

Depreciation Report Update



February 22,
2019

Langara Court
333 Wethersfield Drive, Vancouver, B.C.

Prepared for The Owners, Strata Plan VR 519

By Touwslager Engineering Ltd.

Project Number: 07-105

TABLE OF CONTENTS

INTRODUCTION AND BACKGROUND.....	1
Executive Summary	2
QUALIFICATIONS OF THE WRITER.....	2
BUILDING DESCRIPTION AND ASSETS	2
CHANGES FROM THE LAST DEPRECIATION REPORT	4
FINANCIAL FORECASTING.....	4
Timing the Replacement Work.....	4
Interest and Inflation Rates	5
Funding Models.....	6
Funding Model 1.....	6
Funding Model 2.....	7
Funding Model 3.....	7
General Comments on the Models.....	7
RECOMMENDATIONS.....	7
DISCLOSURES AND DISCLAIMERS.....	8
MANAGING RENEWAL PROJECTS.....	9
CLOSING.....	9

APPENDIX A - ASSET LIST

APPENDIX B – RENEWAL COSTS TABLE

APPENDIX C – CASH FLOW GRAPHS AND SPREADSHEETS

APPENDIX D - GLOSSARY

INTRODUCTION AND BACKGROUND

A Depreciation Report is also known as a Capital Cost Reserve Fund Study. These reports generally cover the *renewal* of a building. The term *renewal* refers to the replacement of materials as they become old and worn, but also includes repair.

A Depreciation Report is a requirement for condominiums in B.C. The purpose is to allow the owner to study the anticipated repair and replacement costs of their assets and prepare for these expenses accordingly. This report covers the next 30 years.

This is a planning tool. The report is intended only for the strata's financial planning purposes. It is not a condition assessment. It is not to be used to value the property. It is not to be used to assist those buying and selling units. Those requiring a report for purposes other than planning for renewals will need to retain their own consultant.

Maintenance and the associated costs are not included in this report. Maintenance is generally defined as anything occurring once a year or more frequently but there are a few exceptions noted. We assume a maintenance plan exists, that the maintenance is ongoing and regular, and that the associated costs are in the strata's operating budget.

For the purpose of this report, *Contingency Reserve Fund, CRF, contingency, contingency fund, and renewal funds* all refer to the same thing and are basically interchangeable. We have prepared a glossary of other terms and words in Appendix D for your reference.

The building is currently 40 years old. 2019 is considered Year 42. Year 42 actually ends on September 30, 2019, as that is the strata's fiscal year end.

When planning the timing of the renewal work, we were aware that the strata is about half way through the current fiscal year and a large Special Levy this fiscal year would be difficult to manage. In addition, there were two large Special Levies in the previous two years so most owners would want a break. Therefore, the first significant renewal projects and Special Levy comes in Year 2.

Executive Summary

This depreciation report guides the owners by demonstrating that renewal funds are required and the best way to avoid future shortfalls is to have a healthy contingency reserve fund. The list of assets is in Appendix A where we also show the anticipated replacement date and cost. The renewal schedule is then laid out as a spreadsheet in Appendix B.

We have shown that the average monthly contribution can be as low as \$27 per unit but that comes with several large Special Levies in the future. Doubling or tripling the contributions will decrease the number and size of Special Levies but since so many Special Levies are required in the first eight years, the affect is not very noticeable. The Strata will have to decide which cash flow scenario to select. The scenarios are shown in Appendix C.

The strata needs to pay attention to the required renewal work in the early years as we show Special Levies in each of Years 2 to 8.

Reserve funds are intended to be available for anything that suddenly requires funding, even if it's not scheduled. This study is to be reviewed and revised accordingly every three years.

QUALIFICATIONS OF THE WRITER

This report has been prepared by Touwslager Engineering Ltd. and written by Henry Touwslager, BEP, P.Eng, FEC, RRO. Henry is a professional engineer registered with Engineers and Geoscientists of British Columbia. He has 25 years of varied engineering experience and has been involved specifically in building envelope failure investigations, remediation, and recladding projects for over 20 years. Henry was on the 2015 Steering Committee for the Homeowner Protection Office publication entitled, Owners' Guide to Managing Renewals Projects in Multi-Unit Residential Buildings.

Touwslager Engineering Ltd. has been involved with your past renewal projects relating to the building envelope, including the restoration of balconies, decks, walkways, and the suspended slab waterproofing.

Touwslager Engineering Ltd. relied on information from the strata's trades, the property manager, suppliers, and the strata council for information when preparing this report.

BUILDING DESCRIPTION AND ASSETS

The building is a three storey residential complex on one level of a concrete parking garage. The two wood frame residential buildings are separated by a long courtyard above the

parking garage. The site is fairly flat. The north building superstructure is founded on top of the parking garage. The south building starts one level lower to the south of the parking garage. Access to the parking garage is off Alberta Street. The front door is on Wethersfield Drive.

The list of assets and corresponding photographs are provided in Appendix A. It is broken into the 17 divisions. Where a particular division does not apply, the header and a note remain in the report to indicate it was considered.

The following are not considered renewal items, even if the frequency is less than every year:

1. Optional items such as the replacement of plants or trees and any soft landscaping.
2. Services that are typically the responsibility of residents such as cablevision and telephone wiring. We have assumed either the utility company or individual owner will pay for the installation in the future or wireless technology will be used.
3. Electrical, gas, heating, and other services or accessories inside the dwelling units, including the services in the walls, floors, ceilings, crawl spaces, attic spaces, etc. of the dwelling units.
4. Battery replacement in alarm systems and similar items, unless noted otherwise.
5. Testing of the sprinkler system, alarms, smoke detectors, and gas detectors.
6. Fire extinguishers.
7. Exhaust fans, humidistats, and timers inside the dwelling units.
8. Dryer duct and other duct cleaning.
9. Fuses, light bulbs, door knobs, and similar small items.
10. Baseboard heaters inside suites.
11. Keys, fobs, garage door clickers, and anything that is easily damaged or lost.
12. Carpet cleaning.
13. Chimney and fireplace cleaning.
14. Gutter cleaning.

15. Building envelope assessments, maintenance reviews, and similar consulting and contractor services.

The natatorium (swimming pool area) is not all included. Renewal items that are considered equipment or are relatively minor are included. Some larger items like the pool structure, tiled deck, and coping are not included in this report. The swimming pool is not essential to the function of the building and the strata may opt to close it down if renewal costs are too high.

CHANGES FROM THE LAST DEPRECIATION REPORT

This is an update to a previous depreciation report. As agreed with the strata, we have reused data at our discretion.

While the government's published values for inflation are very low, prices for work that requires local contractors keeps going up. Many (but not all) renewal costs have therefore been adjusted upwards by 15% or more from the last report. Over time, we expect a lower inflation rate for the 30 year length of the report, as discussed later.

FINANCIAL FORECASTING

The asset list in Appendix A includes the age, estimated replacement date, and estimated cost of each item. In order to calculate the required funds for each year, all these assets and their associated costs were entered into the rows in the spreadsheet in Appendix B. The column headers indicate the year that the funds are required. At the bottom of the table are the required funds for each year, in today's dollars, also known as *present value*.

In reality, it will cost more to do the work in the future. The *future cost* is calculated using the present value and the inflation (or escalation) rate. For example, if the present value is \$1000, inflation is 5%, and the work has to be done in a year, the future cost is \$1050.

The strata has a contingency reserve fund and that fund earns interest. Interest earned in the fund over time will help to offset inflation.

Timing the Replacement Work

It is preferred to complete the work on a schedule. However, some building owners may opt to wait as long as possible. Waiting is riskier as there may be an associated leak through the building envelope or from a (strata owned) hot water tank or perhaps

some extra costs due to emergency services. Inconvenience and costs to the residents due to last minute repairs is hard to quantify but should also be considered.

The lifespan of similar equipment can vary significantly. Parts and equipment from certain countries and manufacturers are known to be of consistently good quality while the same product type from somewhere else could wear out quickly. Even parts from the same manufacturing plant can vary if the internal controls are not consistent. Weather and humidity can also affect the building elements. As such, it makes estimating the lifespan difficult and predicting the precise timing of replacements is almost impossible. The strata should not expect to follow the replacement schedule exactly. It is to be used for planning. Activities will be moved around based on priorities as they come up and your service contractors should be asked to provide input when they are on site. The key is to have reserve funds in place so that repairs can be made when required and without delay.

Interest and Inflation Rates

The cost of performing the same work usually increases from year to year. This is known as inflation; *a persistent, substantial rise in the general price level*. We have used the terms *escalation* and *inflation* interchangeably in the report.

Inflation rates and savings rates differ. Historically, but not always, savings rates are higher than inflation rates and therefore savings over time will exceed the extra costs of inflation. As we are not economists nor can we predict future trends, inflation values and savings rates have been based on historical, reported, and advertised values.

The Bank of Canada has an internet based Inflation Calculator based on the Consumer Price Indexes (CPI) for each year from 1914. Inflation is based on the value of a simulated basket of goods and services which arguably does not reflect real inflation or escalation in the construction industry. Nonetheless, this calculator was used to determine the average rate of inflation over the past 25 years. The CPI over the past 25 years is 1.77%. If we use the short term only, the CPI over the past three years was 1.79%.

On October 24, 2016, the Bank of Canada and Government of Canada released a joint statement that renewed the inflation target at the “2 per cent mid-point of the 1 to 3 per cent inflation-control range”. This agreement will run for a five-year period, ending in 2021.

Our last depreciation report used a value of 1.8% for inflation. In order to follow the government’s guidance, we will use 2.0% for escalation in this report.

As for interest rates, we were informed the strata are currently receiving 2.47%. Even higher rates may be available but the funds are then either locked in or the investment

has more risk. Typically strata corporations do not want to be locked in as the funds need to be available for emergencies. They also do not want risk as, again, the funds need to be available and these accounts are not really considered investment accounts.

