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Project Name

Vogue Tower Condominium

Type of Project

Reserve Fund Study

Project Location

930 6 Avenue SW, Calgary, AB

Prepared For

Bedouin Suites

Prepared By

Williams Engineering Canada Inc.

Date Prepared

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WE File No. 40299.00

FINAL

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1.0 Executive Summary

Williams Engineering Canada Inc. was retained by Nick Livaditis on behalf of Bedouin Suites to prepare a study of the Common Property Capital Reserve Fund for the Vogue Condominium Corporation No. 1710503.

To prepare this study, the site was reviewed and the condition of the development was assessed in terms of present equivalent age, expected remaining life, and general condition. The results of this review were used to determine replacement costs associated with each item and to amortize these costs forward to the time they will require replacement. Using this data, the status of the existing fund was assessed in terms of required cash flows and any shortfall. The results of this analysis, showing the current status of the fund and projected cash flows¹, are included in the Appendices.

1.1 Assessment

Based on the current fund value of \$206,500 (effective July 1, 2019) and an annual Reserve Fund contribution of \$198,000 (over the next 25 year period) as provided by the board, it is our assessment that the current Reserve Fund for Vogue Condominiums will meet the accrued liabilities.

Financial scenarios have been included in the back of the report, outlining the overall Reserve Fund Contributions and cash flow projection based on recommended annual contribution amounts.

Please note that annual adjustments to the projected values present in the appendices will be required to account for yearly inflationary pressure. Should spending priorities be revised or expedited from what our projections indicate, a revised financial projection should be requested to illustrate the effect on both the fund balance and annual contribution.

¹ A 3% real interest rate has been applied, which is the assumed difference between annual inflation rates and typical investment interest.

2.0 Introduction

Williams Engineering Canada Inc. was commissioned by the Vogue Tower Condominium Board (Condominium Plan #1710503) to prepare a Reserve Fund Study for the Vogue Condominiums, located at 930 6 Avenue SW in Calgary, Alberta. On January 29, 2019, Hillary Kernahan, P.Eng, Brenna Loch, E.I.T and Henry Sun of Williams Engineering Canada Inc. attended the site. On February 15, 2019, Harry Badau of Williams Engineering Canada Inc. attended the site. After the initial site visit, additional consultation was done within Williams Engineering Canada Inc. related to the common components of the complex.

The Vogue condominium complex was constructed circa 2017. Vogue Tower is a 36-storey residential building with 232 units. There are five levels of below grade parking, and two levels of above-grade parkade. The main level has the residential building lobby and four commercial retail tenant spaces. Levels 6-9 are office spaces.

3.0 Terms of Reference

The Terms of Reference for this study are as defined through our proposal submission and discussions with condominium representatives. They are as follows:

- Review all available drawings, maintenance logs, and current financial statements as made available to Williams Engineering Canada.
- Review previously recorded common property elements and dimensions, and document/inventory equipment (i.e., furniture and fixtures) owned by the Vogue Tower Condominium Association.
- Conduct an on-site visual review of exposed common property structural components, building envelope components, general site characteristics, mechanical systems, and electrical systems.
- Confirm inventory
- Discuss with maintenance staff
- Meet with Board to review
- Cost and Life Cycle Estimate
- Prepare a report focusing on the following:
 - 5 – 10 year considerations
 - Document assumptions and further investigation recommendations required

Our team will review the following:

Exterior Building Features (where applicable):

- Roof assembly
- Exterior wall cladding
- Caulking
- Doors and windows
- Decks, balconies, and railings
- Concrete elements

Structural Systems (where applicable):

- Foundation and superstructure components
- A visual only review of all exposed major structural components (i.e., roof assembly elements, elevated floor assembly elements, slabs-on-grade, load bearing interior/exterior wall elements, and exposed foundation elements) will be undertaken
- Under no circumstances will engineering calculations be performed to determine member capacities of any structural components as this is not part of the scope of this work

