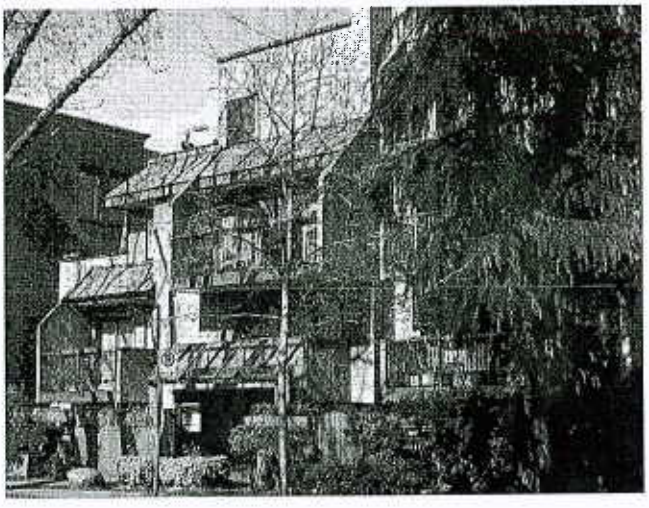
2008 Contingency Reserve Fund Study

"The Greenhorn"
1169 Nelson Street
Vancouver, BC



Prepared for
The Owners of Strata Plan VR 1313
c/o Century 21 Prudential Estates

207VA002A/A
April 25, 2008

Halsall

Halsall
ENGINEERS·CONSULTANTS

208vA002A/a

April 25, 2008

The Owners of Strata Plan VR 1313
c/o Century 21 Prudential Estates
7320 Westminster Highway
Richmond, BC V6X 1A1

Attn: Jarvie Way, Strata Agent **Email: jarvie.way@century21pel.com**

Dear Jarvie,

Re: The Greenhorn - 1169 Nelson Street, Vancouver
Contingency Reserve Fund Study - Final Report

Please find enclosed two final copies of our Contingency Reserve Fund Study for your Strata. The report is also accessible online on Buildingweb (www.buildingweb.com) using the username and password provided under separate cover.

The Contingency Reserve Fund Study is intended to assist the Strata Corporation in establishing a plan for future repairs and replacements of common components, and to assist in determining the appropriate amount for the annual contribution to the Contingency Reserve Fund. The intent of a properly funded Reserve Fund is to ensure that funds are available for future repairs and replacements and avoid special levies.

We include items which typically require replacement because their service life is shorter than the service life of the building (e.g. 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 (e.g. 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.

1 Revisions Made to the Draft Report

We have made minor revisions / clarifications throughout the report, where possible, to address comments from the Strata Council during the meeting held on April 15, 2008 and their subsequent written correspondence.

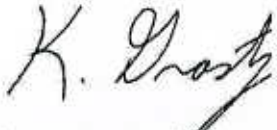
2 Financial Planning Summary

There are an infinite number of cash flow plans that can be followed in order to fund the anticipated repairs. We have provided three options for your consideration based on the feedback provided by Council. These options are summarized on the Reserve Fund Plan and Cash Flow Tables in Appendix B of the report. An explanation of the funding option can be found in Analysis section (Section 3.3) of the report.

The Council could select from one of these options, or suggest an alternate cash flow plan that suits their needs better. If the Strata selects a funding plan less than proposed in Scenario 1, it is likely that levies will be required to make up shortfalls in the Contingency Fund to cover future expenditures. If the Strata would like additional funding analyses completed, our services will be billed on a time and expense basis.

Should there be any questions, please call.

Yours very truly,
HALSALL ASSOCIATES LIMITED



Kevin Grasty, P.Eng.
Project Manager

Ted Denniston, AScT
Project Principal

Attachments: 2008 Contingency Reserve Fund Study - Final Report (2 copies)

2008 Contingency Reserve Fund Study For
The Greenhorn
1169 Nelson Street
Vancouver, BC

Prepared For:

The Owners of Strata Plan VR 1313
c/o Century 21 Prudential Estates
7320 Westminster Hwy
Richmond BC V6X 1A1
Attn: Mr. Jarvie Way, Strata Manager

Prepared By:

Halsall Associates Limited
930 West 1st Street, Suite 112
North Vancouver, Canada V7P 3N4
Attn: Mr. Kevin Grasty, P. Eng.

Project Number: 208vA002A/a

April 25, 2008

TABLE OF CONTENTS

APPENDICES

1 INTRODUCTION

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

2 GENERAL DESCRIPTION OF STRATA

The facilities at your Strata include a wood framed 4-storey lowrise with about 33 residential suites, constructed on top of a one-storey underground parking garage. Each unit has a balcony, terrace or ground floor patio. The walls are clad with stucco, some of which were replaced with rainscreen assemblies in 2005. The main roof is flat. Lower sloped roofs are covered with asphalt shingles. Common interior areas are limited to the entrance lobby, corridors and laundry room. There is one elevator. The complex was constructed in about 1983. The fiscal year end of the Strata is August 31st.

2.1 Shared Facilities

We understand there are no shared facilities or reciprocal cost sharing agreements with any 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, terraces 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 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 structure and parking garage
- Roofs, balconies, terraces and patios
- Exterior walls
- Exterior windows and doors
- Interior finishes in common areas including entrance lobby, corridors, and the laundry room
- Site 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 baseboard radiators

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 option for your consideration. The Council could select this option, or suggest an alternate cash flow plan that suits their needs better:

➥**Appendix B**
for funding scenarios and expenditure table

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 (other than keeping pace with inflation) over the life of the complex.

Scenarios 2 and 3 - Funding via Special Levy each show the special levies that we predict will be needed in order to keep annual funding levels lower than the level proposed in Scenario 1. In both cases the initial contribution level increases annually at a rate of inflation. These are not an ideal solutions, nor is it the way that a Strata Corporation should ideally be run. However, they are options not prohibited by our interpretation of the current Act.

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".

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

Kevin Grasty, P.Eng.
Project Manager

Ted Denniston, AScT
Project Principal

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APPENDIX A - CONTINGENCY RESERVE FUND ITEMS

Contingency Reserve Fund Study For

The Greenhorn

1169 Nelson Street

Vancouver, BC

Prepared For:

The Owners of Strata Plan VR 1313 c/o Century 21 Prudential Estates
7320 Westminster Hwy
Richmond BC V6X 1A1
Attn: Mr. Jarvie Way, Strata Manager

Prepared By:

Halsall Associates Limited
930 West 1st Street, Suite 112
North Vancouver, BC V7P 3N4
Attn: Mr. Kevin Grasty P. Eng.

Project Number: 208vA002A/a

April 25, 2008

STRUCTURE

Structural Frame

Description:

Most structural components are concealed by finishes and we were not provided with a complete set of building drawings, so comments are limited to visable portions. The structure is a 4 storey wood-framed building constructed over a single level underground parking garage constructed of cast-in-place conventionally reinforced concrete. Upper floors appear to be wood framed with a plywood decking. The wood framing consists of joists and beams supported by wood stud walls. Lateral support for the structure seems to be provided by the elevator core. Foundations walls are cast-in-place concrete, likely supported on strip foundations.

Condition:

2007 (Halsall): We did not observe any signs of settlement or structural cracking that would indicate evidence of a problem with the structure. The structural frame 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.

This building is located in a zone with relatively high risk of strong seismic activity, but was built prior to modern earthquake design standards being established. 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 requires a building permit.

Balconies

Description:

Each unit above the ground floor has a balcony or a terrace (outdoor limited common property area over a living space). Terraces are discussed in the roof section of this report. There are balconies on the north, east and south elevations but not on the west side. Typical balcony construction is as follows:

Structure: Plywood sheathing overtop wood framed joists extending from the building structure. The soffit of the balconies are clad in perforated, pre-finished metal sheets.

Protection system: Vinyl waterproofing membrane covers the wood framed balcony structures. The membrane is upturned at perimeter walls behind the stucco cladding and downturned over the edge of the balcony fascia.

Guard wall assembly: A wood-framed guard wall protects either one or both sides of the balconies. The sides of the guard walls are clad with stucco over plywood sheathing with a pre-finished sheet metal cap flashings on top. The front of the balconies are protected with a prefinished picket style railing. Railings on balconies that were repaired in 2005 are face mounted through the fascia, while the original railings are secured through the balcony membrane.

Sealants: Joints in the sheet metal cap flashings, around the railing base plates and at wall connections are caulked with sealant.

Repair History:

The following balconies have been repaired; however, the extent of work not provided (as reported in documentation provided by Property Manager):
- 1999: Units 202, 402, 405, and 406
- 1998: Unit 404

- 1997: Unit 208
- 1996: Units 302 and 306

2005: Balconies at the side (east) and rear (north) elevations overlooking the courtyard and at the rear (north) elevation over the garage entrance ramp were repaired at the same time as the cladding renewal. Guardrails, waterproofing, fascias and soffits were all replaced. In addition, the sloped roof above suite 305 balcony was added and the side walls heightened. Total cost including exterior cladding renewal was approximately $600k (as reported by Charles Rent).

Condition:

2007 (Halsall): The balconies to the rear and east side elevations have recently been refurbished and so no significant defects were evident at the time of our visual review. We found the following conditions on the remaining balconies on the front (south) elevation.

- Painted timber fascia boards are showing signs of rot and open joints are allowing water ingress into the structure which could result in deterioration (wood rot) of the framing members.
- Vinyl waterproofing is dirt stained and showing signs of wear.
- Sealant to the sheet metal cap flashings, around the steel balustrade base plates and at wall connections are hardened and cracked or missing. Balcony cap flashings were also found to be draining against the wall of the building. Sealant replacement and water shedding improvements are required to prevent further water ingress.

Structural balcony componants are concealed by the membrane and soffit, therefore a comprehensive evaluation including physical testing of the balconies is necessary so that a more accurate budget and appropriate scope of works can be developed. Pending completion of this evaluation we have budgeted to rewaterproof the balconies and locally repair the adjacent walls and framing components. The work on the front (south) elevation includes all balconies and assumes the work will be completed in conjunction with the replacement of the wall cladding (see "Wall" section of the report). Replacement of the railings on the front elevation has also been included. It should be noted that in order to properly replace the membranes, stucco removal at the base of the guard walls and building walls will be required. We assume a metal flashing will be installed in lieu of reinstating the stucco at the base of the wall so that furture replacements are less costly, and wood fascia will be clad with prefinished metal to minimize future maintenance costs.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Balcony and Terrace Condition Survey	$8,925	$9,104	2009	7 yrs	recurring	3
Replace Balcony Membranes and Local Repairs - Front Elevation (south) - Part 1 of 2	$55,874	$60,480	2012	15 yrs	recurring	3
Replace Balcony Guards Front Elevation (south) - Part 1 of 2	$13,956	$15,106	2012	45 yrs	One time	3
Replace Balcony Membranes and Local Repairs - Front Elevation (south) - Part 2 of 2	$52,966	$59,648	2014	15 yrs	recurring	3
Replace Balcony Guards Front Elevation (south) - Part 2 of 2	$11,907	$13,409	2014	45 yrs	One time	3
Replace Balcony Membranes and Local Repairs Side and Rear Elevation (east and north)	$108,467	$137,562	2020	15 yrs	recurring	3
Replace Balcony Guards Side and Rear Elevations (east and north)	$28,728	$65,995	2050	45 yrs	recurring	3

Parking Garage

Description:

The underground parking garage is a single level with a total of 33 parking stalls. The garage is constructed with conventionally reinforced cast-in-place concrete walls, roof slab, and columns. These components are described as follows:

Foundations: The concrete foundations are typically concealed from review, but are likely strip footings.

Below Grade Perimeter Walls: Cast-in-place concrete underground exterior walls at the building perimeter. Likely protected at the time of construction with damproofing or waterproofing, and/or drainage systems. The extent of damproofing/waterproofing and/or drainage systems on the below grade foundation walls is unknown.

Columns/Shearwalls: Conventionally reinforced concrete columns and walls.

Parking Area Floor Slab: The parking level of the garage is constructed as a cast-in-place concrete slab-on-grade.