We have used an inflation rate of 2.00% and a savings rate of 2.47% as agreed with the owners.

Funding Models

The costs of the renewals listed in Appendix B have to be funded somehow and we have provided three funding models in Appendix C. To fund this future work, the strata can use existing savings, annual contributions to the contingency reserve fund, Special Levies, and borrowing. We have not considered borrowing as an option as that is rare for most stratas.

We will begin the 30 year cash flow scenarios at the end of the last fiscal year which is September 30, 2018. The existing savings or starting value of the contingency reserve fund was \$252,920. This is added to the first year's contributions in all cases.

Annual contributions are almost essential and we fully expect some amount to continue. This amount can be the same every year or can be increased incrementally each year which is most common. We understand the current contribution to the Contingency Reserve fund is \$18,000 per year.

Special Levies will still be required in the future unless extremely high monthly contributions are made. Special Levies can be scheduled for years with high expenditures only or they can be utilized in many years to reduce the monthly contribution.

For the purpose of the funding models, Year 1 starts on October 1, 2018. Therefore, you will see this year's contributions added to the starting value of the contingency reserve fund. This is highlighted in green in the first row.

Three funding models follow.

Funding Model 1

Model 1 starts with the current annual contribution of \$18,000 or an average of \$27 per unit per month. It increases by 2.0% each year as people's incomes generally go up and this helps counter inflation.

There are 11 Special Levies over the next 30 years, including seven years in a row starting in the second year.

This is a good scenario if all individual owners can contribute large amounts to Special Levies when the time comes. However, the strata may find it difficult to pass a Special Levy if owners have to vote for significant funding so often. Ownership will change and the ability of future owners to pay is somewhat unpredictable.

Funding Model 2

Model 2 is similar to Model 1 except it has double the starting contribution or an average of \$54 per unit per month. It also goes up 2.0% each year.

There are still 11 Special Levies over the next 30 years, including seven years in a row starting in the second year. They are smaller than Model 1 but not by much.

Funding Model 3

Model 3 is similar to Model 1 except it has triple the starting contribution or an average of \$80 per unit per month. It also goes up 2.0% each year.

There are 10 Special Levies over the next 30 years, including seven years in a row starting in the second year. Only the levy in Year 13 will disappear. The levies are smaller than Model 1.

General Comments on the Models

The number of Special Levies in each model could be decreased and the levy values increased to compensate. You could also increase the monthly contribution significantly.

RECOMMENDATIONS

The reserve fund study is intended to enforce savings and preparedness for the strata and for individual owners. We have shown which projects are expected in the next 30 years. Even if you increase the annual contributions, you need to prepare for levies in the next eight years. In most cases, stratas use a combination of increased annual contributions and future levies.

Our recommendations are fairly simple:

1. Pay strict attention to the completion of maintenance requirements. This will prolong the life of the assets. Maintenance contractors should also give feedback on problems, upcoming replacement dates, and the associated costs. Collect as much data as possible from them.

2. Review the funding models carefully and select the most appropriate for the strata.
3. Track all renewals work so that projects can be removed from their current place in the documents and rescheduled for the next replacement or repair date. Collect repair and replacement cost data for use in estimating and to assist in the revision of the renewal plan every three years.

Use caution relying on the costs and annual budgets provided. The schedule may change as lifespans will vary from building to building. The building's requirements will change over time and new information will become available. Renewal items, escalation rates, and savings rates could vary significantly over time. Constant monitoring is essential.

DISCLOSURES AND DISCLAIMERS

Improvements such as the proposed water supply isolation valves are not included in this report. Once they are installed, they should be included in future reports. (They would just be part of the repiping program anyhow.)

Long term pool costs not all included as they are optional and the pool could be shut down.

We did not have qualified contractors or subconsultants prepare condition assessments or cost estimates for items such as electrical, mechanical, fire protection, and elevators. This report could be more accurate, if desired, by retaining such contractors or subconsultants and this is recommended, as a minimum, before Special Levies.

Unforeseen conditions can always present themselves but the cost estimates do not typically account for these contingencies.

Acts of vandalism, seismic damage, and other catastrophes are not accounted for. They would likely be insurance claims.

We have assumed all costs in our calculations are incurred on the last day of the year. While this is not reality, the variations in the actual cash balances and costs will not vary more than the variations in the scope of work, savings rates, and escalation rates.

Allowances are used when the future scope is not known but some costs are anticipated. An example is the structure. The actual cost over time could be higher than our estimate but there is no way of knowing that now and we do not want to overestimate by too much. If unforeseen problems occur, Special Levies or reallocating of contingency funds could be required. This is another reason to have a reasonably high annual contribution.

The cost estimates in the report that were prepared by Touwslager Engineering Ltd. are for budgeting and planning purposes. These provide only an order of magnitude cost. They are sometimes referred to as “Class D” or “Indicative” estimates. Pricing provided to us by contractors is of the same level.

Finally, the report is prepared on the premise that repairs will be of like kind and quality, unless noted otherwise. Upgrades and improvements can always be made but the budget does not account for the added cost.

MANAGING RENEWAL PROJECTS

When renewals are required, the strata can determine the best method of completing the work. In some cases, a contractor can be hired and the work completed. For more complicated work, a consultant or project manager may be required. Of course, Touwslager Engineering Ltd. is available to discuss our services for your projects as they come up. Some consulting costs are included in the estimates of the more complex work.

CLOSING

When the annual contribution and levy values are reviewed, they may seem large. Keep in mind that you will only spend what is required. The goal is to have funding available, not to find a way to spend everything in the fund.

To put these costs into some perspective, many people will spend more on their cars during this 30 year period. Some data suggests a car can cost over \$8000 per year, including depreciation. At your complex, you will probably spend less per dwelling unit. And some families have more than one car.

We trust this report and the accompanying documents will allow you to better understand your assets and renewal requirements. Should you have any questions or require assistance with using the information in this report, please contact Henry Touwslager.




Yours truly,




TOUWSLAGER ENGINEERING LTD.

Henry Touwslager, BEP, FEC, P.Eng.



APPENDIX A
ASSET LIST

ASSET	PHOTOGRAPHS
<p>1.0 STRUCTURE Including parking garage and wood frame residential structure.</p>	
<p>Parking Garage Structure Reinforced Concrete Current Age: 41 years Assumed Lifespan: 75+ years with repairs every 10 years Repair Date: 2020, 2030, 2040 Allowance for concrete repairs: \$5,800</p>	
<p>Residential Structure Wood Frame Current Age: 41 years Assumed Lifespan: 50+ years with repairs every ten years Repair Dates: 2021, 2031, 2041 Allowance: \$11,600 for unforeseen decay, etc.</p>	
<p>Courtyard Canopy Steel, wood frame, and glass canopy Current Age: 41 years Assumed Lifespan: 40 years Replacement Date: 2021 Replacement Cost: \$87,000</p>	

<p>2.0 BUILDING ENVELOPE Including balconies, decks, roofs, windows, wall cladding, and waterproofing of the parking garage.</p>	
<p>Recently Repaired Balconies (10) Location: Units 312 and 412, Units 313 to 416 Current Age: 3 years, 1 year Assumed Lifespan: 15 years for membrane, 30 years for rebuild Replacement Date: 2031 for membrane and 2046 for rebuild Replacement Budget: \$100,000 in 2031 and \$350,000 in 2046</p>	
<p>Other Repaired Balconies (17) Location: North side of south building, facing the courtyard (16) and Unit 205 (1) Current Age: Approximately 7 years on average Assumed Lifespan: 15 years for membrane, 30 years for rebuild Replacement Date: 2025 for membrane and 2040 for rebuild Replacement Budget: \$170,000 in 2025 and \$510,000 in 2040</p>	 

Older Balconies (13)

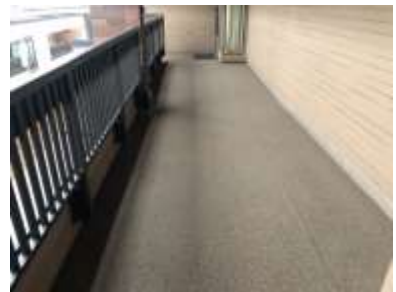
Location: South side of south building (except Unit 205) (7) and north side of north building (Units 309 to 411) (6)
Current Age: varies
Assumed Lifespan: 15 years for membrane, 30 years for assembly
Replacement Date: Rebuild half in 2020 and half in 2022
Replacement Date: New membrane in 2036
Replacement Budget: \$540,000 in 2020, \$630,000 in 2022, plus \$130,000 in 2036





Walkways

Current Age: 7 years
Assumed Lifespan: 15 years for membrane, 30 years for rebuild
Replacement Date: 2025 and 2040 (to match balcony timing)
Replacement Budget: \$215,000 and \$400,000 respectively

Targeted Repair on Fourth Floor
Replacement Date: 2019
Replacement Cost: \$25,000



<p>Roof Decks Current Age: 10 to 40 years Assumed Lifespan: 25 years Replacement Date: 2035 Replacement Budget: \$700,000</p> <p>Some older decks may require repair sooner but condition is not known.</p>	
<p>Roof Deck Boards Current Age: varies Assumed Lifespan: 10 to 15 years Repair Date: 2025 (ten years before deck membrane replacement) Repair Allowance: \$3,500</p>	
<p>Sealant Polyurethane and various others Current Age: varies Assumed Lifespan: 8 years Replacement Date: 2025, 2033, and 2041 Replacement Allowance: \$5800 every 8 years</p>	
<p>Brick Masonry Walls Uninsulated Current Age: 41 years Assumed Lifespan: 75 years Replacement Date: 2051 Renewal Date: Not applicable yet Renewal Budget: Not applicable yet Repoint, Reseal, and Repair Masonry: Half each in 2022 and 2027 Repoint, Reseal, and Repair Allowance: \$50,000 each time for repointing, caulking, and crack repair</p>	