Mechanical Systems (where applicable):

- Underground water and gas distribution systems (i.e., storm water drainage system, sanitary sewer system, etc.)
- Hose bibs
- Building services (i.e., heating, ventilating and air conditioning systems, plumbing, and boiler systems)

Electrical Systems (where applicable)

- Underground power services
- Area lighting
- Exterior building and security lights
- Common electrical receptacles
- Door entry systems
- Fire alarm systems

Interior Building Features (where applicable)

- Paint

- Floor finishes
- Elevator finishes
- Lighting
- Common amenity spaces
- Parkade Levels (7)

4.0 General Reserve Fund Comments

The intention of a Reserve Fund Study is to be a dynamic document that must be reviewed on a periodic basis and used as a reference document for the ongoing management of the condominium. Adjustments should be made to the forecasts developed within the Reserve Fund Study on an annual basis. This may be done internally by the Condominium Corporation and Property Managers. A complete re-evaluation of the technical audit must be conducted in five year intervals to review the condition of more significant items. This review is required under the Condominium Property Act to ensure that reasonable funds are provided to meet the future needs of the condominium for the repair or replacement of major items.

The calculations and format used in this study consider the replacement costs and life expectancies of all items identified to be included in the Reserve Fund in accordance with the Condominium Property Act of Alberta, 2000.

Although every effort is made to correctly estimate the life expectancies and replacement costs of maintenance items, this is not a precise science. The actual life of any component may differ substantially from the estimate made. However, we recommend that this document be reviewed and amended based on historic information as it is provided to the Condominium Corporation on an annual basis. This report is the foundation for the Corporation's budgeting process, and for that purpose, should be reviewed and updated each year.

For the purpose of this Reserve Fund Study, no specific allowance for inflation has been included and all costs shown are in present value dollars 2019. Instead, an annual 3%² real interest rate is incorporated in the projected cash flow analysis. It is recommended that in the process of the annual budget review the board address the issue of inflation, especially as it relates to construction costs. An important example of considering construction costs specifically instead of the Consumer Price Index (CPI) is the upward or downward pressure on specific products (such as timber and oil

² Real rate is defined as the historical difference between annual inflation and interest rates.

prices). A full review of the Reserve Fund every five years will also ensure that the Reserve Fund has not been compromised.

It must be understood that Reserve Fund allowances are not intended to address routine annual maintenance issues. The total yearly budget, as determined by the board, must allow for both Reserve Fund expenses and annual maintenance issues. Reserve Fund allowances are monies that are required to be set aside to replace, upgrade, or overhaul base building common property components that have deteriorated over time through normal wear and use.

This Reserve Fund Study provides an itemized list of major building, mechanical, electrical, and exterior components that will, at some time over the life of the building, either in the short term or the long term, require replacement. Failure to address these items over planned periods may result in major financial shortfalls.

In Appendix A, a particular item may be identified as having an estimated remaining life of 25 years. Funds set aside to address the replacement of the item may be required to be spent in a staged process over the projected 25 year period to address interim or accelerated deterioration of any particular item. However, the board should, at its discretion, spend the funds for the various items as the need arises or as they deem elements to be a priority.

Costing factors have been obtained from local suppliers based on similar work programs. Readers are cautioned that the numbers presented do not reflect a “tender” price but rather, a budget allowance to complete the work packages.

Values recommended in the financial projections include federal sales taxes (5%) but do not include consulting services to design, administer, or supervise repairs or replacement. Replacement cost allowances are based on the replacement of the original materials unless otherwise noted and include contingency allowances to address unexpected issues related to remediation of a particular component. It is important to note that should the existing common property components be upgraded with a higher quality material or product, improvement costing needs to be added to the costing figures provided.

4.1 Fees (Legal - Accounting - Engineering)

Throughout the condominium operation period, legal fees for remedies and delinquent activities are anticipated. No dollar allowances for same have been included in this report and should be budgeted for accordingly.