Garage Roof Slab: The parking garage roof deck extends beyond the footprint of the building above, creating a buried roof deck. Based on the limited leakage present, we anticipate that the buried roof deck is protected by a waterproofing membrane. Test pits would be required to determine the membrane type. The membrane is covered with overburden including fill, soft landscaping (shrubs, plants and trees), some walkways and ground floor unit patios. The underside of the roof slab located below the building footprint is insulated. Drainage is provided by area drains and the slabs are generally well sloped to drain.

Garage Access Ramp: See separate item for further discussion on this component.

Overhead Door to Parking Garage: Painted wood, operating hardware is torsion spring and electric motor.

Repair History:

2002 & 2008: Periodic concrete crack injection (urethane) waterproofing carried out to address leakage issues, as reported by Charles Rent. Cost in 2008 was about $5000 (Collins & Sons Concrete invoice dated January 13, 2008).

Condition:

2007 (Halsall): The foundations and slab-on-grade typically last the life of the building without major repair or renewal. No significant problems with deterioration to the concrete columns or slab-on-grade were detected. There are some cracks in the slab-on-grade; but, these seem to be consistent with normal shrinkage cracks that were not properly controlled at the time of construction. These cracks do not appear to be impacting the structural integrity of the slab. No differential settlement was noted at the cracks to suggest that there are any ongoing subgrade problems. The concrete finish should be monitored over time, and a repair allowance included in future updates only if scaling of the surface becomes an issue.

We noted the following concerns during our visual review:

- Active leakage through cracks to the garage roof slab at four locations (approximately 5 linear meters total) and leakage at the base of the below grade perimeter wall at parking stall 9.
- Leakage around a drain penetration at the north west corner of garage from suite 101 patio.
- Leakage at the garage access ramp to wall junction.
- Minor concrete delamination at the underside of the garage roof slab at various locations (less than 1 square meter total).

The extent of concrete damage (spalls and cracks) is not structurally significant at this time. The service life of buried membranes varies depending on original installation details, materials, and loading during use. Based on conditions observed, we recommend budgeting for rewaterproofing and local repairs. The budget for rewaterproofing also includes concrete repairs, reinstating the overburden on the roof slab, and landscaping. A detailed condition evaluation of the waterproof membrane at the upturns and over the garage roof slab that includes excavating test pits to sample top surface conditions and physical testing (concrete sampling to measure carbonation) should be undertaken to better determine the timing of the rewaterproofing project, therefore a budget for evaluation is also included. Pending completion of this evaluation we have budgeted for a local repair program in order to defer the rewaterproofing. You may wish to undertake this project sooner or later depending on your tolerance for leakage. It should be noted that defering repairs may result in more costly repairs in the future.

Periodic injection sealing of leaking cracks may be necessary to control water ingress. We assume injection sealing would be completed as needed out of the operating budget. Other operating expenses include replacement of missing insulation to the underside of the parking garage roof slab (about 2 square meters) and periodic painting of lines and parking stall numbers.

Budget to replace overhead door has been included.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Parking Garage Condition Evaluation	$7,350	$7,956	2012	10 yrs	recurring	3
Repair Garage Roof Deck Waterproofing	$16,380	$18,085	2013	10 yrs	recurring	3
Replace Garage Roof Deck Waterproofing	$315,329	$384,384	2018	40 yrs	recurring	3
Replace Overhead Garage Entrance Door	$8,925	$9,661	2012	20 yrs	recurring	3

Garage Access Ramps

Description:

Vehicle access in and out of the underground garage is provided by a suspended conventionally reinforced concrete ramp. The ramp does not incorporate a snow melt system. We could not determine by visual review whether the exposed concrete is a topping over a waterproof membrane or the top surface of the ramp. We assume a concrete topping and waterproofing membrane are present. A trench drain at the base of the ramp collects storm water runoff.

Condition:

2007 (Halsall): There is active leakage through the ramp and ramp to wall junction into the pump room. We also noted some de-bonded parging on the ramp walls. Periodic injection sealing to control leakage and local repairs of the cementitious parging are assumed to be an operating expense. These ramp walls are locally cracked but no overturning was noted; therefore repair or replacement is not anticipated within the term of this report.

No concrete deterioration in the ramp slab was noted. Local cracks are present, consistant with concrete shrinkage. A budget for concrete repairs to the ramp in conjunction with rewaterproofing and replacement of the ramp topping is included. We assume this work would be scheduled to coincide with the garage roof slab rewaterproofing project. Local repairs until such time that the rewaterproofing is completed should be anticipated. The cost of this work is assumed to be an operating expense, or covered in the garage repair budget provided (see "Parking Garage" section). We recommend confirming the presence of a topping and membrane at the time of the garage condition evaluation.

The trench drain at the bottom of the ramp requires periodic cleaning and the metal covers require securing as part of ongoing maintenance activites.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Garage Ramp Rewaterproofing	$53,235	$64,893	2018	40 yrs	recurring	3

Garage Exit Stairwells

Description:

In addition to the central building core/stairwells, there are two cast-in-place concrete exterior exit stairwells from the underground parking garage, leading to Nelson Street and the rear courtyard.

Condition:

2007 (Halsall): Areas of cementitious parging to the stairwell exit walls are loose and are delaminating. Deteriorated areas (approximately 5 square meters total) require power washing to remove moss and concrete patch repairs should be carried out. This work is assumed to be an operating expense.

BUILDING ENVELOPE

Walls

Description:

The exterior walls are primarily clad with a combination of face sealed and rainscreen stucco. There is also a small area of load bearing through-the-wall (TTW) brick on the 1st floor of the west elevation. Other masonry walls are present throughout the site, refer to ""Site Features" section of this report.

According to JRS Engineering Limited report dated May 25 2001 and Trow Associates Inc tender documents for the cladding project completed in 2004/2005, the walls are constructed as follows (from the exterior to the interior):

Face sealed stucco:
- 1/2" rock dashed stucco on galvanized wire mesh lath
- sheathing paper
- 5/8" plywood sheathing
- wood stud framing with batt insulation
- interior painted drywall

Rainscreen stucco:
- 1/2" - 3/4" rock dashed stucco over 2" x 2" stucco mesh (self furring, galvanized, welded wire mesh)
- stucco backing board (semi-rigid asphalt board)
- vertical strapping (3/4" x 2 1/2" pressure treated, exterior grade)
- 2 layers of Tyvek sheathing membrane
- plywood wall sheathing (Douglas Fir, exterior grade, pressure treated)
- wood stud framing, with batt insulation
- interior painted drywall

There are sealants at the following main building joints:
- perimeter of windows and doors replaced in 2005 to adjacent wall cladding
- around balcony railing baseplates and anchor points
- wall cap flashings

Repair History:

2001: Building Envelope Review completed by JRS Engineering Ltd (report dated May 25, 2001).

2003: Building Envelope Assessment Second Opinion completed by Trow Consulting Engineers Ltd. (report dated May 2, 2003).

2005: TTW brick wall rebuilt as a result of roof leak into adjacent suites 104/105 by Edenvale at a cost of about $40,000 (Trow Associates Inc. field review report and as reported by Strata Council).

2004: West elevation exterior wall stucco removed and decayed wood framing replaced, cost unknown (Trow Associates Inc. field review report).

2005: Partial replacement of the face sealed stucco with rain-screen stucco system to the rear (north) and side (east) elevations facing the courtyard at a cost of about $600k, including windows, balcony repairs and flashing renewal to the roof (as reported by Charles Rent).

Condition:

2007(Halsall): The TTW brick wall is in good condition since it was rebuilt 3 years ago. Periodic re-pointing and local brick repair will be required from time to time. Given the limited area of brick we assume this work will be completed as needed out of the operating budget.

The remaining areas of original stucco wall are face-sealed, meaning that the outer surface is intended

to be maintained in a watertight condition. As such, the exterior seals need to be diligently maintained. With this wall system, leakage into the wall system can cause degradation of the concealed components such as wood rot or insect infestation without any evidence of a problem on the exterior or interior.

We noted the following conditions at the remaining areas of original stucco:
- past stucco repairs.
- poor water shedding details contributing to staining and possibly water ingress.
- bulging of the stucco on the west elevation above the 1st floor (adjacent the garage entrance ramp).
- caulking is missing around the perimeter of the front (south) elevation windows and balcony doors.
- holes and hairline cracks in the stucco at the elevator machine room wall on the main roof. The holes and open cracks may be contributing to the water ingress into the elevator pit as reported by Charles Rent.
- damaged stucco above the garage door.

Given these conditions and the fact that the last detailed evaluation was completed in 2001 resulted in recladding of some wall areas, we recommend undertaking an evaluation of the building envelope to better establish the condition of the concealed wall components as well as the scope of repair and budgets. This should include a review of sample areas and test openings to identify any deteriorated and/or wet wood framing and sheathing. Pending completion of the evaluation we recommend budgeting for recladding the original stucco wall areas. Original windows and doors should be replaced and balconies that were not re-constructed in 2005 should be repaired in conjunction with this work. Budgets for new windows, doors and balcony repairs are included in their respective sections of the report. Under the direction of the Strata we have deferred replacement of the face sealed stucco areas by implementing local repairs followed by a phased replacement stategy. Although this may be possible, the extent of work, repair costs, and timing of such a repair project cannot be reasonably predicted without conducting the detailed review.

The rainscreen wall areas are designed to be drained, meaning that the outer surface is not intended to be perfectly watertight, but rather that membranes and barriers have been incorporated to drain water, which penetrates through the face, back to the exterior. From grade, we could not see evidence of any obvious, widespread problems with the rain-screen wall system. We understand a warranty has been provided. The Strata will be required to maintain the rainscreen wall areas to ensure the warranty remains valid.

Future repairs and on going maintenance of the building envelope will be required once all the cladding has been replaced with a rainscreen design. Future budgets provided include for:

- replacement of the stucco after its anticipated service life of 30 years.
- wall repairs at the half life of the stucco; including replacing caulking and local repairs.

Note that the timing and budgets associated with the above projects cannot be reasonably predicted without conducting periodic building envelope evaluations.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Wall Condition Evaluation	$12,600	$12,852	2009	10 yrs	recurring	3
Replace Stucco Phase 1 of 3 - Face Sealed Areas (south and west elevations)	$199,563	$207,625	2010	N/A	One time	3
Replace Stucco Phase 2 of 3 - Face Sealed Areas (south and west elevations)	$192,738	$208,626	2012	N/A	One time	3
Replace Stucco Phase 3 of 3 - Face Sealed Areas (south and west elevations)	$192,738	$217,054	2014	N/A	One time	3
Repair Walls (north and east elevations)	$72,536	$91,993	2020	30 yrs	recurring	3
Repair Walls (south and west elevations)	$72,141	$101,015	2025	30 yrs	recurring	3
Replace Rain-screen Stucco - Areas rain-screened in 2005 (north and east)	$545,263	$930,702	2035	30 yrs	recurring	3

Replace Rain-screen Stucco - Areas to be rain-screened in 2010/2014 (south and west elevations)	$538,056	$1,013,988	2040	30 yrs	recurring	3

Windows

Description:

Overall: The original windows have prefinished aluminium frames that are not thermally broken. The newer windows are vinyl framed, manufactured by Allied Windows (R7000 Series).

Glass: All windows have double glazed sealed insulating glass units (IGU) complete with aluminium spacers. Original IGU's are stamped ref. 'ALCAN CMHC 7AA1' and are installed from the exterior.

Weatherstripping: Pile with plastic fin.

Repair History:

Ongoing: Failed IGU's replaced as needed (as reported by Charles Rent).

2005: Approximately 60% of the exterior windows and balcony doors were replaced as part of the cladding renewal project.

Condition:

2007 (Halsall): No significant leakage or operational problems were detected or reported with the newer vinyl windows.

Sealant is either missing or poorly applied around the perimeter of the older style windows. The window operation seemed acceptable. There was slight water damage at the window sills in the 5 suites visited, likely caused by condensation. Two failed IGU units were noted. The weatherstripping is generally degraded. We recommend that the remaining original windows be replaced at the same time as the remaining stucco wall cladding renewal. Budgets for future replacement in conjunction with stucco replacement have also been included.