<p>Walkway Roof Edge Canopy Wood frame and sheet metal cladding Current Age: 6 years Assumed Lifespan: 50 years Replacement Date: 2061 Replacement Budget: not applicable</p> <p>Painting Lifespan: 25 years Repainting Date: 2036 Repainting Allowance: \$7000</p>	
<p>Walkway Glazing System Metal frame and glass Current Age: 6 years Assumed Lifespan: 50 years Replacement Date: 2061 Replacement Budget: not applicable</p> <p>Painting Lifespan: 25 years Repainting Date: 2036 Repainting Allowance: \$9000</p>	




Skylights





Flat roof and sloped roof type, glass and/or plastic
Current Age: varies
Assumed Lifespan: 20 years
Replacement Date: varies
Frame and Details Repairs Allowance: \$23,000 in 2025
Frame and Details Repairs Allowance: \$23,000 in 2040



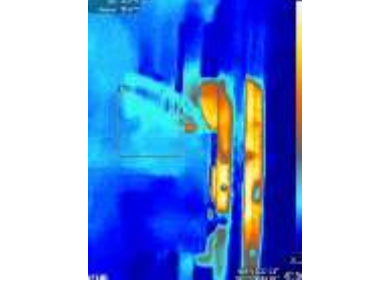


<p>Original Windows and Sliding Doors General locations: first and second floor on south side of south building, second floor (plaza level) on north side of south building, second to fourth floor on north and south sides of north building, and east and west ends of both buildings except windows and doors noted in the two following asset list items. Style: Metal framed Current Age: 41 years Assumed Lifespan: 30 years Replacement Date: 2023 Replacement Budget: \$635,000 in 2023</p>	
<p>Previously Replaced Windows and Sliding Doors Locations: Third floor on north side of south building, south decks on south building, a few locations where roof decks were upgraded, Units 312 to 416, sliding doors at Units 209 to 213, and east stairwell. Current Age: varies from new to 7 years Assumed Lifespan: 30 years Replacement Date: 2046 Replacement Budget: \$260,000</p>	
<p>Wood Siding Current Age: varies from new to original Assumed Lifespan: over 50 years Replacement Date: varies Replacement Budget: Not included here. Replacement at balconies and decks are included in those rebuild costs. Some replacement will occur during wind replacement. Remaining siding to be maintenance cost.</p>	
<p>Insulated Glazing Units Current Age: varies Assumed Lifespan: up to 25 years Replacement Date: Varies Replacement Allowance: \$5800 every five years starting in 2025.</p>	

<p>Miscellaneous Hinged Doors Various types Current Age: 41 years but varies Assumed Lifespan: 50+ years Replacement Date: varies Replacement Allowance: \$5800 every five years starting in 2021</p>	
<p>Sloped Shingle Roofing Current Age: 13 years assumed Assumed Lifespan: 20 years Replacement Date: 2023 and 2043 Replacement Budget: \$23,000</p>	
<p>Sloped Metal Roofing Current Age: 41 years estimated Assumed Lifespan: 50 years Replacement Date: 2026 Replacement Budget: \$28,000</p>	

<p>Downspouts and Gutters Prepainted 5" Aluminum Current Age: varies but most are approximately 6 years Assumed Lifespan: 25 years Replacement Date: 2038 Replacement Budget: included with balcony, deck, and walkway repairs</p>	
<p>North and South Building Flat Roofs Built up tar and gravel Current Age: approximately 19 years Assumed Lifespan: 20 years, then 25 years once renewed Replacement Date: Extended to 2022 based on high maintenance lately to extend its life, then 2047 Replacement Budget: \$465,000</p>	
<p>Swimming Pool Flat Roof Areas SBS Torch-on Current Age: 6 years Assumed Lifespan: 25 years Replacement Date: 2038 Replacement Budget: \$40,000</p>	

<p>Amenities Flat Roof Built up tar and gravel Current Age: approximately 19 years Assumed Lifespan: 20 years, then 25 years once renewed Replacement Date: 2021, 2046 Replacement Budget: \$17,000</p>	
<p>Parking Garage Waterproofing in Courtyard SBS membrane, drains, and reuse of most pavers. Current Age: 9 years Assumed Lifespan: 30 years Replacement Date: 2040 Replacement Budget: \$670,000 in 2040</p>	
<p>Parking Garage Waterproofing Northwest Corner SBS membrane, drains, and all landscaping above. Current Age: 4 years Assumed Lifespan: 30 years Replacement Date: 2045 Replacement Budget: \$390,000 in 2045</p>	
<p>Painting Wood siding Current Age: varies Assumed Lifespan: 8 to 12 years Replacement Date: one-quarter 2020, half in 2024, one quarter in 2030 Replacement Budget: \$25,000 in 2020 and \$50,000 in 2024, \$25,000 in 2030, \$25,000 in 2032, \$50,000 in 2036, \$25,000 in 2042, \$25,000 in 2044</p>	

<p>3.0 POWER DISTRIBUTION Including breaker boxes, generators, emergency power supply, emergency lighting, heat tracing systems, and surge protection systems.</p>	
<p>Parking Garage Lighting Ballast Ballasted florescent lighting Current Age: varies Assumed Lifespan: 10 years Replacement Date: varies Replacement Budget: maintenance</p>	
<p>Miscellaneous Electrical Circuit breakers, wiring, transformers, raceways wiring, conduit, fused disconnects, etc., including common areas and inside suites. Current Age: 41 years Assumed Lifespan: 25 to 60 years Replacement Date: every three years plus 2026 and 2041 Replacement Allowance: \$40,000 in 2026 and \$75,000 in 2041 plus \$2000 every two years starting 2020</p>	
<p>Thermal Imaging Thermal Imaging Scan of 56 main breakers, 11 disconnects, 2 house panels Current Age: new Assumed Timing: 2 years Rescan Date: 2020 and every two years. Rescan Allowance: \$2000</p>	

Exterior Lights and Timers

Various styles

Current Age: varies. Approximately half of the lights replaced in 2015.

Some north balcony lights new in 2018.

Assumed Lifespan: 20 years

Replacement Date: 2020 and 2040

Replacement Budget: \$5,000



<p>Emergency Lighting Packs Current Age: varies Assumed Lifespan: 15 years Replacement Dates: 2020 and 2035 Replacement Budget: \$2000 plus batteries every five years for \$700</p>	
<p>4.0 HEATING, VENTILATION, AND AIR CONDITIONING</p>	
<p>Parking Garage Exhaust Fan Near bike storage area Current Age: 1 year Assumed Lifespan: 15 years Replacement Date: 2032 and 2047 Replacement Budget: \$2000</p>	
<p>Parking Garage Exhaust Fan Timer Intermatic T101 Current Age: appears new Assumed Lifespan: 15 years Replacement Date: 2028 and 2043 Replacement Budget: \$450</p>	

Electric Fans and Humidistats

Axial supply and squirrel cage fans for hallways, locker rooms, and amenities room.

Current Age: unknown but mostly older

Assumed Lifespan: 20 years

Replacement Dates: 2021 and every five years.

Replacement Budget: \$3000 each time



Duct Heater

Current Age: unknown but older

Assumed Lifespan: 20 years

Replacement Date: 2021 and 2041




Replacement Budget: \$1700






Baseboard Heaters and Thermostats

Wall mounted electric heaters
Current Age: unknown but old
Assume Lifespan: 20 years
Replacement Date: 2020 and 2040
Replacement Allowance: \$1900



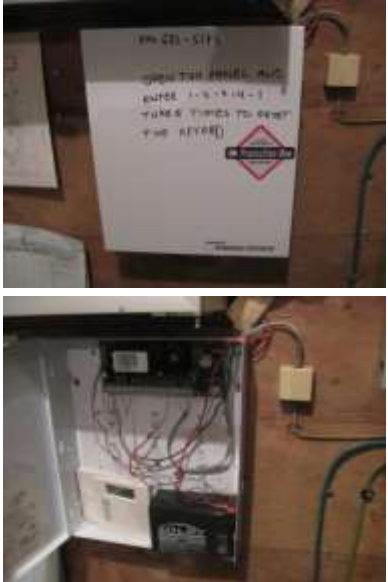


<p>5.0 PLUMBING AND WATER SUPPLY SYSTEMS Including boilers.</p>	
<p>Water Heater John Wood gas fired Current Age: 5 years Assumed Lifespan: 10 years Replacement Date: 2024, 2034, and 2044 Replacement Budget: \$1700</p>	
<p>Pressure Reducing Valve for Hot Water Tank Not observed Current Age: assumed original Assumed Lifespan: 20 years Replacement Date: 2024 and 2044 Replacement Budget: \$1000</p>	<p>No Photo</p>
<p>Water Supply Piping to Dwelling Units, Water Supply Valves, and Backflow Preventers Copper pipe Current Age: 41 years Assumed Lifespan: 40+ years Replacement Date: 2024 Replacement Budget: \$650,000</p>	
<p>Pressure Relief Valves Current Age: 41 years Assumed Lifespan: 40 years Replacement Date: 2020 or have it assessed by plumber Replacement Budget: \$3500</p>	




<p>6.0 FIRE PROTECTION Including sprinklers, backflow preventers, fire alarm system, fire alarm monitoring, and smoke detectors.</p>	
<p>Dry Pipe Sprinkler Valve System Current Age: 41 years Assumed Lifespan: 40 to 50 years for system Replacement Date: 2022 Replacement Budget: \$10,000</p>	
<p>Dry Sprinkler System Compressor & Motor Swan SVU-201 / Hubbell. Current Age: 5 years Assumed Lifespan: 15 years Replacement Date: 2028 and 2043 Replacement Budget: \$2700</p>	
<p>Dry Sprinkler Heads and Pipe Joints Current Age: varies Assumed Lifespan: 25 years Replacement Date: 20% every five years starting 2020 Replacement Budget: \$2900 each time</p>	