Accountant fees are generally incurred annually to prepare and review financial statements. These fees are considered operational costs and consequently are not reflected in the financial projections for capital expenditures but should be considered in general operation budgets. Similarly, legal costs have also not been included. As this analysis will change with time, the Capital Reserve Fund requires periodic re evaluation to determine any significant changes. It is recommended that an engineering firm specializing in Reserve Fund analysis be retained every five years to re evaluate the financial projections contained in this analysis.

4.2 Reserve Fund Analysis and Definitions

The purpose of a Reserve Fund Study is to evaluate the condition of common property features, determine the normal life expectancy of the common property features, and evaluate the anticipated time of replacement. This information is used to assess the cash flow requirements for the Reserve Fund and to determine the required annual contribution to the fund. The study is intended to minimize any liabilities for major capital cost items that would be the responsibility of the Condominium Corporation. Once this is determined, any existing shortfall in the current funding program for the Reserves becomes apparent.

As Reserve Funds are intended to cover the capital costs for major upgrades or overhauls only, normal maintenance expenditures for the complex have not been accounted for and are not expected to be funded from the Reserve Funds.

Appendix A itemizes the common property features, replacement costs, normal expected life, and the funding required for the capital Reserves. The annual contribution for the Reserve Fund is determined by assessing the current replacement cost of a capital cost item divided by the number of years that represent the item's useful life. As a number of capital items do not require the funds to be spent all at once, the expenditure is often spread over a number of years and centred at the estimated end of the life cycle.

For the purposes of this study, the financial analysis was based on the estimated value of the Reserve Fund as of December 31, 2018. No allowance has been made for inflation on the Reserves (i.e., the study uses present value dollars), which have been based on 2019 dollars. A value of 3% real³ interest on the Reserves has been allocated.

³ Real rate is defined as the historical difference between annual inflation and interest rates.

The amount of the present Reserve Fund balance, which is allocated to each capital item, is calculated using the Funding Percentage of Total indicated in Appendix A. The shortfall is the difference between what should be allocated in the current fund to any particular item and the allocation amount of the fund in place at the time of this report.

Financial Definitions

Current Cost of Replacement

The amount of money required (or portion thereof) to repair, replace, or maintain the specified common property element (noted in present day dollars). These figures do not include improvement of existing materials but include for “like and kind” components.

Expenditure Spread (Years)

The amount of time (in years) projected for the assigned component to be repaired, replaced, or maintained. This value is typically higher for larger expenditures (i.e., window replacement or other major replacement projects that allow costs to be spread over a longer period of time).

Expected Normal Life (Years)

Generally, the number of years that a specific component will last under normal conditions before replacement is required.

Present Equivalent Age

The present age of the component, based on a variety of scenarios including either the original date of construction, most recent date of partial replacement, or existing conditions viewed at the time of the review. This value will vary depending on these scenarios.

Estimated Remaining Life

The calculated time frame between Expected Normal Life and Present Equivalent Age, whereby the values are subtracted from each other. The amount represents the estimated number of years remaining before replacement is required.

Required Annual Contribution

The annual amount of funding required for each component. This value is derived by dividing the Current Cost of Replacement by the Expected Normal Life.

Funding % of Total

This value is based on the percentage of each component in relation to the total amount required for the Reserve Fund contribution.

Adjusted Fund Contribution

In order to account for interest contributions, the Adjusted Fund Contribution deflates the calculated Required Annual Contribution values to the levels stated in the current Cost of Replacement table.

Financial Definitions: Example

Cost of Replacement	Expected Normal Life	Required Annual Contribution	Adjusted Fund Contribution
\$10,000.00	20 Years	\$500.00	\$372.16

In this example, if the Required Annual Contribution of \$500.00 is collected for each year of the element's 20 year expected life, the total value collected including interest will exceed the \$10,000.00 Cost of Replacement. Accordingly, an Adjusted Fund Contribution that takes into account the additional interest contribution is calculated. For this example, the Adjusted Fund Contribution would be \$372.16 (assuming 3% real interest).