We assume that once the windows are replaced, a program of general rehabilitation from the interior including weatherstripping, internal joint sealing, and hardware repairs (including suite exterior doors), along with replacement of insulating glass units will be completed as needed as part of ongoing maintenance, therefore no future repair budgets have been included.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Replace Windows Face-sealed Areas (south and west elevations)	$15,876	$17,185	2012	30 yrs	recurring	3
Replace Windows Areas Rain-screened in 2005 (north and east elevations)	$21,168	$36,131	2035	30 yrs	recurring	3

Sloped Glazing/Skylights

Description:

A sloped, single glazing system set in an aluminium frame supported on brick piers extends over the front entrance porch.

Repair History:

2006: Glass replaced to sloped roofing over entrance porch by Edenvale at a cost of about $2000 (as reported by Strata council).

Condition:

2007 (Halsall): No current leaks were reported or significant defects identified. Eventually most sloped glazing systems need a more major overhaul, including removing glass to allow repair to the concealed drainage paths and interior seals. For this reason, general renewal including disassembly has been budgeted for within the report term. Periodic re-sealing between cycles of disassembly are assumed to be carried out as part of ongoing maintenance activities.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Replace Sloped Glazing	$5,250	$6,791	2021	15 yrs	recurring	3

Exterior Doors

Description:

Front entrance door: single swing commercial style door with an aluminum frame and single-glazing. Door locking mechanism linked to intercom system.

Service doors: typically painted steel doors set in steel frames.

Overhead door to parking garage: painted wood. Operating hardware is torsion spring and electric motor, controlled by FOB.

Suite sliding doors (some balconies, terraces and patios): original sliding doors have non-thermally broken aluminium frames and dealed double glazed IGU's. New sliding doors are vinyl framed with sealed double glazed IGU's stamped 'IGMAC vitrum 2005 Langley'. Doors have 2 fixed and 1 sliding sash. Weatherstripping is pile type.

Suite swing doors (some terraces and patios): terraces and some ground floor suites have painted wood doors with sealed double glazed IGU's in wood frames.

Repair History:

2005: Approximately 60% of balcony doors and windows were replaced as part of the cladding renewal (east and north elevations).

Condition:

2007 (Halsall): Doors operated well, where checked. Weatherstripping was locally worn on older doors. The painted suite swing doors are weathered and require repainting; however, some are also nearing the point of requiring replacement. Weatherstripping replacement and adjustment of the doors will be required from time to time. We assume maintenance type work will be completed as needed out of the operating budget.

Budgets for replacement of the suite swing and original sliding doors in conjunction with recladding stucco wall areas has been included. Should the recladding project be deferred some doors may require replacement sooner. Replacement of the front entrance and service doors is assumed to be undertaken as needed, in lieu of all at once, therefore the cost of replacement per door is assumed to be an operating expense.

The painted wood overhead garage door is decayed (wood rot). Local repairs and painting are assumed to be an operating expense. Replacement with an open picket style metal door should be considered as it would assist with the underground garage ventilation and would require less maintenance. Budget for replacement is included in the "Parking Garage" section of this report. The manual key to the automatic overhead door switch has been disabled. Obsolete electrical conduits should be removed.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Replace Original Suite Sliding Doors (some balconies, terraces and patios)	$15,120	$16,366	2012	30 yrs	recurring	3
Replace Original Suite Swing Doors (some balconies, terraces and patios)	$3,780	$3,933	2010	30 yrs	recurring	3
Replace Newer Suite Sliding Doors (some balconies, terraces and patios)	$28,980	$49,466	2035	30 yrs	recurring	3
Replace Newer Suite Swing Doors (some balconies, terraces and patios)	$945	$1,613	2035	30 yrs	recurring	3

Flat Roofing

Description:

There are the following flat roof areas:

- north and south main roof areas, separated by a firewall
- elevator machine room roof
- three small flat roof areas covered with a 2 ply modified bitumen waterproofing membrane (2 on west elevation, 1 on north elevation)

Based on our site review the protected main flat roof membrane assemblies consist of (from top to bottom):

- built up roof with gravel surfacing (5 plies of asphalt and felts as reported by JRS Engineering in 2001)
- plywood sheathing
- fiberglass insulation fill between joists

This was not confirmed by test cuts, but generally agrees with site evaluation. The extent of ventilation for the flat roofing is unknown. The perimeter parapet walls and fire wall are protected with pre-finished metal cap and counter flashings.

Drainage is provided by area drains, complete with ballast guards.

The roof access hatch is above the south stairwell.

Terraces: Some strata units have terraces (similar to a balcony, but located over a living space). The terraces have a painted wood decking covering the roof membrane. The terrace at the north-end corner of the building has a new wood deck and modified bitumen membrane. Other terraces have painted wood decks over a built up roof membrane similar to the main roof.

Terrace guards are similar to the balcony guard construction.

Repair History:

1993: Main roof and elevator machine room roof replaced, cost unknown (reported in documents provided by Property Manager).

2004: Small flat roof area adjacent suites 104/105 replaced following water damage, cost unknown (Trow Associates Inc field report).

2004: New chimney caps fitted to main roof, cost unknown (Trow Associates Inc drawing B-2.06).

2005: Parapet cap flashings on main roof renewed and two small roof areas replaced. Cost unknown (as reported by Mr Charles Rent).

Condition:

2007 (Halsall): No leaks were noted or reported. The following concerns were noted that can be addressed as part of ongoing maintenance activities:

- There is poor gravel coverage at the perimeter upstands, penetrations and around drains, exposing the built up membrane to ultraviolet degradation and acelerated deterioration.
- There is moss growth across approximately 15% of the flat roof areas that should be carefully removed. No significant ponding noted on roof areas and the drains appeared clear and in good working order.
- Caulking around perimeter parapet and at flashing joints is cracked, dry and rigid, requiring replacement.
- Gaps in the exterior envelope at parapet wall junctions and around flashings will require local repair and sealing to mitigate water ingress.

- The metal chimney caps and exaust fan housings are corroded and require re-painting.
- Terrace decking is weathered, periodic repainting and local wood replacement is required.

Replacement of terrace wood decking is assumed to be deferred with these repairs until the underlying membrane is replaced.

The condition of the roofing membranes cannot be fully evaluated without preforming test cuts to better establish the existing condition. Based on the age of the roofing and our visual review, we have included budgets for local repairs followed by replacement of the roofs and terraces.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Repair Flat Roofing and Terraces	$5,880	$5,998	2009	10 yrs	recurring	3
Replace Main and Elevator Flat Roofs	$183,163	$198,262	2012	20 yrs	recurring	3
Replace Small Flat Roofs	$11,878	$15,986	2023	20 yrs	recurring	3
Replace North East Terrace Roof	$15,758	$21,208	2023	20 yrs	recurring	3
Replace Older Terrace Roofs	$21,403	$22,268	2010	20 yrs	recurring	3

Sloped Roofing

Description:

Sloped roofs act as canopies over some balconies and terraces. Drawings indicate the shingles are 3 tab, self sealing, 30 year type installed over No. 15 asphalt underlayment at canopies and ice and water protector membrane over living spaces. The sheathing is plywood. Some roofs drain into pre-finished aluminium gutters and down spouts which discharge on grade. Ventilation of roofs is provided by perforated aluminium soffits. The extent of ventilation at the top of the roof slope, if any, could not be confirmed by visual review.

Fascias on the front elevation are painted wood.

Repair History:

2000: Suite 306 shingle roof replacement, cost unknown (reported in documents provided by Property Manager).

2006: Asphalt shingles installed on sloping roofs, replacing the original cedar shakes as part of the cladding renewal project. Work included new sheathing, underlayment and fascia accessories (Trow Associates Inc. drawings).

Condition:

Halsall (2007): Mr. Charles Rent indicated that there have been no leaks from the sloped roofs since replacement in 2006. The condition of the shingles is consistent with their age. We did not observe excessive granule loss or curling of the shingles. The Suite 205 down spout is discharging rainwater from an upper roof onto a lower sloped roof resulting in algae growth and water staining. The down spout should be extended over the shingle roof slope to disharge water direct into the lower roof gutter.

Budgets are included for replacement of sloped roofs and periodic repair to prolong the life of the roof assemblies. Gutter and down spout replacement has been included in the roof replacement budget.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Repair Sloped Roofing	$6,825	$7,686	2014	10 yrs	recurring	3
Replace Sloped Roofing	$27,136	$41,129	2029	25 yrs	recurring	3

FIRE SAFETY

Detection/Alarm

Description:

There is an Edwards 6500, non-addressable fire alarm control panel in the lobby. The fire alarm and detection system is not remotely monitored.

Heat detectors are installed in the service areas such as the mechanical rooms and the electrical closets, all of which are connected to the fire alarm control panel.

Smoke detectors are installed in the corridors and stairwells. Pull stations are located at exits. The in-suite smoke detectors are not connected to the fire alarm panel and provide local alarms only. The in-suite smoke detectors are maintained by the residents.

Fire alarm speakers are installed in service areas,mechanical and electrical rooms, corridors, common areas, inside the suites and in the garage area. There are also voice communication handsets in the hallways.

Condition:

2007 (Besant): The fire alarm system is maintained by Fairline Fire. Fairline conducts annual inspections of the building fire detection system and replace devices as they fail throughout the year. The last inspection was November 2007.

Since this is electronic equipment a visual review does not reveal very much about its working condition. With older fire alarm control panels it becomes increasingly difficult to find replacement parts and therefore replacement becomes justifiable because parts are hard to find. The Edwards 6500 panel is in common use throughout the lower mainland even though this particular panel is no longer manufactured by Edwards. We have budgeted for eventual replacement of the panel. The budget includes verification and commissioning but does not include replacing all devices or wiring.

The smoke detectors should be replaced every 10 years. Typically this equipment is replaced as it fails as part of maintenance budgets.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Replace Fire Alarm Panel and Some Devices	$24,150	$26,141	2012	20 yrs	recurring	3

Suppression

Description:

The parking garage is fully sprinklered with a dry system. There are no sprinklers in the remainder of the building. There is a siamese connection is at the front of the building on Nelson and the nearest fire hydrant is south of the building within 75 meters of the siamese connection. There is a 100mm (4") diameter water supply into the building. The sprinkler supply is separated from the domestic water supply through a double check valve back flow preventer. The sprinkler system includes a dry valve and a fractional horsepower air compressor used by the dry system. The valves are supervised by the fire alarm control panel.

There are 5 lb ABC dry type extinguishers in a cabinets on each floor.

Condition:

2007 (Besant): The fire suppression system has been inspected annually as required by Building Code and NFPA 13A and 25.

There was a leak in one of the sprinkler lines in the parking garage at the time of our visit. There was no obvious cause of the leak and it had been patched with rubber patch and some screw clamps. We were told however that there had been other problems with the piping distribution in the parking garage. It is highly unusual to have problems with sprinkler piping because there is no flow in the system. The location of the hole was unusual because it wasn't at a joint or weld or in a location where it was obvious the pipe had received some physical damage. We can speculate that the hole was the result of a flaw in the pipe material but without more information it would be hard to determine the cause of the problem. We recommend that in the event of further problems a more thorough investigation into the possible causes should be undertaken.

Major repair or 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. The sprinklers should be replaced after 50 years of operation. A budget for sprinkler head replacement, along with other repairs to the system has been included.

The gaskets on the alarm valves and dry valves should be replaced after 15 years of operation which should be covered under the maintenance contract with the sprinkler service company.

The air compressor should be replaced every 15 years because it is a pressure vessel. This can be done for approximately $2,000; therefore, no budget has been included.

Fire extinguishers have to be inspected and tested regularly. They occasionally require replacement if they fail the pressure test. The cost of replacing the hand held fire extinguishers is assumed to be an operating expense.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Suppression Systems Repair Allowance	$14,490	$18,377	2020	50 yrs	recurring	3

Project Notes:
This does not include for costs to repair the pipe. Further investigation is required to determine the cause of the failures with the sprinkler piping.

Emergency Power
Description: Emergency lighting is provided by wall mounted battery packs and remote heads. These lights are located in the corridors, stairwells, garage and service rooms.
Condition: 2007 (Besant): A random check of the emergency lighting was completed as part of our review and no problems were noted. We recommend all emergency lights 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:

Finishes in the lobby are generally described as follows:

Flooring: ceramic tiles and adhesive carpet tiles
Walls: combination of finished wood, wall paper and mirrored wall
Ceiling: painted dry wall
Other: aluminium wall mounted mailboxes

Condition:

2007 (Halsall): Conditions appear consistent with age. Door closer in lobby area was damaged. Some tiles in the lobby floor are broken.