Fire Alarm System





Mircom 1000 Fire Alarm Annunciator Panels at front door
Mircom 1000 Fire Alarm Annunciator Panel in south utility room
Other parts
Current Age: 7 years
Assumed Lifespan: 25 years
Replacement Date: 2037
Replacement Budget: \$7,000





<p>Fire Alarm Monitoring Communicating device, fire alarm monitoring transmitter Current Age: unknown Assumed Lifespan: 25 years Replacement Date: 2020 and 2045 Replacement Budget: \$1200</p>	
<p>Pull Station Current Age: unknown Assumed Lifespan: 25 years Replacement Date: 2020 and 2045 Replacement Allowance: \$1000</p>	
<p>Fire Alarm Bell Current Age: unknown Assumed Lifespan: 25 years Replacement Date: 2021 and 2041 Replacement Allowance: \$1000</p>	

<p>Fire Alarm Piezo Buzzers Current Age: new Assumed Lifespan: 10 years Replacement Date: 2028, 2038, and 2048 Replacement Allowance: \$4000</p>	
<p>Fire Extinguishers Current Age: unknown Assumed Lifespan: 5 years or more Replacement Date: varies Replacement Budget: maintenance cost</p>	
<p>Exit Signage Current Age: varies Assumed Lifespan: 20 years Replacement Date: 2028 and 2048 Replacement Budget: \$2300</p>	





<p>7.0 SECURITY SYSTEMS Including intercom</p>	
<p>Enter Phone System (2) L Linear AE-500 with Enterphone 2000 panel in electrical room Current Age: 4 years Assumed Lifespan: 15 years Replacement Date: 2030 and 2045 Replacement Budget: \$14,000</p>	
<p>Doorbells and Chimes Two Interior chimes per unit Current Age: varies Assumed Lifespan: 20 years Replacement Date: 2024 and 2044 Replacement Budget: \$2500</p>	




<p>8.0 INTERIOR FINISHES Mostly walls, floors, and ceilings, including all amenities, facilities, and parking garage areas but not including furnishings.</p>	
<p>Paint Halls, lobby, games room, north elevator lobby, 4 stairwells, fire/utility doors and frames, and suite doors and frames Current Age: 5 years or more Assumed Lifespan: 10 years Replacement Date: 2024, 2034, 2044 Replacement Budget: \$18,000</p>	
<p>Carpet Halls and stairs Current Age: 5 years Assumed Lifespan: 12 years Replacement Date: 2026 and 2038 Replacement Budget: \$38,000</p>	 
<p>Exposed Brick Halls and Stairs Current Age: 41 years Assumed Lifespan: 75+ years Replacement Date: not applicable Repair Date: 2022 (cosmetic) Repair Allowance: \$5000</p>	





<p>Parking Garage Interior Paint Latex paint on columns and walls Current Age: 9 years estimated Assumed Lifespan: 15 years Replacement Date: 2025 and 2040 for columns and walls Replacement Allowance: \$6000</p>	
<p>9.0 HARD LANDSCAPING Including paths, patios, sidewalks, fencing, guards, benches, lighting, irrigation, and playgrounds. Full replacement of landscaping above waterproofing membrane falls under Building Envelope.</p>	
<p>Concrete and Stone Landscaping Pavers, Retaining Walls, Stairs, Curbs, Current Age: 41 years Assumed Lifespan: 50+ years Replacement Date: not applicable Replacement Budget: \$0 but costs for realigning, levelling, etc. are in the waterproofing replacement budget.</p>	
<p>Concrete Sidewalks Cast-in-place concrete Current Age: 41 years Assumed Lifespan: 75+ years Replacement Date: not applicable Repair Allowance Date: 2022 and 2042 Replacement Allowance: \$6000</p>	




<p>Courtyard Hard Landscaping Planters, etc. Current Age: 5 years Assumed Lifespan: 25 years Replacement Date: 2039 Replacement Allowance: \$25,000</p>	
<p>10.0 SOLID WASTE MANAGEMENT</p>	
<p>Not Applicable</p>	
<p>11.0 PARKING FACILITIES AND ROADWAYS Including vehicular ramps and overhead doors.</p>	
<p>Ramp Overhead Doors and Openers Ramp gate, operator, and motor Current Age: assumed 13 years Assumed Lifespan: 15 years Replacement Date: 2020 and 2035 Replacement Budget: \$9000</p>	




<p>Parking Garage Stall Markings Including wall and line markings Current Age: assumed 13 years Assumed Lifespan: 15 years Replacement Date: 2022 and 2037 Replacement Budget: \$4500</p>	
<p>12.0 STORM AND SANITARY SEWERS Including perimeter drainage.</p>	
<p>Storm and Sanitary Sewer System Cast iron Current Age: 41 years Assumed Lifespan: 40+ years Replacement Allowance Date: 2027 Replacement Allowance: \$11,600</p>	<p>No Photo</p>
<p>Storm and Groundwater Drainage Targeted Replacement 4" PVC perforated and solid PVC piping (assumed) Current Age: 41 years Assumed Lifespan: 35+ years Repair Date: 2020 Replacement Allowance: \$11,600</p>	<p>No Photo</p>
<p>Storm Sewer Sump Pumps (2) and Controls 2" and 2-1/2" Current Age: 5 years (assumed) and 0 years (replaced in 2019) Assumed Lifespan: 15 years Replacement Date: 2029, 2034, 2044 Replacement Budget: \$3500 each time</p>	
<p>Storm and Groundwater Drainage System Cleaning Current Age: not applicable Assumed Schedule: 5 years Cleaning Date: 2020 and every five years Cleaning Budget: \$5000</p>	<p>No Photo</p>


<p>13.0 AMENITIES AND FACILITIES Including recreation room, laundry room, meeting room, and swimming pool and including furnishings but not including interior finishes.</p>	
<p>Swimming Pool Structure Concrete, 20' x 27', 22,000 USG Current Age: 40 years Assumed Lifespan: 60+ years Replacement Date: to be determined Replacement Budget: not included as retention of the pool is optional</p>	
<p>Swimming Pool Filter PacGab TA 60 Current Age: 14 years Assumed Lifespan: 18 years Replacement Date: 2022 and 2040 Replacement Budget: \$1400</p>	
<p>Swimming Pool Pump Century Centurion B121 Switchless Motor Current Age: unknown Assumed Lifespan: 15 years Replacement Date: 2021 and 2036 Replacement Budget: \$1000</p>	
<p>Swimming Pool Flow Meter NSF-50 CCS-12485 Flow Meter Current Age: 6 years Assumed Lifespan: 10 years Replacement Date: 2023, 2033, and 2043 Replacement Budget: \$300</p>	

<p>Swimming Pool Skimmer (2) Jacuzzi WWFL Current Age: 41 years Assumed Lifespan: 35 years Replacement Date: 2020 Replacement Budget: \$3200</p>	 <p>The image shows a white plastic swimming pool skimmer. The top part is a separate piece with a flat top and a rectangular opening. The bottom part is a vertical pipe with a flange. Below, a photograph shows the skimmer installed in a pool deck, with a circular opening in the deck and a green pool edge.</p>
<p>Swimming Pool Heating System Rheem P-M266A-EN-C Current Age: 6 years Assumed Lifespan: 12 years Replacement Date: 2026 and 2038 Replacement Budget: \$4600</p>	 <p>The image shows a black and grey Rheem swimming pool heating system unit. It is a rectangular box with a control panel on top and various pipes and electrical connections on the sides. It is installed in a utility room.</p>
<p>Swimming Pool Lighting Jacuzzi Q500 under water lite Current Age: 10+ years Assumed Lifespan: 12 years Replacement Date: 2020, 2032, and 2044 Replacement Budget: \$800</p>	 <p>The image shows a circular Jacuzzi Q500 under water light fixture. It has a decorative, ornate metal ring around the lens. The lens is clear and shows some internal components. A smaller, similar ring is shown next to it.</p>


<p>Swimming Pool Surfaces Concrete and Plaster Current Age: 19 years Assumed Lifespan: 25 years Replacement Date: 2025 Replacement Allowance: \$18,000</p>	
<p>Swimming Pool Deck Concrete and Tile Current Age: 41 years Assumed Lifespan: 30 years Replacement Date: to be determined Replacement Budget: not included as retention of the pool is optional</p>	
<p>Swimming Pool Coping Tile Current Age: unknown Assumed Lifespan: 30+ years Replacement Date: to be determined Replacement Budget: not included as retention of the pool is optional</p>	
<p>Swimming Pool Piping and Valves 2" PVC Current Age: varies Assumed Lifespan: 25 years Replacement Date: 2032 Replacement Budget: \$500</p>	

<p>Swimming Pool Sanitizer System LMI Liquid Chlorine Pump Current Age: 16 years Assumed Lifespan: 10 years Replacement Date: 2020, 2030, and 2040 Replacement Budget: \$800</p>	
<p>Swimming Pool Liquid Chlorine Containment Tank Gemini Dual Containment System – Liquid Chlorine Current Age: 2 years Assumed Lifespan: 10 years Replacement Date: 2025, 2035, and 2045 Replacement Budget: \$700</p>	
<p>Mechanical Air Handling Unit and System Engineered Air system, ducting, dampers, etc. Current Age: 3 years for air handling unit, 39 years for ducting Assumed Lifespan: 25 years Replacement Date: 2041 Replacement Budget: \$30,000</p>	





