parties. As business and technology continues to evolve, it is possible that replacements will be completed in conjunction with other service agreements, or become unnecessary altogether if alternate wireless systems become available.

ELEVATORS

Elevator Cab Finishes: Timing for refinishing elevator cabs can be dependant on wear and abuse, and owner aesthetic expectations. The scope and quality of refinishing can vary considerably. A budget that allows a program that is expected to be appropriated is included.

Elevator Repairs, Replacement and Modernization: Components of the elevator system can deteriorate and require replacement as a result of wear, age and the quality of preventative maintenance. This work tends to be completed as part of the operating budget and/or in conjunction with comprehensive maintenance contracts which may exist. This work may include motor rewinding or replacements, or replacement of control devices.

However, major programs of rehabilitation and modernization are generally expected to become necessary. This may be in response to increasing frequency of problems and/or difficulties completing repairs once the equipment becomes obsolete and replacement parts are difficult to obtain. Upgrading to more modern equipment also tends to become necessary to meet owner expectations or to comply to changes in the safety code. The scope of a general rehabilitation will need to be further identified. As part of a major overhaul, providing new control systems will be required.



APPENDIX E RESERVE FUND CONCEPTS

The following concepts and definitions are used in calculating the required contributions to the Reserve Fund:

Life Expectancies

Life expectancies are our estimates based on our observations of the performance of similar materials systems or components at other buildings, literature we have read, and/or recommendations made to us by manufacturers or suppliers.

We estimate two factors when considering the timing of future repairs or replacements

- a) Time to first occurrence or "Time" is our estimate of when the work will be required. This estimate is based on the apparent condition of the item and may not simply be the time remaining in the standard estimated life cycle.
- b) Life cycle or "cycle" is the frequency at which the repair or replacement is normally expected to be required. The time cycle following a repair or replacement may be different from the original service life as a result of changes in the materials or equipment employed, and changes in technology.

We endeavour to estimate the timing of repairs to reflect the necessity of maintaining the building standards and achieving this at the lowest cost. Some items that are not critical to the building operation (such as finishes, site work) may be deferred from our recommended time, however, this may result in a decrease in building standards. For some items, particularly those such as leakage, there may be an increase in the extent of repairs and costs if the required work is deferred.

For some building materials and systems, the actual service life is difficult to estimate as a result of a short history of application or use in other similar buildings. This can be particularly true of mechanical and electrical systems. While the estimated service lives for these components may be exceeded, it is recommended that the funds be available for the repairs or replacements at the times indicated.

Costs

Costs given represent our opinion regarding the current dollar value for the work described. They are based on our assumptions regarding the likely scope of the work, and the materials or equipment that will be required. We base our opinion on comparing the assumed scope with costs of similar work at other buildings, using construction estimating manuals, or by discussions with contractors. Replacement costs are often much different than new construction costs as a result of disposal, difficulties with access and the requirement to work around finishes. Costs are intended to include GST and where appropriate, allowances for design, inspection and testing that may be required to execute the work.

More accurate cost estimates will require a detailed scope of work to be developed, design completed, bid documents prepared, and quotations from qualified contractors obtained.

Limits to Accuracy

Given the level of review completed for a reserve fund study and the uncertainties associated with predicting the future, we can in no way guarantee the precision of the cost data or timing. While we apply our experience and expertise to our estimates, the exercise is not intended to be exact, but rather to reduce the risk of long term under-funding or over-funding. We cannot be responsible for under-funding or over-funding identified in future reserve fund studies.

Starting Year

The first year in the plan for which the contribution amount is being calculated, and the first year (Year 1) for planned expenditures. Each year is assumed to extend to the financial year end in that year (i.e., the financial year from April 1st, 2008 to March 31st, 2009 is labelled "2009").

Opening Balance

The amount of the Reserve Fund at the start of the analysis as communicated to us by Management. The amount in the Reserve Fund at the start of the fiscal year for which the required contribution amount is being calculated.

Minimum Reserve Fund

The present value of the lowest allowable Reserve Fund balance. This level is reached at what we term the "critical years". These years are high lighted on the cash flow tables.