Minor repairs to lobby finishes are assumed to be funded out of the operating budget. A budget for periodic refurbishment has been included to match existing standards. The timing of lobby refurbishment projects are often based on aesthetics rather than performance, and the cost can vary widely depending on the scope of refurbishment undertaken. We recommend the Strata Council advise whether the timing and budgets are appropriate to suit your needs.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Refurbish Entrance Lobby	$10,500	$11,143	2011	12 yrs	recurring	3

Corridors

Description:

Floors: carpet floors
Walls: wallpaper and paint
Ceilings: painted stipple finished drywall
Lights: wall mounted fixtures
Doors: wood veneered with brass fixtures and door closer in metal frames

Repair History:

2006: 1st Floor carpets replaced, cost unknown (as reported by Strata council).

Condition:

2007 (Halsall): Conditions appear consistent with age. Redecoration of all corridors required as carpets are showing signs of wear. We have budgeted for complete interior redecoration of trim, walls and ceiling in corridors. Periodic touch ups are assumed to be an operating expense. Corridor carpets have been budgeted to be replaced at the same time as the interior redecoration. The timing of corridor redecoration projects are often based on aesthetics rather than performance, and the cost can vary widely depending on the scope of refurbishment undertaken. We recommend the Strata Council advise whether the timing and budgets are appropriate to suit your needs.

Staining of walls and ceilings noted in corridors adjacent fresh air ducts. Periodic cleaning of ducts is assumed to be an operating expense. Consideration could be given to adding better air filters on roof top make-up air units. No budget for this work has been included.

Suite door hardware is assumed to be a unit owners responsibility, therefore no budget for replacement has been included.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Refurbish Corridors - Carpets, Walls, Ceilings, Doors.	$24,837	$25,334	2009	12 yrs	recurring	3

Stairwells/Service Areas

Description:

The parking garage has an electrical, mechanical and boiler room. There are 4 locker storage areas with slatted wood partitions - two in the garage, one on the 3rd floor and a storage area for bicycles off the entrance lobby. An electrical closet and a laundry room are both located off the 2nd floor corridor. There are two stairwells providing access to all four floors and the parking garage. Stairwell and service area finishes are described as follows:

Floors: painted concrete floors in service rooms and carpets in stairwells
Walls: painted drywall in stairwells. Unfinished concrete in service rooms on the garage level
Ceilings: painted stipple finish drywall in stairwells. Unfinished concrete in service rooms on the garage level
Doors: painted and veneered in metal frames in stairwells. Painted steel doors in service rooms.

Condition:

2007 (Halsall) Conditions appear consistant with age.

It should be noted that carpet in stairwells is not normally permitted unless it has a low flame spread rating. We did not confirm whether your carpet meets this criteria.

We assume the stairwells will be refurbished at the same time as the corridors.

Service rooms including the storage locker area are generally unfinished, therefore no allowance for refinishing has been included.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Refurbish Stairwells - Carpets, Walls, Ceilings, Doors.	$18,154	$18,517	2009	10 yrs	recurring	3

SITE

Site Features

Description:

Trees: various decidious and coniferous trees to front and rear of site.
Shrubs: shrubs and bushes in front entrance planters and rear garden area.
Other finishes: lamp posts, timber walkway.

Painted wood decks at ground floor suite patios to the front (south), side (east) and rear (north) elevations. Untreated wood steps providing access into the courtyard area and leading to the rear entrance door. Aggregate finished concrete patios with low-level decorative unitized block walls and step to rear courtyard suites. Unit paver path in courtyard. A masonry site wall is located along the front property line, and encloses the ground floor patio area.

Condition:

2007 (Halsall): Conditions appear consistent with age.

Problem conditions include:

There are trees in close proximity of the front entrance causing cracking and settlement of the front patio brick garden wall. Periodic trimming of the adjacent trees should be allowed for and removal should be considered when they become too big or unmanageble. Quotations have been received for removing the two large Deodara Cedars outside the front elevation entrance and pruning ten young trees adjacent the concrete ramp at a cost of $3500. The cost of this work is below the threshold of this report therefore no budget has been included.

Site features and landscaping are typically managed from the operating budget and then fully replaced at the time of garage roof deck waterproofing (see "Garage Roof Deck"). The allowance included in this section is intended to cover a more major renewal of landscape features than would be accomodated in the operating budget, but not full replacement. We have budgeted for a moderate program of renewal.

The condition of the wood steps are consistant with age but preservative treatment and anti-slip measures are required. Painted wood decks to the front and side elevation patios are assumed to be maintained as needed, with local board replacement and periodic repainting out of the operating budget.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Landscaping Allowance	$13,650	$15,071	2013	10 yrs	recurring	3

Fences

Description:

An unpainted wood post and vertically boarded fence encloses the side (east) elevations along the property line. A brick wall separates suite 102, 103 and 104 patio areas at the front (south) elevation from Nelson Street and is accessed by wood gates.

Pre-finished aluminium security railings are installed around the rear courtyard and garage exit stairwell, and adjacent the parking garage ramp leading to the the rear entrance door.

Repair History:

2008: The wood fence along the east property boundary was removed to facilitate re-waterproofing the garage roof deck to the adjacent property.

Condition:

2007 (Halsall): No corrosion of the security railings was noted. Local repair and replacement of timber fence panels and posts is assumed to managed out of the operating budget and then fully replaced at the time of garage roof deck waterproofing (see "Garage Roof Deck").

HVAC

Central Heating Plant

Description:

There is a single Allied Super Hot 840,000 BTUH input, gas-fired, atmospheric boiler located in the basement mechanical room. The supply water temperate is set at 180°F. The boiler operates with a primary loop and two secondary loops one of which supplies hot water to the perimeter baseboards and the second supplies hot water to a shell tube heat exchanger that heats domestic hot water system.

There is fractional horsepower circulation pump on the primary loop as well two fractional horsepower pumps serving the heating loop and the domestic hot water system. The system also includes an expansion tank.

The boiler make-up water is protected with a back-flow preventer. There was no inspection tag on the back-flow preventer.

Repair History:

1996: Circulation pumps replaced (as reported in documentation provided by Property Mananger).

1999: Expansion tank replaced (as reported in documentation provided by Property Manager).

Condition:

2007 (Besant): With the exception of the circulation pumps, the heating system and boiler appear to be original.

We have not heard back from the mechanical contractors who service this equipment. This kind of boiler requires very little maintenance; however, the seasonal efficiency is probably below 75%. The system should be flushed every 3 years and new chemicals added.

The venting, breaching, chemical pot feeder and associated piping appear to be original. No repair records were available that indicated the equipment had been replaced. There are minor examples of surface corrosion on the piping. The venting and breaching is properly supported, sealed and shows no signs of corrosion.

The domestic hot water heat exchanger appears to be leaking and may be close to failing. Replacement of this unit should be expected sometime before 2012, and possibly much sooner. The heat exchange can be replaced for approximately $4,000 (and maybe less) which is below the threshold of this report, therefore no budget has been included.

Using the boiler to heat the domestic water system is not very efficient. The reason for this is the boilers low efficiency and the fact that the boiler puts out much more heat than is required by the domestic water system. However, in some ways a boiler is better than using gas fired domestic water heaters, which tend to fail after 3 to 5 years of service.

We have budgeted for replacement of the boiler including piping within the mechanical room. When the boiler is replaced consideration should be given to using a mid-efficiency near condensing boiler. A higher efficiency boiler should yield a payback of less than 10 years. In addition, with the proper controls the boiler can be used to heat the domestic hot water system in the same manner that the system currently operates only with much higher efficiency.

At this time, consideration should also be given to improving the efficiency of the boiler by upgrading the controls (to include an outdoor reset feature) and possibly changing the venting to reduce standby losses. One notable feature of this type of boiler is the large diameter vent which losses a lot of heat in the winter time (there are products available that will reduce this problem). These kind of energy retrofits should yield paybacks of less than 3 years. No allowance for upgrades to the system are

included as they are considered discretionary expenses.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Replace Heating Boiler	$54,338	$66,238	2018	25 yrs	recurring	3

Make-up Air Unit(s)

Description:

The make up air system consists of two roof mounted blower type fans. There are no visible nameplates. The fans do not have heaters, therefore they draw in unconditioned outside air.

Repair History:

1996: Replaced fan in one make-up air unit (as reported in documentation provided by Property Manager).

Condition:

2007 (Besant): The roof mounted fans show signs of environmental degradation. In addition, because the fan filters have not been changed regularly, they tend to draw dust into the corridors of the building (see discussion in "Corridors" section of report). As fans do not have heaters the air temperatures are uncomfortable during the winters months.

We have budgeted for replacement of the fans. When the fans are replaced consideration should be given to upgrading the system to include a duct heater and a filter. These would greatly improve the comfort and cleanliness of the building. With these types of improvements available you may want to consider replacement sooner than budgeted. Our budgets however reflect a direct replacement of the fans as upgrades are considered a discretionary expense.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Replace Make-up Air Unit(s)	$6,038	$7,074	2016	20 yrs	recurring	3

Exhaust System

Description:

The garage exhaust system consists of a single belt drive exhaust fan mounted in the ceiling at the northeast corner of the garage. It runs continuously.

Condition:

2007 (Besant): The exhaust fan was functional during out site visit. There were no obvious bearing or alignment or wear problems with the motor or the belt. We have budgeted for the eventual replacement of the exhaust fan.

We recommend that a carbon monoxide (CO) detection system be installed in the garage. This will control the fans operation, reduce the wear on the fan, and reduce energy costs. This kind of system will usually pay for itself within 5 years. No allowance for this upgrade has been included as it is a discretionary expense.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Replace garage exhaust fan	$6,038	$7,360	2018	25 yrs	recurring	3

HVAC Distribution Piping and Valves

Description:

The main pipe runs of the heating distribution piping appears to be schedule 40 black steel piping with threaded connections and copper (type "L") with soldered connections. The actual convector baseboards have copper tubing with electronic solenoid valves.

Condition:

2007 (Besant): No leaks from the baseboard heating system were noted or reported.

The hot water distribution piping should remain in service for the life of the building provided the water quality is maintained in the boiler and the distribution piping. As discussed in the "Central Heating Plant" section of this report, the system should be flushed every 3 years and new chemical added. If the water quality is not maintained the piping can deteriorate very quickly. What was visible of the piping was properly supported, free of physical damage and in good condition. Much of the piping around the boiler appears to have been replaced when the domestic hot water storage tanks were replaced.

No budgets for replacement are included. We assume valve replacement and local repairs will be completed as needed out of the operating budget. If the system is not maintained and problems begin to develop we recommend including a budget for replacement in future reserve fund study updates.

PLUMBING

Hot Water Storage Tanks/ Heaters

Description:

There are two AO Smith 120 gal (US) storage tanks in the basement mechanical room. These are heated through a shell and tube heat exchanger which is connected to the main heating boiler (discussed in "Central Heating Plant").

Repair History:

1998: Replaced hot water storage tanks, cost unknown (as reported by documentation provided by Property Manager).

Condition:

2007 (Besant): The tanks appeared to be in good condition.

This kind of domestic water system tends to be very robust. The glass lined tanks will eventually fail because cracks form in the lining which ultimately lead to corrosion of the metal enclosure causing the tank to fail. We have budgeted for the replacement of the tanks.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Replace Domestic Hot Water Storage Tank(s)	$6,038	$7,360	2018	25 yrs	recurring	3

Domestic Water Piping, Valves and Pumps

Description:

Domestic water enters the building in the garage level utility room. The supply pressure was noted to be 72 psi, which is adequate for a building of this size. The supply line is a 100mm (4") galvanized steel pipe which supplies both the sprinkler system and the domestic water system. After the backflow preventer for the sprinkler system the domestic water line reduces to 50mm (2"). The piping was not insulated where visible in the parking garage.

Distribution piping in the boiler room was type "L" copper. Shut-off valves for the plumbing risers are located in the corridor ceiling space of the first floor. There was a fractional horsepower recirculation pump on the domestic hot water system which runs continuously.

Repair History:

Dates Unknown: Periodic leak repairs, extent and frequency not provided (as reported by Charles Rent).