<p>Change Rooms Lockers, sink, toilet, tile, lighting, counters, shower, stalls Current Age: Sink, counters, faucets are 6 years old. The rest are much older.</p> <p>Sink, counters, faucet: Assumed Lifespan: 20 years Replacement Date: 2033 Replacement Budget: \$5000</p> <p>Stalls (corroded) and other items: Repair Dates: 2020, 2030, 2040 Repair Budget: \$5000 every ten years</p> <p>Lockers are optional so not budgeted.</p>	 <p>The top photograph shows a row of green lockers in a room with a sink and bench. The middle photograph is a close-up of a white sink on a green counter. The bottom photograph shows a row of white shower stalls with doors.</p>
<p>Sauna Electric Current Age: 2 years Assumed Lifespan: 25 years Replacement Date: 2042 Replacement Budget: \$1500 for sauna heater</p>	 <p>The photograph shows the interior of a wooden sauna with built-in wooden benches and a heater on a small wooden stand.</p>
<p>Ventilation Fans Pool roof (2), chemical room, and change rooms Current Age: varies. One locker room fan is new in 2018 Assumed Lifespan: 20 years Replacement Date: 2022 and 2040 Replacement Budget: \$4000 and \$8000</p>	 <p>The photograph shows a square, light-colored ventilation fan mounted on a wooden ceiling.</p>

14.0 NATURAL GAS DISTRIBUTION	
Supply Piping and Shutoff Valves Pipes and valves at pool area Current Age: 41 years Assumed Lifespan: 50+ years Replacement Date: 2027 Replacement Allowance: \$6000	

15.0 ELEVATORS	
<p>Elevators Dover Brand Hydraulic Systems – Two Cabs Current Age: 41 years Assumed Lifespan: 30+ years Replacement Date: 2022 Replacement Budget: \$145,000</p> <p>Modernization Date: 2032 Modernization Budget: \$23,000</p>	  

<p>16.0 STRATA OWNED UNITS Including site manager’s suite and guest suites and including interior finishes, furnishings, appliances, cupboards, water heater, etc.</p>	
<p>Resident Caretaker’s Fridge Frigidaire Gallery 18 CF stainless steel Current Age: 1 year Assumed Lifespan: 12 years Replacement Date: 2030, 2042 Replacement Budget: \$1200</p>	
<p>Resident Caretaker’s Range Frigidaire Gallery Electric Stainless Steel Current Age: 1 year Assumed Lifespan: 12 years Replacement Date: 2030, 2042 Replacement Budget: \$1300</p>	
<p>Resident Caretaker’s Dishwasher Bosch 100 Series Current Age: 1 year Assumed Lifespan: 12 years Replacement Date: 2030, 2042 Replacement Budget: \$1100</p>	
<p>Resident Caretaker’s Hood Vent Nutone Mantra 300 CFM Current Age: 1 year Assumed Lifespan: 12 years Replacement Date: 2030, 2042 Replacement Budget: \$600</p>	

<p>Resident Caretaker’s Washer and Dryer Current Age: 4 years Assumed Lifespan: 12 years Replacement Date: 2025 and 2037 Replacement Budget: \$1800</p>	
<p>Resident Caretaker’s Kitchen, Bathroom, and Carpets Cupboards, counters, flooring, sink, bathtub, paint Current Age: 13+ years, some original. Assumed Lifespan: 12 years Replacement Date: 2021, 2033, and 2045 Replacement Budget: \$23,000</p> <p>Note: Intermediate renewal work by resident at no cost to strata.</p>	 
<p>Resident Caretaker’s Water Heater Current Age: 1 year Assumed Lifespan: 10 years Replacement Date: 2028, 2038, 2048 Replacement Budget: \$1200</p>	

<p>17.0 MISCELLANEOUS</p>	
<p>Miscellaneous Who knows what else might come up Replacement Date: 2021 and every three years Replacement Budget: \$6000</p>	
<p>Mailboxes Front loading Current Age: 13 years assumed Assumed Lifespan: 20+ years Replacement Date: 2030 Replacement Budget: \$3500</p>	
<p>Courtyard Guard Aluminum frame and glass Current Age: 6 years Assumed Lifespan: 30 years Replacement Date: 2040 Replacement Budget: \$9000</p>	
<p>Depreciation Report Updates Current Age: new Assumed Lifespan: 3 year Replacement Date: 2021 and every three years Update Budget: \$4000</p>	

APPENDIX B
RENEWAL COSTS TABLE

APPENDIX B: RENEWAL COSTS TABLE

Project: Strata Plan VR519 - Langara Court
 Date of Construction: 1977
 Fiscal Year End: September 30



Building Element	Year End	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048					
	Building Age	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71					
	Report Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30					
1.0 STRUCTURE																																				
Parking Garage Structure			\$5,800										\$5,800										\$5,800													
Residential Structure				\$11,600										\$11,600										\$11,600												
Courtyard Canopy				\$87,000																																
2.0 BUILDING ENVELOPE																																				
Recently Repaired Balconies														\$100,000																			\$350,000			
Other Repaired Balconies								\$170,000																	\$510,000											
Older Balconies			\$540,000		\$630,000														\$130,000																	
Walkways		\$5,000						\$215,000																\$400,000												
Roof Decks																	\$730,800																			
Roof Deck Boards								\$3,500																												
Sealant								\$5,800							\$5,800											\$5,800										
Brick Masonry Walls				\$58,000						\$58,000																										
Walkway Roof Edge Canopy																									\$7,000											
Walkway Glazing System																									\$9,000											
Skylights								\$23,000																\$23,000												
Original Windows and Sliding Doors					\$635,000																															
Previously Replaced Windows and Sliding Doors																																		\$260,000		
Wood Siding																																				
Insulated Glazing Units								\$5,800					\$5,800					\$5,800						\$5,800												
Miscellaneous Hinged Doors			\$5,800						\$5,800					\$5,800					\$5,800						\$5,800											
Sloped Shingle Roofing					\$23,000																						\$23,000									
Sloped Metal Roofing									\$28,000																											
Downspouts and Gutters																																				
North and South Building Flat Roofs				\$465,000																																
Swimming Pool Flat Roof Areas																							\$40,000													
Amenities Flat Roof			\$17,000																																	
Parking Garage Waterproofing in Courtyard																									\$670,000											
Parking Garage Waterproofing Northwest Corner																																	\$390,000			
Painting		\$25,000					\$50,000						\$25,000	\$25,000					\$50,000						\$25,000		\$25,000									
3.0 POWER DISTRIBUTION																																				
Miscellaneous Electrical									\$40,000																										\$75,000	
Exterior Lights and Timers		\$5,000																							\$5,000											
Emergency Lighting Packs		\$2,000						\$700					\$700	\$2,000													\$700								\$700	
4.0 HEATING, VENTILATION, AND AIR CONDITIONING																																				
Parking Garage Exhaust Fan																\$2,000																			\$2,000	

APPENDIX B: RENEWAL COSTS TABLE

Project: Strata Plan VR519 - Langara Court
 Date of Construction: 1977
 Fiscal Year End: September 30



Building Element	Year End	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	
	Building Age	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	
	Report Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Parking Garage Exhaust Fan Timer											\$450																\$450					
Electric Fans and Humidistats				\$3,000					\$3,000					\$3,000					\$3,000					\$3,000					\$3,000			
Duct Heater				\$1,700																				\$1,700								
Baseboard Heaters and Thermostats			\$1,900																				\$1,900									
5.0 PLUMBING AND WATER SUPPLY SYSTEMS																																
Water Heater							\$1,700										\$1,700											\$1,700				
Pressure Reducing Valve for hot Water Tank							\$1,000																					\$1,000				
Water Supply Piping, Valves, and Backflow Preventers							\$650,000																									
Pressure Relief Valves			\$3,500																													
6.0 FIRE PROTECTION																																
Dry Pipe Sprinkler Valve System				\$10,000																												
Dry Sprinkler System Compressor & Motor											\$2,700																\$2,700					
Dry Sprinkler Heads and Pipe Joints			\$2,900				\$2,900					\$2,900					\$2,900						\$2,900				\$2,900					
Fire Alarm System																					\$7,000											
Fire Alarm Monitoring			\$1,200																									\$1,200				
Pull Station			\$1,000																								\$1,000					
Fire Alarm Bell				\$1,000																				\$1,000								
Fire Extinguishers																																
Exit Signage			\$2,300																					\$2,300								
7.0 SECURITY SYSTEMS																																
Enter Phone System													\$14,000															\$14,000				
Door Bell and Chimes							\$2,500																				\$2,500					
8.0 INTERIOR FINISHES																																
Paint							\$18,000										\$18,000										\$18,000					
Carpet								\$38,000															\$38,000									
Exposed Brick				\$5,000																												
Parking Garage Interior Paint							\$6,000																\$6,000									
9.0 HARD LANDSCAPING																																
Concrete and Stone Landscaping																																
Concrete Sidewalks				\$6,000																						\$6,000						
Courtyard Hard Landscaping																												\$25,000				

APPENDIX B: RENEWAL COSTS TABLE

Project: Strata Plan VR519 - Langara Court
 Date of Construction: 1977
 Fiscal Year End: September 30



Building Element	Year End	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	
	Building Age	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	
	Report Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
16.0 STRATA OWNED UNITS																																
Resident Caretaker's Kitchen Appliances													\$4,200													\$4,200						
Resident Caretaker's Washer and Dryer								\$1,800												\$1,800												
Resident Caretaker's Kitchen, Bathroom, and Carpets				\$23,000												\$23,000												\$23,000				
Resident Caretaker's Water Heater											\$1,200											\$1,200										\$1,200
17.0 MISCELLANEOUS																																
Miscellaneous				\$6,000			\$6,000			\$6,000			\$6,000			\$6,000			\$6,000			\$6,000			\$6,000			\$6,000				
Mailboxes					\$3,500																					\$3,500						
Courtyard Guard																							\$9,000									
Depreciation Report				\$4,000			\$4,000			\$4,000			\$4,000			\$4,000			\$4,000			\$4,000			\$4,000			\$4,000				\$4,000
PRESENT VALUE OF RENEWAL COST		\$5,000	\$626,000	\$161,100	\$1,328,900	\$661,800	\$739,200	\$452,200	\$119,400	\$85,600	\$4,350	\$3,500	\$79,200	\$120,400	\$29,800	\$39,100	\$46,200	\$754,200	\$215,800	\$14,000	\$49,800	\$35,000	\$1,701,200	\$151,400	\$47,400	\$30,950	\$52,400	\$446,800	\$613,000	\$2,700	\$5,200	