The minimum balance could be set at zero. However, we generally recommend a higher amount as a factor of safety against estimates that prove to be inaccurate, unexpected repair items becoming necessary in the future and changes legislated by Building Authorities.

Interest Rate and Interest Earned

The estimated annual interest earned on savings, assuming these monies are re-invested into the Reserve Fund. This rate should not necessarily be the current interest rate, but should reflect expected average trends.

It is not the assumed interest rate but the spread between interest and inflation that most affects Reserve Fund planning.

Our analysis assumes that interest earned on the reserve balance is available in the year earned. In some instances, with longer term investments, the interest does not actually come available until maturity. Managing Reserve Fund investments and expenditures is required to assure positive cash flow in critical years, when the balance is at its lowest.

Cost Inflation Rate

The estimated annual inflation rate used to increase the estimated costs of repairs and replacements. As interest earned on money has historically been greater than inflation, the spread between interest and inflation act to decrease the level of contribution to the Reserve Fund (assuming interest monies are re-invested into the Reserve Fund).

Minimum Reserve Fund Inflation Rate

The percentage rate at which the minimum Reserve Fund balance is increased. This ensures the minimum Reserve Fund balance at the critical years is not devalued as a result of inflation. This is usually the same as the inflation rate, unless there is a desire to accelerate the minimum balance at a rate greater than inflation.

Contribution Phase-in

The Reserve Fund contribution can be increased at a level above inflation each year in order to phase in a required increase. This can be used to prevent abrupt changes in the level of contribution and to provide a stable funding plan which balances the interests of both present and future owners.

First Critical Year

In cash flow analysis, a critical year is the year in which the fund balance reaches the minimum reserve fund balance you specify.

Expenditures up to the first critical year are used to calculate the Reserve Fund contribution. Deferring work beyond the first critical year can reduce contribution requirements by providing further time to accrue the required funds for that work. This reduction can be significant if the first critical year occurs soon (within about 10 years).

If the first critical year is further away (20 years or beyond), changes in work timing tend to have a smaller effect on the Reserve Fund contributions. Other variables such as the difference between interest and inflation rates or the contribution inflation rate can have a greater effect owing to the increased time for compounding.

Subsequent Critical Years

The subsequent critical years (if they occur within the scope of the analysis) govern the contributions required beyond the first critical year. The level of contribution required following the first critical year may decrease. A significant decrease is a reflection of previous under-funding to the Reserve Fund, or an excessive amount of work planned or required within the near future.

The rate of contribution increase after the first critical year can usually be reduced to match inflation, even if a rate higher than inflation is required until the first critical year.

Analysis Period

Our analysis checks to ensure the critical year(s) which govern the required Reserve Fund contributions have been identified. For some studies, this can involve analysing projected cash flow beyond 50 years. While the analysis period may exceed 30 years, we typically only print a 30 year cash flow plan.

APPENDIX F SCOPE OF WORK

Authorization

This study was commissioned by the Strata Council of Strata Plan LMS *** in accordance with our proposal dated *** and Agreement for Professional Services dated ***.

Purpose

A well planned Contingency Reserve Fund Study requires that contributions to the Reserve Fund be calculated on the basis of expected repair, or replacement costs and life expectancies of the common assets.

In order to meet this requirement, we:

- ▶ Review and evaluate the condition of the major common asset components;
- ▶ Recommend improvements which are likely to minimize deterioration or increase the life expectancy of common assets;
- ▶ Identify common assets we expect to deteriorate and require repairs or replacement;
- ▶ Estimate the scope of repairs or replacement which are likely to be required;
- ▶ Predict the times when repairs or replacements will be necessary and the life expectancies following the repairs;
- ▶ Provide our opinion of the cost required to carry out the repairs or replacements; and
- ▶ Calculate a schedule of contributions to the Reserve Fund so that the estimated expenditures can be accommodated without a deficit.

We include items which typically require replacement because their service life is shorter than the service life of the building (such as caulking, roofing, equipment, etc.). We also include items which would not have been anticipated to be required when the building was new, but which have become necessary due to building specific deterioration (concrete repair related to poor durability, window modifications due to loss of internal seals, etc.). There may be expenses which arise which we have not anticipated, related to concealed conditions or unexpected deterioration.