The following plumbing repairs were reported in the documentation provided by the Property Manager:
- 1996: Retro fitted first floor piping, including replacing hot and cold distribution lines, recirculation lines, and shut-off valves with 14 ceiling access panels in the corridor (work completed by X-pert Mechanical).
- 1997: Replaced 04/05 suite riser.
- 2000: Replaced 07/08 suite riser.

Condition:

2007 (Besant): We understand there have been some pin hole leaks in the domestic water system, as reported by Charles Rent. We understand the frequency of the leaks has been 2 to 3 occurrences per year.

The lower mainland has the reputation of having some of the worst problems with domestic water systems in North America. With domestic water piping systems in the lower mainland, due primarily to the softness of our water, the mode of failure is typically a pitting type corrosion that accelerated in the presence of heat (therefore, higher water temperatures cause the piping to fail sooner).

Domestic hot water piping systems, such as those used in this building, have a median service life of 20 years with a variance of five years. We have budgeted for the replacement of the complete system in the near future. The work is scheduled in two phases, due to the history of problems, past repairs, the age of the building and because of the timing of the upgrades already undertaken. We recommend having a mechanical specialist conduct a detailed review of your plumbing system in order to confirm the replacement timing and budget. Alternatives to piping replacement may be possible such as epoxy lining of the existing pipes; however, these options cannot be evaluated without further review.

When the domestic water system is upgraded, consideration should be given to upgrading the shower valves to pressure balancing valves. These will improve the domestic hot water supply to the suites.

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, without the temperature too low as to cause Legionaires Disease, and to only run the recirculation pumps when absolutely necessary by using an aquastat. Consideration should also be given to installing a water treatment system to better control the pH of the water and the water quality. No allowance for these upgrades have been included.

In addition, galvanized water lines are prone to a type of corrosion that restricts the flow of water into the building. This can't be detected through a visual review but usually shows up as pressure problems in the building. There were no reports of these kinds of problems, but we are recommending that the eventual replacement of the domestic water service entrance be included in the budget since galvanized domestic water lines will corrode over time.

When the water service entrance is upgraded, consideration should be given to increasing the size of the domestic water supply line to the building as well as upgrading the backflow preventer on the sprinkler piping. The existing backflow preventer is not testable and therefore we cannot be sure that it will protect the building occupants from cross contamination from water in the sprinkler system. Increasing the size of the domestic water supply line (from 2 inches to 3 inches) will ensure that there are adequate quantities of domestic hot and cold water for building occupants. We have included budgets for the upgrade of the water service entrance and upgrades to the domestic water supply piping (note: a new PRV station will be required if the building upgrades the water service entrance).

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Upgrade water service entrance and water line	$50,715	$58,256	2015	25 yrs	recurring	4
Replace domestic water piping system Part 1 of 2	$108,675	$117,633	2012	25 yrs	recurring	3
Replace domestic water piping system Part 2 of 2	$108,675	$127,330	2016	25 yrs	recurring	3

Sump Pumps

Description:

There are two sump pumps mounted in a sump pit in the basement of the building. The pumps were not visible for our review.

Repair History:

2008: Sump pumps replaced, cost about $3000 (as reported by Charles Rent).

1999: Replaced check valves (as reported in documentation provided by Property Manager).

Condition:

2007 (Besant): The sump pumps have on occasion failed causing flooding in the basement, as reported by Charles Rent.

The sump pumps at present do not have a packaged controller. The existing float controllers appear to be in not very good condition and may cause problems in the future. Even though the system is functional, we recommend upgrading the control system to a packaged control panel with properly supported wiring and float system alone with a functioning alarm system that provides notification in a central area of the building in the even to problems. This is a discretionary expense, but upgrading the control system will improve the reliability of this system. This work, estimated at $10000 to $15000, has not been included in the plan.

Sump pumps are maintenance intensive and critical to the safe operation of the building. We recommend that the sump pumps be inspected and tested annually 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 the sump pumps is a function of the site conditions, but it is generally around 10 years. We have budgeted for the replacement of the sump pumps. The timing of this project should be confirmed by your service contractor during the next pump service.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Replace Sump Pumps	$7,314	$8,916	2018	10 yrs	recurring	3

Drainage Piping/Drains

Description:

The drainage system consists of cast iron piping with mechanical joints, where visible.

Condition:

2007 (Besant): No drainage problems were noted or reported. There are areas in the basement where drain pans have been installed under the drainage piping to prevent condensation from damaging the paint on the parked cars.

The drainage systems have a median service life in excess of 45 years and often remain in service for the life of the building. However, due to the fact that portions of the drainage system are buried underground, beneath concrete floor slabs and inside of wall cavities, they can be very expensive to repair. We have therfore provided an allowance in our budgets for the replacement of portions of the drainage system. Periodic cleaning / flushing of the drain lines, about every 1 to 3 years, is assumed to be an operating expense.

Some drain lines visible in garage are locally corroded (rust staining). Cleaning and painting the exposed drain lines could be considered to improve aesthetics and to mitigate ongoing corrosion. We assume this work would be completed out of the operating budget as the cost of the work is not expected to exceed the threshold of this report.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Replace Drainage Piping/Drains	$12,075	$16,908	2025	45 yrs	recurring	3

Project Notes:
Pricing based on recent water connection work done by the City of Vancouver for similar building. The project involved installing a new underground water connection.

ELECTRICAL

Electric Supply and Distribution

Description:

Power is fed underground from BC Hydro to a 600 Volt, 200 Amp Federal Pioneer fused disconnect located in the garage level electrical room. The disconnect feeds a 150 kVA dry type transformer which steps the voltage down to 120/208 Volts.

The main switchboard feeds the suite risers and house equipment. There is a bulk meter for the house loads and individual meters for all of the suites. The individual meters and a house distribution panel are located in the first floor electrical closet.

Wiring was observed to be copper, where inspected. There was no electrical single line diagram on display in any of the electrical rooms.

Condition:

2007 (Besant): The electrical equipment is clean, properly labelled and well maintained. None of the breakers felt warm to the touch. All of the major components were labelled.

In general, most of the electrical equipment should remain in service for the life of the building. 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 perform when it is needed. Maintenance should include cleaning and testing of the main components of the electrical distribution systems. We also recommend that infrared scans be undertaken every 3 years to ensure that electrical terminations are properly secured. The cost of maintenance and infrared scans is assumed to be an operating expense.

We have provided an allowance for the eventual replacement of the tranformer and some portions of the main electrical distribution equipment such as disconnects and distribution panels.

At the time of our site review the electrical rooom was being used for storage which is not allowed by the Canadian Electrical Code. The stored materials should be removed for safety reasons.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Replace Transformer	$12,075	$15,314	2020	40 yrs	recurring	3
Electrical Distribution System Repair Allowance	$48,300	$67,632	2025	45 yrs	recurring	3

Lighting

Description:

The lighting systems include:

Corridors (interior and exterior): Compact fluorescent wall sconce light fixtures (10 on each level), compact fluorescent EXIT lights on each level (6 on each level plus 4 in parking garage).

Garage: Surface 1 lamp, T12, 4ft fixtures in the parking bays (18 in total).

Service rooms: 1 lamp x 4ft T12 fluorescent fixtures.

Stairs: Compact fluorescent surface mounted fixtures on each landing.

Exterior: Surface mounted weatherproof compact fluorescent fixtures.

Condition:

2007 (Besant): No lighting concerns were noted or reported.

Corridor lighting replacement typically occurs as part of group relamping projects for aesthetic reasons. The cost of this project is not expected to exceed the threshold of this report, therefore no budget has been included. Other fixtures generally get repaired and replaced as they fail, as needed as part of ongoing maintenance.

Upgrading to energy efficient fixtures in the garage should be considered as there would be a payback in energy savings. No allowance to upgrade the lighting has been included as this is considered a discretionary expense. We did not measure light levels in the basement parking garage, however they appear to be low. Consideration should be given to installing additional fixtures in increase the light levels.

The exit lights can be upgraded to LED style fixtures immediately and this kind of retrofit will yield a very short payback (typically less than 18 months). The fixtures can be replaced for less than $100 each.

CONVEYANCE

Elevators

Description:

The building has a hydraulic elevator supplied by Richmond Elevator. It is maintained by West Coast Elevator. The elevator has an in-ground cylinder and solid state controls. The door system has a mechanical door edge.

The elevator cab finishes include ceramic floor tiles, laminate wall panels and a opaque acrylic panel ceiling.

Condition:

2007 (Besant): Conditions and quality of operation appeared consistent with age. The service contractor, West Coast Elevator Services Ltd advised in a letter dated Dec 1, 2007 addressed to the Strata that there is water in the elevator pit which requires investigation and specialist advise should be sought. A review of the elevator pit is beyond the scope of our evaluation. At this time we have not included an allowance for investigation or repair of the water ingress concern as we anticipate the problem will have been addressed prior to implementation of this report.

We discussed the condition of the elevator with the service contractor and found that the system has run reliably for years. They reported that there have been no oil leaks or problems with the controls during 2006 and 2007. No history prior to 2006 was provided.

This is a relatively simple elevator system that has a median service life of 35 years. We have budgeted for a modernization of the elevator after its anticipated service life. The modernization would include new hydraulic motor, controller, as well as cab and hallway controls. The timing of this work will depend on the elevators performance and your operating objectives.

We do not know if the cylinder is PVC lined. If not, cylinder replacement should be anticipated, but the timing is completely unpredictable. The oil pressure should be monitored, as a drop in pressure indicating oil loss is the only warning of impending failure. We have not allowed replacement budgets, given the unpredictable nature of this work, if even needed in this particular installation. Cylinder replacement typically ranges in cost from $25,000 to $50,000 per cylinder, but depends on the extent of soil contamination, if any.

Condition of the finishes appear consistent with age. Minimal wear and tear was observed. Budgets can vary widely depending on desired design. We have budgeted for renewal assuming moderate finishes to coincide with elevator modernization.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Refurbish Elevator Cabs	$13,650	$15,680	2015	35 yrs	recurring	3
Elevator System Modernization	$60,375	$69,352	2015	35 yrs	recurring	3

MISCELLANEOUS

Waste Disposal/Collection

Description:

There is a single garbage bin and various recycling bins at the northwest corner of the property. The garage pick up is twice a week and the recycling pick up is weekly.

Condition:

2007 (Halsall): The garbage and recycling bins are assumed to be maintained and replaced as needed out of the operating budget.

Intercom System

Description:

There is a keypad at the front entrance that dials 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.

Repair History:

2005: Replaced intercom system, cost unknown (as reported by Charles Rent).

Condition:

2207 (Besant): The intercom system was noted to be in good condition and free of signs of physical damage.

The median service life of the access control system is about 15 years with a variance of 5 years. The large variance is because the control cards are semi-conductor based devices and can fail at anytime for a variety of reasons. We have budgeted for eventual replacement of the intercom system.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Replace Intercom System	$18,112	$22,970	2020	15 yrs	recurring	3

Contingencies

Description:

Expenditures not anticipated but which should be paid from the Reserve Fund.

Condition:

2007 (Halsall): The plan includes a contingency allowance to cover unexpected repairs/replacements that are not specifically itemized, but which would qualify to be covered by the fund.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Contingency Allowance	$3,300	$3,572	2012	5 yrs	recurring	3

Consulting Services

Description:

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

Condition:

2007 (Halsall): We recommend budgeting for periodic Contingency Reserve Fund Study updates.