APPENDIX C
CASH FLOW GRAPHS AND SPREADSHEETS

LIFE CYCLE COSTING DATA

Funding Model 1 - Maintain Current Contribution with Slight Annual Increases, Many Early Assessments

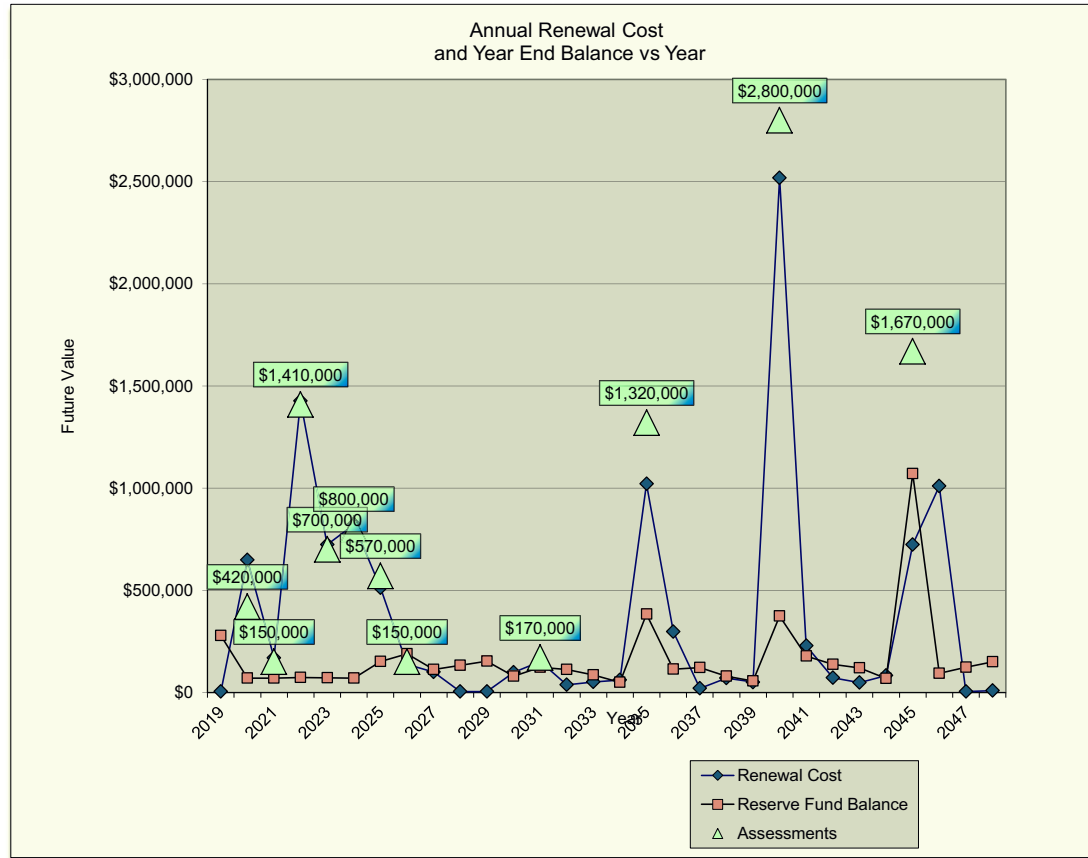
Project: Strata Plan VR519 - Langara Court

Starting Value of the Contingency Reserve Fund: \$252,920
 Savings Rate, i: 2.47%
 Recommended Annual Contribution: **\$18,000 +2%/yr**
 or One Time Contribution: \$7,905,120

Number of Dwelling Units: 56
 Rate of Escalation, e: 2.00%
 average per unit per month: **\$27 plus the annual increase**
 average per unit: \$141,163



Report Year	Building Age	Calendar Year Ending September 30	Present Value of Renewal Cost (from Appendix B)	Renewal Cost on September 30 of each year (Future Value Based on Escalation)	Annual Contribution on September 30 each year (Future Value)	Reserve Fund Balance to Carry Forward (Future Value)
1	42	2019	\$5,000	\$5,090	\$277,167	\$278,797
2	43	2020	\$626,000	\$648,739	\$438,360	\$70,109
3	44	2021	\$161,100	\$169,957	\$168,727	\$70,580
4	45	2022	\$1,328,900	\$1,427,195	\$1,429,102	\$74,277
5	46	2023	\$661,800	\$723,545	\$719,484	\$71,950
6	47	2024	\$739,200	\$822,714	\$819,873	\$70,817
7	48	2025	\$452,200	\$512,348	\$590,271	\$152,414
8	49	2026	\$119,400	\$137,717	\$170,676	\$189,952
9	50	2027	\$85,600	\$100,509	\$21,090	\$113,263
10	51	2028	\$4,350	\$5,200	\$21,512	\$132,776
11	52	2029	\$3,500	\$4,259	\$21,942	\$154,175
12	53	2030	\$79,200	\$98,107	\$22,381	\$80,387
13	54	2031	\$120,400	\$151,827	\$192,828	\$124,387
14	55	2032	\$29,800	\$38,255	\$23,285	\$112,120
15	56	2033	\$39,100	\$51,097	\$23,751	\$86,868
16	57	2034	\$46,200	\$61,462	\$24,226	\$50,857
17	58	2035	\$754,200	\$1,021,407	\$1,344,710	\$383,403
18	59	2036	\$215,800	\$297,517	\$25,204	\$113,834
19	60	2037	\$14,000	\$19,649	\$25,708	\$122,855
20	61	2038	\$49,800	\$71,152	\$26,223	\$79,851
21	62	2039	\$35,000	\$50,906	\$26,747	\$57,067
22	63	2040	\$1,701,200	\$2,518,874	\$2,827,282	\$374,502
23	64	2041	\$151,400	\$228,205	\$27,828	\$178,426
24	65	2042	\$47,400	\$72,732	\$28,384	\$137,390
25	66	2043	\$30,950	\$48,345	\$28,952	\$120,911
26	67	2044	\$52,400	\$83,325	\$29,531	\$68,775
27	68	2045	\$446,800	\$723,275	\$1,700,122	\$1,071,449
28	69	2046	\$613,000	\$1,010,179	\$30,724	\$94,266
29	70	2047	\$2,700	\$4,529	\$31,338	\$124,066
30	71	2048	\$5,200	\$8,880	\$31,965	\$150,785
			\$8,621,600			



The starting value of the contingency reserve fund plus one year of interest was added to Report Year 1.
 Special assessments are shown on graph and the year is highlighted in the table.

LIFE CYCLE COSTING DATA

Funding Model 2 - Double Current Contribution plus Slight Annual Increases, Many Early Assessments

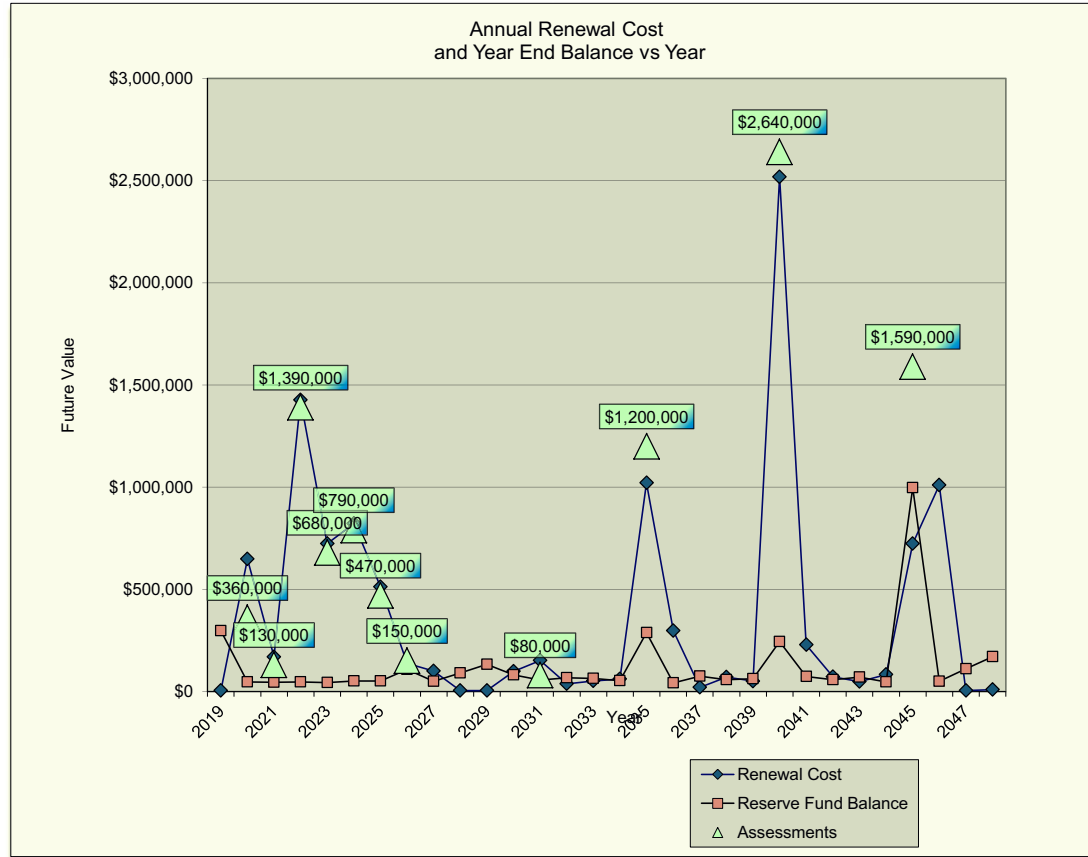
Project: Strata Plan VR519 - Langara Court



Starting Value of the Contingency Reserve Fund: \$252,920
 Savings Rate, i: 2.47%
 Recommended Annual Contribution: **\$36,000 +2%/yr**
 or One Time Contribution: \$7,905,120