As long as these relate to the repair or replacement of the common assets, they can often be paid out of the Reserve Fund provided the study is updated to account for the impact of these expenditures.

If you are in doubt about whether or not an expenditure can be paid for out of the Reserve Fund, we recommend you check with your legal counsel or chartered accountant.

Survey Method

Halsall Associates Limited reviewed the building structure, roofs, walls, windows and doors, portions of the interior and the site, as well as completed a non-specialist review of the mechanical, plumbing, electrical, elevators and active fire safety systems. The site was visited on *Date*.

The survey consisted of visual review of portions of the building including:

- ▶ suites: 303, 317, 405, 412 and 413
- ▶ the exterior walls from grade and suites accessed
- ▶ the windows from interior and exterior at common areas
- ▶ the roofs and attics of suites 303, 405 and 412
- ▶ the terraces, balconies and patios from exterior and suites accessed
- ▶ the parking garage
- ▶ service rooms: elevator machine rooms, mechanical room, electrical room
- ▶ the perimeter site

The following documents were available for use in this study:

- ▶ Strata Plan for LMS ***, dated ***.
- ▶ Architectural Drawings prepared by ***, dated ***.
- ▶ Electrical Drawings prepared by ***, dated ***.
- ▶ Plumbing Drawings prepared by ***, dated ***.
- ▶ Structural Drawings prepared by ***, dated ***.
- ▶ Building Envelope Evaluation report, prepared by ***, dated ***.
- ▶ Documents related to Exterior Repainting and Maintenance project completed in ***, prepared by ***.
- ▶ Fire Protection product data booklet prepared by ***, dated ***.
- ▶ Mechanical equipment booklet prepared by ***, dated ***.
- ▶ Plumbing equipment booklet prepared by ***, dated ***.
- ▶ Financial Statement - Statement of Operations, monthly for 2007 from February to November.
- ▶ Financial Statement - Statement of Operations, ending December 31, 2006
- ▶ Financial Statement - Balance Sheet, monthly for 2007 from February to December.

Mr. X, Strata Council Member and Ms. Y, Strata Manager with Property Management Company answered questions about the history of performance of the various systems, described existing capital plans, etc.

A financial questionnaire was completed and the results were incorporated.

Appendix G - Limitations

- ▶ This work is intended solely for the Client(s) named. The scope of work and related responsibilities are defined in the Conditions of Assignment. Any use which a third party makes of this work, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Decisions made or actions taken as a result of our work shall be the responsibility of the parties directly involved in the decisions or actions. Any third party user of this report specifically denies any right to any claims, whether in contract, tort and/or any other cause of action in law, against the Consultant (including Sub-Consultants, their officers, agents and employees).
- ▶ The work reflects the Consultant's best judgement in light of the information reviewed by them at the time of preparation. Unless otherwise agreed in writing by Halsall, it shall not be used to express or imply warranty as to the fitness of the property for a particular purpose. This is not a certification of compliance with past or present regulations. No portion of this report may be used as a separate entity; it is written to be read in its entirety.
- ▶ This work does not wholly eliminate uncertainty regarding the potential for existing or future costs, hazards or losses in connection with a property. No physical or destructive testing and no design calculations have been performed unless specifically recorded. Conditions existing but not recorded were not apparent given the level of study undertaken. Only conditions actually seen during examination of representative samples can be said to have been appraised and comments on the balance of the conditions are assumptions based upon extrapolation. We can perform further investigation on items of concern if so required.
- ▶ Only the specific information identified has been reviewed. The Consultant is not obligated to identify mistakes or insufficiencies in the information obtained from the various sources or to verify the accuracy of the information.
- ▶ Halsall is not investigating or providing advice about pollutants, contaminants or hazardous materials.
- ▶ Budget figures are our opinion of a probable current dollar value of the work and are provided for approximate budget purposes only. Accurate figures can only be obtained by establishing a scope of work and receiving quotes from suitable contractors.
- ▶ Time frames given for undertaking work represent our opinion of when to budget for the work. Failure of the item, or the optimum repair/replacement process, may vary from our estimate.
- ▶ Any user of this report specifically denies any right to any claim which may arise out of mould or infiltration of precipitation into a building envelope.