Project Name	Present Cost	Inflated Cost	First Occurrence	Cycle	# Occurrences	Class.
Reserve Fund Study with Site Visit	$7,350	$8,115	2013	5 yrs	recurring	3

Scenario 1 – Inflation-Matched Scenario

Assumptions:

Opening Balance of the Reserve Fund:	$115,000	Assumed Annual Inflation Rate:	2%
Current Annual Contribution:	$228,874	Assumed Annual Interest Rate:	4%
Current Operating Budget:	$92,000	First Critical Year:	2012
Minimum Reserve Fund Balance:	$100,000	Second Critical Year:	2018

Results:

Year	Opening Balance	Recommended Annual Contributions	Estimated Inflation Adjusted Expenditure	Estimated Interest Earned	Percentage Increase In Recommended Annual Contribution	Increase In Recommended Annual Contribution	Closing Balance
2009	$115,000	$228,874	$71,804	$7,741	4597.7	$224,002	$279,811
2010	$279,811	$233,451	$233,826	$11,185	2	$4,577	$290,621
2011	$290,621	$238,120	$11,143	$16,164	2	$4,669	$533,763
2012	$533,763	$242,883	$680,987	$12,588	2	$4,762	$108,247
2013	$108,247	$180,214	$41,271	$7,109	-25.8	-$62,669	$254,298
2014	$254,298	$183,818	$297,798	$7,892	2	$3,604	$148,211
2015	$148,211	$187,494	$143,287	$6,813	2	$3,676	$199,230
2016	$199,230	$191,244	$144,862	$8,897	2	$3,750	$254,509
2017	$254,509	$195,069	$3,944	$14,003	2	$3,825	$459,637
2018	$459,637	$198,970	$548,111	$11,403	2	$3,901	$121,899
2019	$121,899	$159,546	$45,550	$7,156	-19.8	-$39,424	$243,052
2020	$243,052	$162,737	$286,217	$7,252	2	$3,191	$126,824
2021	$126,824	$136,040	$38,921	$7,015	-16.4	-$26,697	$230,959
2022	$230,959	$138,761	$14,052	$11,733	2	$2,721	$367,400
2023	$367,400	$141,536	$113,646	$15,254	2	$2,775	$410,543
2024	$410,543	$144,367	$9,369	$19,122	2	$2,831	$564,663
2025	$564,663	$147,254	$185,554	$21,820	2	$2,887	$548,183
2026	$548,183	$150,199	$0	$24,931	2	$2,945	$723,313
2027	$723,313	$153,203	$86,205	$30,272	2	$3,004	$820,584
2028	$820,584	$156,267	$21,790	$35,513	2	$3,064	$990,574
2029	$990,574	$159,392	$176,933	$39,272	2	$3,125	$1,012,305
2030	$1,012,305	$162,580	$46,886	$42,806	2	$3,188	$1,170,805
2031	$1,170,805	$165,832	$0	$50,149	2	$3,252	$1,386,786
2032	$1,386,786	$169,148	$364,935	$51,556	2	$3,317	$1,242,555
2033	$1,242,555	$172,531	$102,074	$51,111	2	$3,383	$1,364,124
2034	$1,364,124	$175,982	$11,421	$57,856	2	$3,451	$1,586,541
2035	$1,586,541	$179,502	$1,251,890	$42,014	2	$3,520	$556,167
2036	$556,167	$183,092	$19,653	$25,515	2	$3,590	$745,121
2037	$745,121	$186,754	$214,700	$29,246	2	$3,662	$746,420
2038	$746,420	$190,489	$26,562	$33,135	2	$3,735	$943,482

Description:
This scenario shows a one-time increase with subsequent annual increases matching inflation.

Scenario 2 - Funding via Special Levies (Annual contribution starts at 10% of operating budget)

Assumptions:

Opening Balance of the Reserve Fund:	$ 115,000	Assumed Annual Inflation Rate:	2%
Current Annual Contribution:	$ 4,872	Assumed Annual Interest Rate:	4%
Current Operating Budget:	$ 92,000		
Minimum Reserve Fund Balance:	$ 100,000		

Results:

Year	Opening Balance	Annual Contributions	Special Levy Contributions	Estimated Inflation Adjusted Expenditures	Estimated Interest Earned	Percentage Increase in Annual Contribution	Increase in Annual Contribution	Closing Balance
2009	$ 115,000	$ 9,200	$ 44,256	$ 71,804	$ 3,348	47%	$ 4,328	$ 100,000
2010	$ 100,000	$ 9,384	$ 226,442	$ 233,826	$ -	2%	$ 184	$ 102,000
2011	$ 102,000	$ 9,572	$ -	$ 11,143	$ 4,049	2%	$ 188	$ 104,477
2012	$ 104,477	$ 9,763	$ 672,867	$ 680,987	$ -	2%	$ 191	$ 106,121
2013	$ 106,121	$ 9,958	$ 29,816	$ 41,271	$ 3,619	2%	$ 195	$ 108,243
2014	$ 108,243	$ 10,158	$ 289,805	$ 297,798	$ -	2%	$ 199	$ 110,408
2015	$ 110,408	$ 10,361	$ 133,377	$ 143,287	$ 1,758	2%	$ 203	$ 112,616
2016	$ 112,616	$ 10,568	$ 134,728	$ 144,862	$ 1,819	2%	$ 207	$ 114,869
2017	$ 114,869	$ 10,779	$ -	$ 3,944	$ 4,731	2%	$ 211	$ 126,435
2018	$ 126,435	$ 10,995	$ 530,190	$ 548,111	$ -	2%	$ 216	$ 119,509
2019	$ 119,509	$ 11,215	$ 32,632	$ 45,550	$ 4,094	2%	$ 220	$ 121,899
2020	$ 121,899	$ 11,439	$ 277,216	$ 286,217	$ -	2%	$ 224	$ 124,337
2021	$ 124,337	$ 11,668	$ 25,311	$ 38,921	$ 4,428	2%	$ 229	$ 126,824
2022	$ 126,824	$ 11,901	$ -	$ 14,052	$ 5,030	2%	$ 233	$ 129,703
2023	$ 129,703	$ 12,139	$ 100,593	$ 113,646	$ 3,158	2%	$ 238	$ 131,948
2024	$ 131,948	$ 12,382	$ -	$ 9,369	$ 5,338	2%	$ 243	$ 140,299
2025	$ 140,299	$ 12,630	$ 167,750	$ 185,554	$ 2,153	2%	$ 248	$ 137,279
2026	$ 137,279	$ 12,882	$ -	$ -	$ 5,749	2%	$ 253	$ 155,910
2027	$ 155,910	$ 13,140	$ 55,205	$ 86,205	$ 4,775	2%	$ 258	$ 142,825
2028	$ 142,825	$ 13,403	$ 5,699	$ 21,790	$ 5,545	2%	$ 263	$ 145,681
2029	$ 145,681	$ 13,671	$ 163,614	$ 176,933	$ 2,562	2%	$ 268	$ 148,595
2030	$ 148,595	$ 13,944	$ 30,629	$ 46,886	$ 5,285	2%	$ 273	$ 151,567
2031	$ 151,567	$ 14,223	$ -	$ -	$ 6,347	2%	$ 279	$ 172,137
2032	$ 172,137	$ 14,507	$ 335,981	$ 364,935	$ -	2%	$ 284	$ 157,690
2033	$ 157,690	$ 14,798	$ 85,868	$ 102,074	$ 4,562	2%	$ 290	$ 160,844
2034	$ 160,844	$ 15,094	$ -	$ 11,421	$ 6,507	2%	$ 296	$ 171,024
2035	$ 171,024	$ 15,395	$ 1,232,813	$ 1,251,890	$ -	2%	$ 302	$ 167,342
2036	$ 167,342	$ 15,703	$ 682	$ 19,653	$ 6,615	2%	$ 308	$ 170,689
2037	$ 170,689	$ 16,017	$ 199,242	$ 214,700	$ 2,854	2%	$ 314	$ 174,102
2038	$ 174,102	$ 16,338	$ 6,947	$ 26,562	$ 6,760	2%	$ 320	$ 177,584

Description:

Annual contributions to the reserve are increased at a rate of inflation. The first year contribution has been set at about 10% of the operating budget. Special levies are identified where required to ensure the year end balance is maintained at, or above, the minimum reserve fund balance which as been increased annually at a rate of inflation. 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 the current act.

Scenario 3 - Funding via Special Levies (Annual contribution starts at 50% of operating budget)

Assumptions:

Opening Balance of the Reserve Fund:	$ 115,000	Assumed Annual Inflation Rate:	2%
Current Annual Contribution:	$ 4,872	Assumed Annual Interest Rate:	4%
Current Operating Budget:	$ 92,000		
Minimum Reserve Fund Balance:	$ 100,000		

Results:

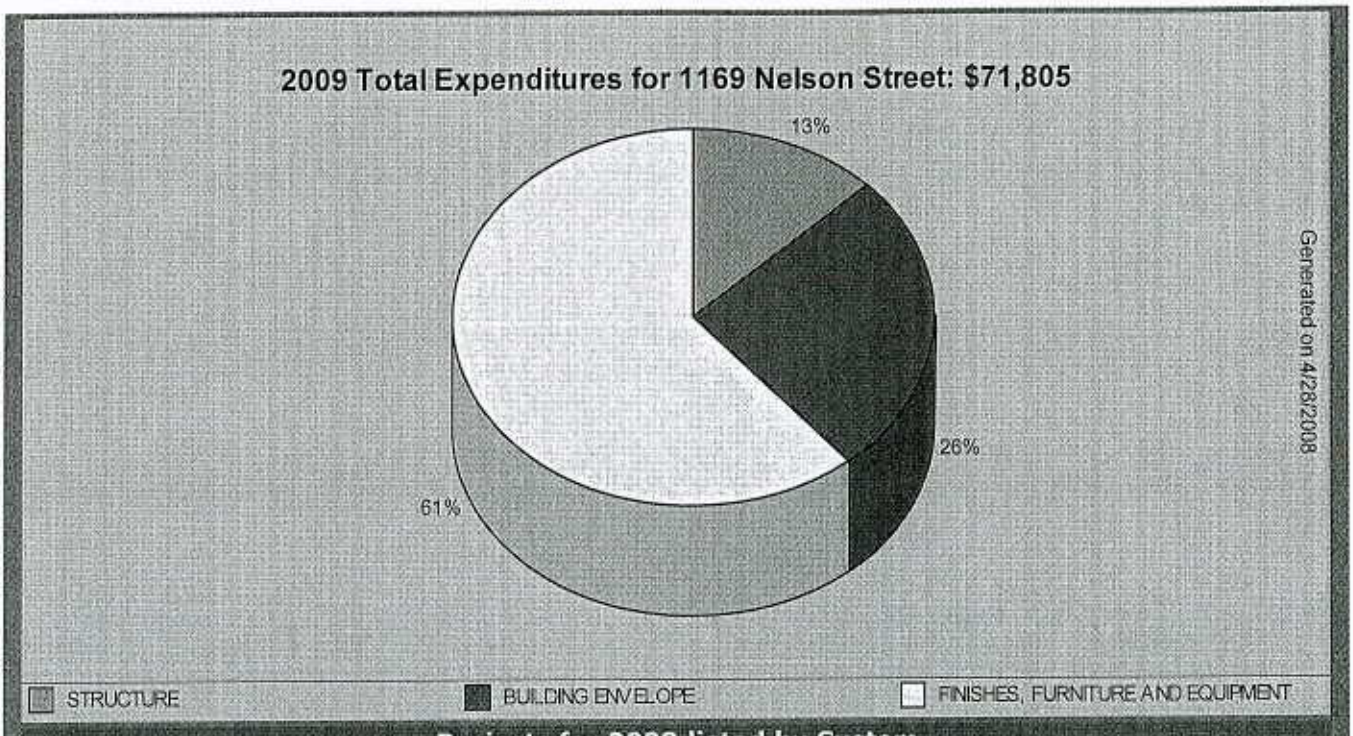
Year	Opening Balance	Annual Contributions	Special Levy Contributions	Estimated Inflation Adjusted Expenditures	Estimated Interest Earned	Percentage Increase in Annual Contribution	Increase in Annual Contribution	Closing Balance
2009	$ 115,000	$ 46,000	$ 6,720	$ 71,804	$ 4,084	89%	$ 41,128	$ 100,000
2010	$ 100,000	$ 46,920	$ 188,644	$ 233,826	$ 262	2%	$ 920	$ 102,000
2011	$ 102,000	$ 47,858	$ -	$ 11,143	$ 4,814	2%	$ 938	$ 143,530
2012	$ 143,530	$ 48,816	$ 594,763	$ 680,987	$ -	2%	$ 957	$ 106,121
2013	$ 106,121	$ 49,792	$ -	$ 41,271	$ 4,415	2%	$ 976	$ 119,057
2014	$ 119,057	$ 50,788	$ 238,361	$ 297,798	$ -	2%	$ 996	$ 110,408
2015	$ 110,408	$ 51,803	$ 91,105	$ 143,287	$ 2,587	2%	$ 1,016	$ 112,616
2016	$ 112,616	$ 52,840	$ 91,611	$ 144,862	$ 2,664	2%	$ 1,036	$ 114,869
2017	$ 114,869	$ 53,896	$ -	$ 3,944	$ 5,594	2%	$ 1,057	$ 170,415
2018	$ 170,415	$ 54,974	$ 442,231	$ 548,111	$ -	2%	$ 1,078	$ 119,509
2019	$ 119,509	$ 56,074	$ -	$ 45,550	$ 4,991	2%	$ 1,099	$ 135,024
2020	$ 135,024	$ 57,195	$ 217,515	$ 286,217	$ 821	2%	$ 1,121	$ 124,337
2021	$ 124,337	$ 58,339	$ -	$ 38,921	$ 5,362	2%	$ 1,144	$ 149,117
2022	$ 149,117	$ 59,506	$ -	$ 14,052	$ 6,874	2%	$ 1,167	$ 201,445
2023	$ 201,445	$ 60,696	$ -	$ 113,646	$ 6,999	2%	$ 1,190	$ 155,494
2024	$ 155,494	$ 61,910	$ -	$ 9,369	$ 7,271	2%	$ 1,214	$ 215,305
2025	$ 215,305	$ 63,148	$ 38,215	$ 185,554	$ 6,164	2%	$ 1,238	$ 137,279
2026	$ 137,279	$ 64,411	$ -	$ -	$ 6,779	2%	$ 1,263	$ 208,469
2027	$ 208,469	$ 65,699	$ -	$ 86,205	$ 7,929	2%	$ 1,288	$ 195,892
2028	$ 195,892	$ 67,013	$ -	$ 21,790	$ 8,740	2%	$ 1,314	$ 249,855
2029	$ 249,855	$ 68,354	$ -	$ 176,933	$ 7,823	2%	$ 1,340	$ 149,099
2030	$ 149,099	$ 69,721	$ -	$ 46,886	$ 6,421	2%	$ 1,367	$ 178,354
2031	$ 178,354	$ 71,115	$ -	$ -	$ 8,556	2%	$ 1,394	$ 258,026
2032	$ 258,026	$ 72,537	$ 187,589	$ 364,935	$ 4,473	2%	$ 1,422	$ 157,690
2033	$ 157,690	$ 73,988	$ 25,494	$ 102,074	$ 5,746	2%	$ 1,451	$ 160,844
2034	$ 160,844	$ 75,468	$ -	$ 11,421	$ 7,715	2%	$ 1,480	$ 232,605
2035	$ 232,605	$ 76,977	$ 1,109,649	$ 1,251,890	$ -	2%	$ 1,509	$ 167,342
2036	$ 167,342	$ 78,517	$ -	$ 19,653	$ 7,871	2%	$ 1,540	$ 234,077
2037	$ 234,077	$ 80,087	$ 67,968	$ 214,700	$ 6,671	2%	$ 1,570	$ 174,102
2038	$ 174,102	$ 81,689	$ -	$ 26,562	$ 8,067	2%	$ 1,602	$ 237,296