Number of Dwelling Units: 56
 Rate of Escalation, e: 2.00%
 average per unit per month: **\$54 plus the annual increase**
 average per unit: \$141,163

Report Year	Building Age	Calendar Year Ending September 30	Present Value of Renewal Cost (from Appendix B)	Renewal Cost on September 30 of each year (Future Value Based on Escalation)	Annual Contribution on September 30 each year (Future Value)	Reserve Fund Balance to Carry Forward (Future Value)
1	42	2019	\$5,000	\$5,090	\$295,167	\$297,242
2	43	2020	\$626,000	\$648,739	\$396,720	\$46,340
3	44	2021	\$161,100	\$169,957	\$167,454	\$44,920
4	45	2022	\$1,328,900	\$1,427,195	\$1,428,203	\$47,063
5	46	2023	\$661,800	\$723,545	\$718,968	\$43,535
6	47	2024	\$739,200	\$822,714	\$829,747	\$51,817
7	48	2025	\$452,200	\$512,348	\$510,542	\$51,246
8	49	2026	\$119,400	\$137,717	\$191,353	\$107,473
9	50	2027	\$85,600	\$100,509	\$42,180	\$50,358
10	51	2028	\$4,350	\$5,200	\$43,023	\$90,360
11	52	2029	\$3,500	\$4,259	\$43,884	\$133,195
12	53	2030	\$79,200	\$98,107	\$44,761	\$81,822
13	54	2031	\$120,400	\$151,827	\$125,657	\$57,027
14	55	2032	\$29,800	\$38,255	\$46,570	\$66,956
15	56	2033	\$39,100	\$51,097	\$47,501	\$64,926
16	57	2034	\$46,200	\$61,462	\$48,451	\$53,197
17	58	2035	\$754,200	\$1,021,407	\$1,249,420	\$288,157
18	59	2036	\$215,800	\$297,517	\$50,409	\$42,063
19	60	2037	\$14,000	\$19,649	\$51,417	\$75,654
20	61	2038	\$49,800	\$71,152	\$52,445	\$58,354
21	62	2039	\$35,000	\$50,906	\$53,494	\$62,448
22	63	2040	\$1,701,200	\$2,518,874	\$2,694,564	\$244,019
23	64	2041	\$151,400	\$228,205	\$55,655	\$73,235
24	65	2042	\$47,400	\$72,732	\$56,768	\$58,686
25	66	2043	\$30,950	\$48,345	\$57,904	\$69,930
26	67	2044	\$52,400	\$83,325	\$59,062	\$46,795
27	68	2045	\$446,800	\$723,275	\$1,650,243	\$997,816
28	69	2046	\$613,000	\$1,010,179	\$61,448	\$50,297
29	70	2047	\$2,700	\$4,529	\$62,677	\$111,123
30	71	2048	\$5,200	\$8,880	\$63,930	\$170,278
			\$8,621,600			



The starting value of the contingency reserve fund plus one year of interest was added to Report Year 1. Special assessments are shown on graph and the year is highlighted in the table.

LIFE CYCLE COSTING DATA

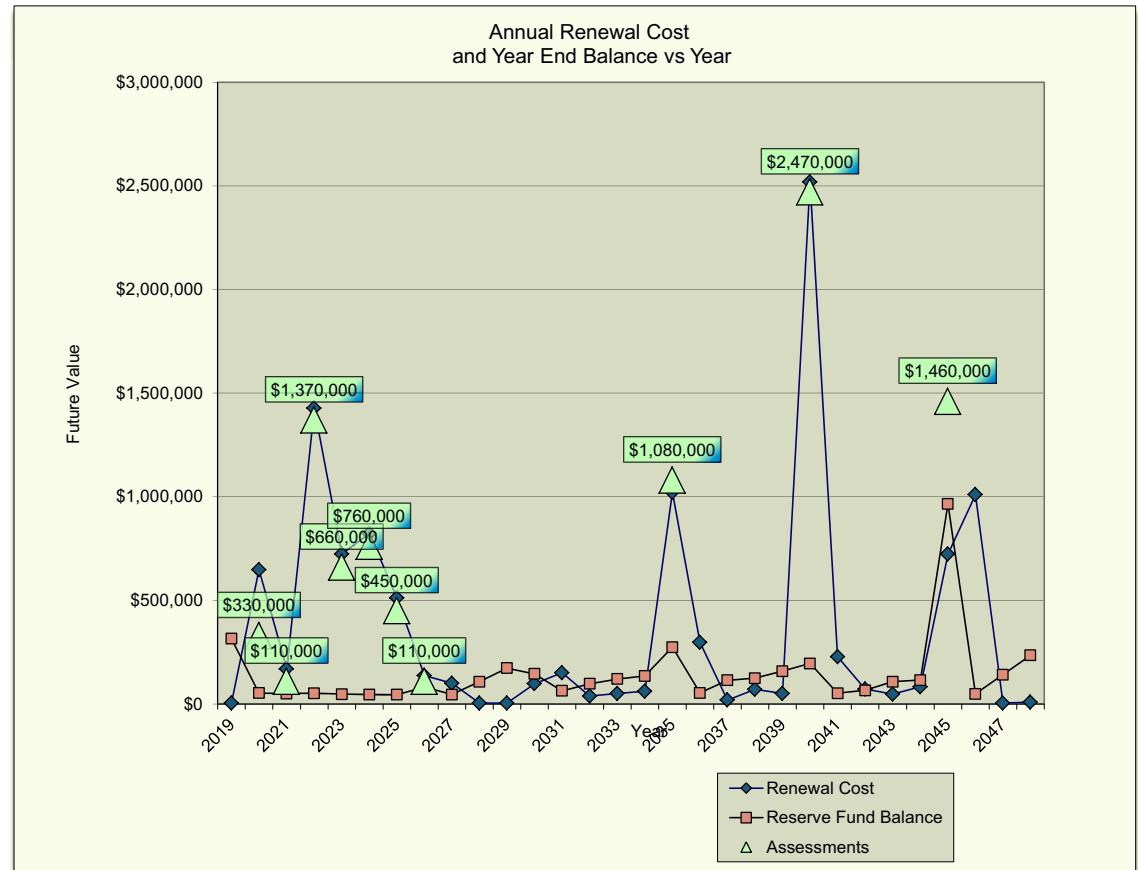
Funding Model 3 - Triple Current Contribution plus Slight Annual Increases, Many Early Assessments

Project: Strata Plan VR519 - Langara Court



Starting Value of the Contingency Reserve Fund:	\$252,920	Number of Dwelling Units:	56
Savings Rate, i:	2.47%	Rate of Escalation, e:	2.00%
Recommended Annual Contribution:	\$54,000 +2%/yr	average per unit per month:	\$80 plus the annual increase
or One Time Contribution:	\$7,905,120	average per unit:	\$141,163

Report Year	Building Age	Calendar Year Ending September 30	Present Value of Renewal Cost (from Appendix B)	Renewal Cost on September 30 of each year (Future Value Based on Escalation)	Annual Contribution on September 30 each year (Future Value)	Reserve Fund Balance to Carry Forward (Future Value)
1	42	2019	\$5,000	\$5,090	\$313,167	\$315,687
2	43	2020	\$626,000	\$648,739	\$385,080	\$53,313
3	44	2021	\$161,100	\$169,957	\$166,182	\$50,761
4	45	2022	\$1,328,900	\$1,427,195	\$1,427,305	\$52,128
5	46	2023	\$661,800	\$723,545	\$718,451	\$48,195
6	47	2024	\$739,200	\$822,714	\$819,620	\$46,216
7	48	2025	\$452,200	\$512,348	\$510,813	\$45,785
8	49	2026	\$119,400	\$137,717	\$172,029	\$82,076
9	50	2027	\$85,600	\$100,509	\$63,270	\$45,944
10	51	2028	\$4,350	\$5,200	\$64,535	\$107,880
11	52	2029	\$3,500	\$4,259	\$65,826	\$173,632
12	53	2030	\$79,200	\$98,107	\$67,142	\$146,191
13	54	2031	\$120,400	\$151,827	\$68,485	\$64,402
14	55	2032	\$29,800	\$38,255	\$69,855	\$98,374
15	56	2033	\$39,100	\$51,097	\$71,252	\$121,456
16	57	2034	\$46,200	\$61,462	\$72,677	\$135,948
17	58	2035	\$754,200	\$1,021,407	\$1,154,130	\$275,308
18	59	2036	\$215,800	\$297,517	\$75,613	\$54,723
19	60	2037	\$14,000	\$19,649	\$77,125	\$114,971
20	61	2038	\$49,800	\$71,152	\$78,668	\$125,513
21	62	2039	\$35,000	\$50,906	\$80,241	\$158,672
22	63	2040	\$1,701,200	\$2,518,874	\$2,551,846	\$196,378
23	64	2041	\$151,400	\$228,205	\$83,483	\$52,932
24	65	2042	\$47,400	\$72,732	\$85,153	\$66,967
25	66	2043	\$30,950	\$48,345	\$86,856	\$108,082
26	67	2044	\$52,400	\$83,325	\$88,593	\$116,150
27	68	2045	\$446,800	\$723,275	\$1,550,365	\$966,538
28	69	2046	\$613,000	\$1,010,179	\$92,172	\$49,730
29	70	2047	\$2,700	\$4,529	\$94,015	\$142,654
30	71	2048	\$5,200	\$8,880	\$95,896	\$235,342
			\$8,621,600			



The starting value of the contingency reserve fund plus one year of interest was added to Report Year 1. Special assessments are shown on graph and the year is highlighted in the table.

APPENDIX D

GLOSSARY

Glossary

Langara Court
333 Wethersfield Drive, Vancouver, B.C.

Air Barrier (System) – Materials and components that together provide a barrier to air through an assembly and thus limit the potential for heat loss and condensation due to air movement.

Addendum – A change to the bid package (usually a modification of the drawings and specifications) issued during the bid period and before execution of the contract.

Alligatoring – The cracking of the surfacing bitumen on a built-up roof, which produces a pattern of cracks similar to an alligator's hide; the cracks may or may not extend through the surfacing bitumen. Usually caused by oxidizing of the asphalt due to weathering and/or shrinkage stresses.

Assembly – The collective layers of components and materials, which together comprise the complete cross section of the wall or roof.

Assessment – See Special Levy

Balcony – A horizontal surface exposed to outdoors, and intended for pedestrian use, but projected from the building so that it is not located over a living space or acting as a roof.

Base Flashing – The part of the roofing that is turned up at the intersection of a roof with a wall or another roof penetration. It may be made of the same material as the main roofing membrane or of a compatible material.

BEP – Building Envelope Professional. The Building Envelope Professional reviews the building envelope design and reports to the project architect or co-coordinating registered professional with respect to environmental separation and the performance of materials, components, and assemblies of the building envelope.

Blackberry (sometimes referred to as Blueberry or Tar-Boil): a small bubble or blister in the flood coating of an aggregate-surfaced built-up roof membrane.

Building Envelope – Those parts of the building which separate inside conditioned space from unconditioned or outside space, and includes windows, doors, walls, roofs, and foundations.

Cap Flashing – Sheds water from the tops of walls. Cap flashing must be sloped toward the roof to prevent staining of the exterior cladding. It is difficult to make metal cap flashing waterproof at joints and intersections, and it therefore requires a secondary, continuous, and waterproof membrane below it.

Capital Cost Reserve Fund Study - See Reserve Fund Study

Cladding – A material or component of the wall assembly which forms the outer surface of the wall and is exposed to the full force of the environment.

Common Property – Part of the land and buildings shown on a strata plan that is not part of a strata lot.

Control Joint – An assembly or part of an assembly installed to control movements and cracking by expanding and contracting. Often found in stucco cladding and concrete slabs.

Crazing – A series of hairline cracks in the surface of weathered materials.

Cross Cavity Flashing – Intercepts and directs any water flowing down the cavity of a wall assembly to the exterior.

Deck – A Horizontal surface exposed to outdoors, located over a living space, and intended for pedestrian use in addition to performing the function of a roof.

Deflection – A water management principle that utilizes features of the building and assembly geometry to limit the exposure of the assemblies to rain.

Depreciation Report – See Reserve Fund Study

Drainage – A water management principle that utilizes surfaces of the assemblies to drain water away from the assembly.

Drip Flashing – Directs water flowing down the face of vertical elements, such as walls or windows, away from the surface so that it does not continue to run down the surface below the element.

Drying – A water management principle that incorporates features and materials that speed diffusion and evaporation of moisture from materials that get wet.

Durability – The ability of a material, components, assembly or building to perform its required functions in its service environment over a period of time without unforeseen maintenance, repair or renewal.

Efflorescence – A white, chalky or sometimes hard stain which is formed on concrete and masonry when water dispersible materials such as salts come to the surface and dry.

Elevation – A term used to describe a wall or side of a building. The direction preceding the word “elevation”, as in “north elevation” is the direction that the wall is facing and the direction you would be looking if you were in the building looking straight outside.

Face Seal – A strategy for rain penetration control that relies on the elimination of holes through the cladding.

Fascia – A board installed across the ends of the rafters at the eaves or between the top of the siding and the bottom of a soffit.

Field Applied Preservatives – Wood preservatives commonly applied at the job site using brush, spray, roller or other non-pressure method for protection against wood decay.

Fire Wall – A type of noncombustible fire separation which subdivides a building or separates adjoining buildings to resist the spread of fire.

Flashing – Materials used to deflect water and make waterproof connections at interfaces and joints within and between wall and roof assemblies.

Frieze Board – A horizontal exterior trim member positioned between the siding of a structure and its soffit.

Guards – A protective barrier used to prevent falls from one level to another. Often referred to as guard rails but that is technically just one part.

Kiln dried (KD) – Designation added by lumber manufacturers to indicate that the wood was dried in a kiln, a process that involves the rapid removal of moisture by the use of high temperatures. Kiln-dried wood has a moisture content of 19 per cent or less, usually between 15 and 19 per cent.

Life Expectancy – The expected time an asset can perform its intended function. Normally the time is determined statistically but can also be estimated based on experience and local knowledge.

Living Space – The interior of a dwelling or building that is separated from the exterior by the building envelope.

Maintenance – A regular process of inspection, minor repairs and replacement of components of the building envelope to maintain a desired level of performance for the intended service life without unforeseen renewal activities.

Mansard Roof – A roof style with a steeper lower part, originally used in France. The term is also used for a sloped roof overhang at the perimeter of a building that drops down to a flat roof over the rest of the building. The drop is a mansard wall. The framing cross section is often a triangle.

Moisture barrier – The moisture barrier is the surface farthest from the exterior which can accommodate moisture without incurring damage to the assembly.

Moisture content (MC) – The amount of water in a material such as wood, expressed as a percentage of the oven-dry weight of the material.

Parapet Wall – A low wall on the edge of a balcony or roof.

Parging – A thin coat of mortar typically applied over a concrete or masonry wall to provide a better appearance.

Partition Wall – An interior wall that is not typically load bearing. Usually this refers to walls between rooms inside of a suite.

Party Wall – A wall jointly used by two suites.

Patio – An outdoor area used by the occupants of the adjacent suite and situated over the parkade or on soil. The floor is usually finished with concrete or pavers.

Penetration – An intentional opening through an assembly in which ducts, electrical wires, pipes, and fasteners are run from inside to outside.

Pressure-treated wood – Wood that has been treated with chemical preservatives, injected at high pressure, for protection against wood decay and termite attack.

Privacy Wall – A wall that provides a visual barrier, such as the wall between two adjacent balconies.

Rainscreen – A strategy for rain penetration control that relies on deflection of the majority of water at the cladding but also incorporates a cavity that provides a drainage path for water that penetrates beyond the cladding.

Rehabilitate – A program of comprehensive, overall improvements to building envelope assemblies and details so the building can fulfil its originally intended functions.

Renewals – Activities associated with the expected replacement of worn out components or materials of a building envelope and are typically for items with life cycles in excess of one year.

Repair – Replacement or reconstruction of envelope assemblies, components, or materials at specific localized areas of the building envelope so that it can fulfill its originally intended functions.

Reserve Fund Study – Also known as a Depreciation Report. A study of the expected maintenance and renewal costs of a building over an extended time period, including, but not limited to, annual and lump sum contribution scenarios.

Roof Deck – A flat open area over living space, such as a terrace or a sundeck.

Saddle – The junction or transition of a horizontal surface, such as a balcony floor or the top of a parapet wall, with a vertical surface, such as the exterior wall of the building.

Scupper – An outlet through the side of a building or wall that is used to drain water. They are commonly a metal box shape or a round pipe. Scupper drains are the primary drain for water while overflow scuppers only flow when the primary drain is plugged.

Sheathing – A material (generally oriented strand board (OSB) or plywood) used to provide structural stiffness to the wall framing and to provide structural backing for the cladding and sheathing paper.

Sheathing Membrane – A material in an exterior wall assembly whose purpose is to retard penetration of water further into the structure once past the cladding. Waterproof type sheathing membranes can also perform the function of the air barrier and the vapour barrier. These materials include both breather type sheathing membranes such as building paper, house wraps (like Tyvek or Typar), and waterproof sheathing membranes.

Slab Band – A thickening in a suspended slab where a concentration of reinforcing steel also exists. These are located where concentrated loads such as building walls exist above. Slab bands span between columns.

Soffit – The underside of a structure such as a balcony or roof overhang.

Spalling – a fragment of concrete that becomes loose or falls, usually due to corroded reinforcing steel in the structure. Spalling is a serious issue requiring investigation.

Special Assessment – see Special Levy

Special Levy – A method of raising funds for expenses that occur annually or less often than annually, payable in one lump sum or by installments as set out in the $\frac{3}{4}$ Vote resolution authorizing the special levy.

Strapping – Vertically oriented lumber (usually pressure treated 1 x 2s or strips of pressure-treated plywood) that form the cavity between the cladding and the sheathing paper in a strapped cavity rainscreen wall assembly.

Strata Corporation – Similar to a condominium corporation. The Strata Property Act replaced the Condominium Act of B.C. in 1999. The strata corporation has a legal obligation to repair and maintain the common property, common facilities and assets of the strata corporation.

Strata Council – A group of owners elected to carry out the duties of the strata corporation.

Superstructure – The upward extension of the building above a baseline such as the top of the parking garage.

Suspended Slab – A structural element comprising of concrete and reinforcing steel that usually acts as a floor or roof. The “ceilings” above parking garages are suspended slabs.

System– Describes a combination of materials and components that perform a particular function such as an air barrier system, or moisture barrier system.

Thermal Break – A building element that has low thermal conductivity and reduces the flow of thermal energy (hot or cold) through the assembly. In a window, the thermal break is intended to keep the inside of the frame warm and prevent condensation on the inside face of the window.

Through-wall Flashing – A water proof membrane or metal flashing placed under segmented precast concrete, stone masonry or brick units known as copings close to the tops of masonry walls to prevent water from entering the wall at joints in the coping. Through-wall flashing is also used to prevent capillary transfer of moisture through porous materials such as concrete or masonry if they extend from high moisture locations such as below grade.

Vapour barrier (also vapour diffusion retarder) – A material with low vapour permeability that is located within the assembly to control the flow of water vapour and limit the potential for condensation due to diffusion.

Warranty – An agreement that provides assurance by a warranty provider (insurance program or contractor) to the owner that the warrantor will assume stipulated responsibilities for correction of defects and failure to meet specific performance criteria within a stated period.

Water Ingress – The act of water leakage or penetration into a building or other object.

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