Description:

Annual contributions to the reserve are increased at a rate of inflation. The first year contribution has been set at about 50% of the operating budget. Special levies are identified where required to ensure the year end balance is maintained at, or above, the minimum reserve fund balance which as been increased annually at a rate of inflation. 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 the current act.

The Greenhorn, 1169 Nelson Street-, Vancouver-BC, Canada							Projected Expenditures														
Item	Description	Class	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	$8,925	2009	7		$9,104							$10,457							$12,012
1.2	Replace Balcony Membranes and Local Repairs - Front Elevation (south) - Part 1 of 2	3	$55,874	2012	15					$60,480											
1.3	Replace Balcony Guards Front Elevation (south) - Part 1 of 2	3	$13,956	2012	45	1				$15,106											
1.4	Replace Balcony Membranes and Local Repairs - Front Elevation (south) - Part 2 of 2	3	$52,966	2014	15							$59,648									
1.5	Replace Balcony Guards Front Elevation (south) - Part 2 of 2	3	$11,907	2014	45	1						$13,409									
1.6	Replace Balcony Membranes and Local Repairs Side and Rear Elevation (east and north)	3	$108,467	2020	15													$137,562			
1.7	Replace Balcony Guards Side and Rear Elevations (east and north)	3	$28,728	2050	45																
1.8	Parking Garage Condition Evaluation	3	$7,350	2012	10					$7,956										$9,698	
1.9	Repair Garage Roof Deck Waterproofing	3	$16,380	2013	10						$18,085										$22,045
1.10	Replace Garage Roof Deck Waterproofing	3	$315,329	2018	40											$384,384					
1.11	Replace Overhead Garage Entrance Door	3	$8,925	2012	20					$9,661											
1.12	Garage Ramp Rewaterproofing	3	$53,235	2018	40											$64,893					
2	**BUILDING ENVELOPE**																				
2.1	Wall Condition Evaluation	3	$12,600	2009	10		$12,852										$15,667				
2.2	Replace Stucco Phase 1 of 3 - Face Sealed Areas (south and west elevations)	3	$199,563	2010	99	1		$207,625													
2.3	Replace Stucco Phase 2 of 3 - Face Sealed Areas (south and west elevations)	3	$192,738	2012	99	1				$208,626											
2.4	Replace Stucco Phase 3 of 3 - Face Sealed Areas (south and west elevations)	3	$192,738	2014	99	1						$217,054									
2.5	Repair Walls (north and east elevations)	3	$72,536	2020	30													$91,993			
2.6	Repair Walls (south and west elevations)	3	$72,141	2025	30																
2.7	Replace Rain-screen Stucco - Areas rain-screened in 2005 (north and east)	3	$545,263	2035	30																
2.8	Replace Rain-screen Stucco - Areas to be rain-screened in 2010/2014 (south and west elevations)	3	$538,056	2040	30																
2.9	Replace Windows Face-sealed Areas (south and west elevations)	3	$15,876	2012	30					$17,185											
2.10	Replace Windows Areas Rain-screened in 2005 (north and east elevations)	3	$21,168	2035	30																
2.11	Replace Sloped Glazing	3	$5,250	2021	15														$6,791		
2.12	Replace Original Suite Sliding Doors (some balconies, terraces and patios)	3	$15,120	2012	30					$16,366											
2.13	Replace Original Suite Swing Doors (some balconies, terraces and patios)	3	$3,780	2010	30			$3,933													
2.14	Replace Newer Suite Sliding Doors (some balconies, terraces and patios)	3	$28,980	2035	30																
2.15	Replace Newer Suite Swing Doors (some balconies, terraces and patios)	3	$945	2035	30																
2.16	Repair Flat Roofing and Terraces	3	$5,880	2009	10		$5,998										$7,311				
2.17	Replace Main and Elevator Flat Roofs	3	$183,163	2012	20					$198,262											
2.18	Replace Small Flat Roofs	3	$11,878	2023	20																$15,986
2.19	Replace North East Terrace Roof	3	$15,758	2023	20																$21,208
2.20	Replace Older Terrace Roofs	3	$21,403	2010	20			$22,268													
2.21	Repair Sloped Roofing	3	$6,825	2014	10							$7,686									
2.22	Replace Sloped Roofing	3	$27,136	2029	25																
3	**FIRE SAFETY**																				
3.1	Replace Fire Alarm Panel and Some Devices	3	$24,150	2012	20					$26,141											
3.2	Suppression Systems Repair Allowance	3	$14,490	2020	50													$18,377			
4	**FINISHES, FURNITURE AND EQUIPMENT**																				
4.1	Refurbish Entrance Lobby	3	$10,500	2011	12				$11,143												$14,132

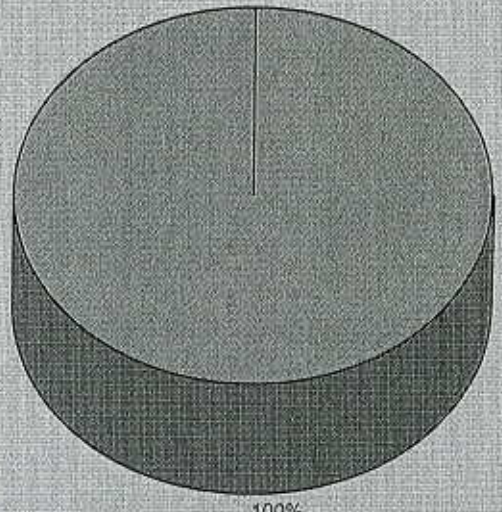
The Greenhorn, 1169 Nelson Street-, Vancouver-BC, Canada							Projected Expenditures													
Item	Description	Class	Present Cost	First Occur.	Cycle	No. Occurr.	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
4	**FINISHES, FURNITURE AND EQUIPMENT**																				
4.2	Refurbish Corridors - Carpets, Walls, Ceilings, Doors.	3	$24,837	2009	12		$25,334												$32,129		
4.3	Refurbish Stairwells - Carpets, Walls, Ceilings, Doors.	3	$18,154	2009	10		$18,517										$22,572				
5	**SITE**																				
5.1	Landscaping Allowance	3	$13,650	2013	10						$15,071										$18,371
6	**HVAC**																				
6.1	Replace Heating Boiler	3	$54,338	2018	25											$66,238					
6.2	Replace Make-up Air Unit(s)	3	$6,038	2016	20									$7,074							
6.3	Replace garage exhaust fan	3	$6,038	2018	25											$7,360					
7	**PLUMBING**																				
7.1	Replace Domestic Hot Water Storage Tank(s)	3	$6,038	2018	25											$7,360					
7.2	Upgrade water service entrance and water line	4	$50,715	2015	25								$58,256								
7.3	Replace domestic water piping system Part 1 of 2	3	$108,675	2012	25					$117,633											
7.4	Replace domestic water piping system Part 2 of 2	3	$108,675	2016	25									$127,330							
7.5	Replace Sump Pumps	3	$7,314	2018	10											$8,916					
7.6	Replace Drainage Piping/Drains	3	$12,075	2025	45																
8	**ELECTRICAL**																				
8.1	Replace Transformer	3	$12,075	2020	40													$15,314			
8.2	Electrical Distribution System Repair Allowance	3	$48,300	2025	45																
9	**CONVEYANCE**																				
9.1	Elevator System Modernization	3	$60,375	2015	35								$69,352								
9.2	Refurbish Elevator Cabs	3	$13,650	2015	35								$15,680								
10	**MISCELLANEOUS**																				
10.1	Replace Intercom System	3	$18,112	2020	15													$22,970			
10.2	Contingency Allowance	3	$3,300	2012	5					$3,572					$3,944					$4,354	
10.3	Reserve Fund Study with Site Visit	3	$7,350	2013	5						$8,115					$8,960					$9,892
	Total Projected Expenditures						$71,804	$233,826	$11,143	$680,987	$41,271	$297,798	$143,287	$144,862	$3,944	$548,111	$45,550	$286,217	$38,921	$14,052	$113,646



Projects for 2009 listed by System

STRUCTURE	
Balcony and Terrace Condition Survey	$9,104
BUILDING ENVELOPE	
Wall Condition Evaluation	$12,852
Repair Flat Roofing and Terraces	$5,998
FINISHES, FURNITURE AND EQUIPMENT	
Refurbish Corridors - Carpets, Walls, Ceilings, Doors.	$25,334
Refurbish Stairwells - Carpets, Walls, Ceilings, Doors.	$18,517

2010 Total Expenditures for 1169 Nelson Street: $233,826



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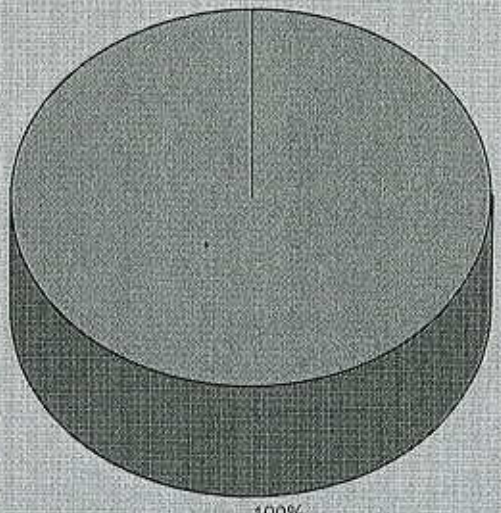
BUILDING ENVELOPE

Projects for 2010 listed by System

BUILDING ENVELOPE	
Replace Original Suite Swing Doors (some balconies, terraces and patios)	$3,933
Replace Stucco Phase 1 of 3 - Face Sealed Areas (south and west elevations)	$207,625
Replace Older Terrace Roofs	$22,268

2011 Total Expenditures for 1169 Nelson Street: $11,143



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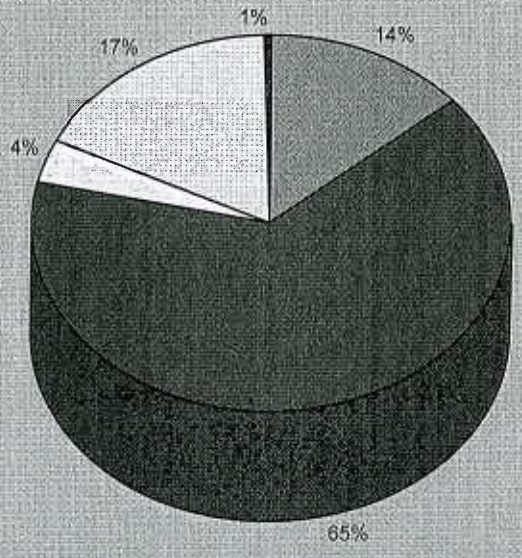
FINISHES, FURNITURE AND EQUIPMENT

Projects for 2011 listed by System

FINISHES, FURNITURE AND EQUIPMENT	
Refurbish Entrance Lobby	$11,143

2012 Total Expenditures for 1169 Nelson Street: $680,988



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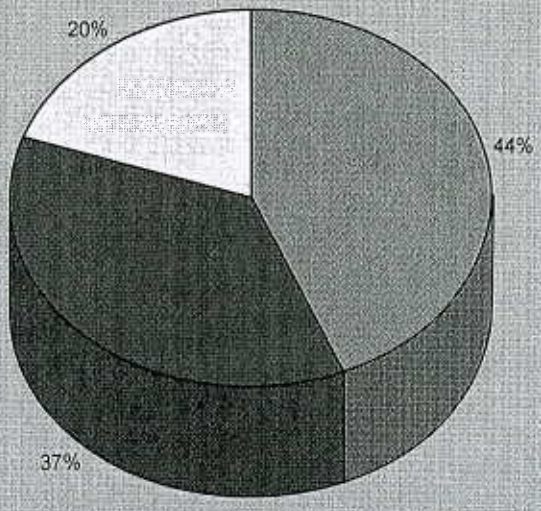
STRUCTURE | BUILDING ENVELOPE | FIRE SAFETY | PLUMBING | MISCELLANEOUS

Projects for 2012 listed by System

STRUCTURE	
Replace Overhead Garage Entrance Door	$9,661
Parking Garage Condition Evaluation	$7,956
Replace Balcony Membranes and Local Repairs - Front Elevation (south) - Part 1 of 2	$60,480
Replace Balcony Guards Front Elevation (south) - Part 1 of 2	$15,106
BUILDING ENVELOPE	
Replace Original Suite Sliding Doors (some balconies, terraces and patios)	$16,366
Replace Windows Face-sealed Areas (south and west elevations)	$17,185
Replace Stucco Phase 2 of 3 - Face Sealed Areas (south and west elevations)	$208,626
Replace Main and Elevator Flat Roofs	$198,262
FIRE SAFETY	
Replace Fire Alarm Panel and Some Devices	$26,141
PLUMBING	
Replace domestic water piping system Part 1 of 2	$117,633
MISCELLANEOUS	
Contingency Allowance	$3,572

2013 Total Expenditures for 1169 Nelson Street: $41,271



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STRUCTURE SITE MISCELLANEOUS

Projects for 2013 listed by System

STRUCTURE	
Repair Garage Roof Deck Waterproofing	$18,085
SITE	
Landscaping Allowance	$15,071
MISCELLANEOUS	
Reserve Fund Study with Site Visit	$8,115

APPENDIX D
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 September 1st, 2008 to August 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 E
SCOPE OF WORK

Authorization

This study was commissioned by the Strata Council of Strata Plan VR 1313 in accordance with our proposal dated April 19, 2007 and Agreement for Professional Services dated October 30, 2007.

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. Besant and Associates Engineers Ltd reviewed mechanical, plumbing, electrical and active fire safety systems as well as completed a non-specialist review of the elevators. The site was visited on Wednesday January 9th 2008.

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

- Suites 102, 302, 305 and 402
- the exterior walls from grade and suites accessed
- the windows from interior and exterior at suites accessed and common areas
- the roofs
- the parking garage
- the terraces, balconies and patios from exterior and suites accessed
- service rooms: elevator machine room, mechanical room, electrical room
- the perimeter site

The following documents were made available for use during the preparation of this study:

- Strata Plan VR1313, dated October 30 1980
- Architectural elevations, sectional details, roof plan and site drawing prepared by Hale Architects, dated October 1979.
- Building Envelope Remedial Work file 021-05301 tender drawings B-1.00 to B-9.07 prepared by Trow Associates Ltd dated December 9 2004.
- Building Envelope Remedial Work file 021-05301 Project Manual prepared by Trow Associates Ltd dated October 22 2004.
- Building Envelope Remedial Work at Suite 104/105 project number 021-05301 tender drawings B-1.00 to B-9.02 prepared by Trow Associates Ltd dated June 2004.
- Building Envelope Remedial Work file 021-05301 contract prepared by Trow Associates Ltd dated October 29 2004.
- Building Envelope Remedial Work document 00300 tender bids and summary prepared by Trow Associates Ltd dated November 15 2004.
- Building Envelope Review prepared by JRS Engineering Ltd project 00233 dated May 25 2001.
- Financial statements of the Corporation as of August 30 2007 to October 31 2007.
- Trow Associates Ltd Field Review Reports and Invoices project number 021-05301.
- Suites 104/104 Repair Project Summary by Sean Smith dated March 15 2005.
- History of Repairs and Replacements by previous Property Manager dated November 2 2000.
- Edenvale Restoration Specialists quotations and invoices ERS ID number S04-JW540.
- West Coast Elevator Services Ltd letter dated December 1st 2007.
- Collins and Sons Concrete invoice dated January 13 2008.
- The F A Bartlett Tree Expert Company quotation dated February 4 2008.
- Fairlane Fire Prevention Ltd report number 799 dated November 16 2007.

Council member, Mr. Charles Rent, and Property Manager, Mr. Jarvie Way of Century 21 Prudential Estates, answered questions about the history of performance of the various systems, described existing capital plans, etc.

A financial questionnaire was completed by Mr Charles Rent and the results were incorporated.

The following service contractors were contacted:

- PJB Mechanical Plumbing and Heating, 120 - 11791 Machrina Way, Richmond BC V7A 4V3
- Fairlane Fire Prevention Ltd, 4877 East Hasting Street, Burnaby BC V5C 2L1
- West Coast Elevator Services Ltd. 1131 West 14th Street, North Vancouver, BC V7P 1J9

- 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.

APPENDIX G

REPAIR AND REPLACEMENT PROTOCOL

1. Structure
2. Building Envelope - Cladding, Windows and Doors
3. Building Envelope - Roofing
4. Fire Safety
5. Interior Finishes
6. Site
7. Heating, Ventilation and Air Conditioning
8. Plumbing
9. Electrical Systems
10. Elevators

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.

1 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 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.

With ongoing deterioration and debonding, general problems with water and/or salt ingress through the membrane can develop. The risk for structural deterioration increases near drive lanes and parking areas where de-icing salts are likely to be present. A general program of excavation, concrete repair and re-waterproofing then becomes necessary.

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.

2 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.

Stucco and Exterior Insulated Finish Systems (EIFS): Stucco and exterior finish cladding systems (EIFS) can develop problems with internal deterioration that could only be detected by further evaluation including test openings. Problems which develop could involve the mesh reinforcing, water resisting sheathing wraps, sheathing board, studs, and/or fasteners. However, unless general problems are detected or expected to occur, it is assumed that the cladding is properly designed and constructed, and will be maintained so that general replacement is avoided within the time frame of this study.

Local repairs are expected to be effective in deferring the need to replace the cladding. These would include repairing local defects with cracking or deterioration, and applying a new vapour permeable protective coating to improve the exterior weather seal and renew appearance.

Sheet Metal Cladding: Sheet metal cladding service life varies according to material and finish types.

These elements are subject to wear and tear from ice and maintenance activities. Where the resulting damage is not aesthetically acceptable, 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 is possible in some instances, the quality of finish may not be as aesthetically pleasing or as durable as the original finish.

Galvanized steel is protected from corrosion only as long as the zinc coating exists. Once the zinc coating is consumed, corrosion begins. This often first becomes evident at cut edges. Once widespread corrosion develops, replacement becomes necessary.

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.

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.

Aluminium Systems: It is difficult to predict whether or not modern aluminum framed, double-glazed windows and doors will require full replacement within the timeframe of the study. Pending actual industry experience, which will only come with time, it seems reasonable to assume that replacement will eventually be required. This may be necessary due to material degradation (corrosion of frames, deterioration of concealed elements) or to meet resident's increased expectations for serviceability, aesthetics and comfort. These expectations are likely to be raised by advances in window technology.

The finishes applied to aluminium are subject to deterioration depending upon the material and exposure to UV (sunlight). High performance fluoropolymer coatings are available to provide a longer service life. However, lower quality finishes are common at many residential buildings and chalk aggressively. Cleaning to eliminate the easily marked chalk can actually hasten coating removal. Field re-coating (repainting) is expected to become necessary. Industry improvements in materials and application techniques are expected to become available to service this growing demand.

Anodized aluminium finishes are expected not to require work within the life of this study. Problems with pitting from exposure to pollutants are becoming evident at some buildings, but this is assumed to be avoided by regular cleaning.

Wood Windows and Doors: The durability of wood framed windows depends highly on initial quality of materials and assembly, and the extent to which they are exposed to moisture. The wood is exposed to interior humidity. There is also the potential for moisture ingress at internal joints and joints at the surrounding cladding. Preventative maintenance to maintain the protective paint finish and promptly correct leakage problems is assumed to be provided in estimating the replacement time. Aesthetic considerations and the desire to eliminate this ongoing maintenance may influence the replacement timing.

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.

3 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.

Protected membrane systems can likely have their life extended to 30 or 35 years if the field of the roof is well installed, and the perimeter upturns are replaced after about 15 years of service. We generally assume that this is the normal practice, unless we have evidence that the field of the roof is not durable.

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 may 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.

Galvanized steel is protected from corrosion only as long as the zinc coating exists. Once the zinc coating is consumed, corrosion begins. This often first becomes evident at cut edges. Once widespread corrosion develops, replacement becomes necessary.

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.

4 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, and valves.

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.

5 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.

Wallpaper: Wallpaper tends to become damaged, and becomes difficult to repair in an acceptable fashion. As the pattern becomes dated, owners may desire a change.

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 area 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.

6 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.

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.

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.

7 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 and Cooling Water Distribution Systems: Heating and cooling water distribution systems can include piping, valves and chemical treatment systems. These can develop the following problems:

- Seizing or leakage of valves
- Damage to insulation
- Corrosion, pitting, erosion or embrittlement. This can be affected by factors such as the quality of materials used, impurities in the water, or adequacy of chemical treatment
- Fatigue and failures related to thermal movements

Expansion joints in the distribution piping rarely develop problems and are typically not expected to require replacement. In unusual circumstances, failure does occur and can represent a large unplanned expenditure. However, given that this occurs in less than 5% of buildings, we do not budget a reserve line item unless there have been previous problems.

Local repairs and replacements are initially managed as part of the operating budget. However, with increasing rates of failure, larger sections would also need to be replaced, requiring budgets from the Reserve Fund. The actual rates of failure and corresponding budgets will need to be determined. Unless a problem condition is identified that suggests general replacement may become necessary, judgement is applied to establish an allowance for progressive replacement once aged.

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.

8 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.

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.

9 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 lightening 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.

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 Strata'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.

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.

Smart Metering: Condominiums are not required to implement metering of individual units, but the Council may choose to do so, at its own discretion, without a vote of the owners. Therefore, installing sub-metering would be an upgrade and should not be paid from Reserve.

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.

10 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.