Funding Required Now

This value indicates the amount of money that would have been collected since the element was originally installed to present day, given annual contributions as indicated. **It should be noted that this does not imply that the amount is required immediately.** This value is derived by dividing the Present Equivalent Age by the Expected Normal Life and then multiplying this value by the Current Cost of Replacement.

4.3 Projected Cash Flow

4.3.1 Cash Flow Projection - Recommended Contribution

Cash Flow Projection is used to show how the Reserve Fund balance will fluctuate over the next 25 years if the recommended contribution is maintained.

4.4 Capital Expenditure Plan

The Capital Expenditure Plan presents, on an annual basis, those items and their costs that will be required over the next 25 years. This plan is like the Reserve Fund budget; however, it should be viewed as dynamic, in that some work could be delayed or moved up depending upon the actual conditions encountered. It should be noted that, for certain items, expenditures may warrant interim replacement, and as such, the full expenditure will not occur in a single year as referenced.

5.0 Condition Analysis and Site Observations

5.1 Condition Ratings

Good

The common property element displays the highest-level condition rating, with no immediate concerns evident.

Fair

The common property element displays a medium level condition rating, with some minor issues noted and some repairs/replacement recommended.

Poor

The common property element displays the lowest level condition rating, with a large amount of deterioration visible and repairs/replacement strongly recommended.

Indeterminate

The actual condition of the element was not readily visible; therefore, an assumption basis is used.

Variable

No specific condition was identified with the component but rather, it contains a variety of the conditions noted above.

6.0 Building Features

6.1 Condition Analysis and Site Observations

6.1.1 Metal Railings (Balconies)

Expected Life:	30 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	28 Years
General Condition:	Good

Description: Aluminum railings are located at the perimeter of the balconies. Some of the railings have glass inserts. The aluminum railings are fastened to the horizontal surface of the balcony and/or the exterior wall/concrete curb with lag bolts and washers.

Condition and Recommendations: Metal railings observed to be in good condition. No major repairs are expected (Photo 1).

Annual audits should be conducted of railings and rail connections to ensure all safety issues are noted and corrected in a timely manner. A replacement cost has been allocated at the end of service life, however the service life may be extended. This should be reviewed in the next reserve fund study cycle.

6.1.2 Balcony Membrane (Waterproofing)

Expected Life:	10 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	8 Years
General Condition:	Good

Description: The deck membrane is liquid-applied traffic coating applied to the concrete substrate from the concrete curb under the window or wall assembly, approximately 300mm onto the balcony slab. This material protects the joint between the curb and balcony from water penetration. On the 35th Floor the balconies have membrane over the entire balcony surface. (Photo 2).

Condition and Recommendations: The liquid-applied balcony membrane was observed to be in good condition. No repairs or replacements are expected in the next five years. A replacement cost has been allocated for end of life replacement.

6.1.3 Exterior Insulation and Finish System Wall Panels (EIFS)

Expected Life:	30 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	28 Years
General Condition:	Good

Description: The EIFS system consists of steel stud walls covered with exterior gypsum board, a trowel-on air/vapour/moisture barrier, commonly called the “weather resistant barrier” or WRB, mineral fiber or expanded polystyrene insulation, and a reinforced acrylic stucco finish. Please note that, in placing the insulation on the exterior of the stud wall, the wall cavity is designed to be a warm space. No additional insulation is required. EIFS is a manufacturer-supplied “system” which must be installed in accordance with manufacturer’s instructions. The majority of the EIFS on the building is a pre-manufactured, “panelized” system, with “site-applied” EIFS used in locations where the installation of the panelized system was not possible.

Condition and Recommendations: In general, the EIFS was observed to be in good condition. One area on the East elevation was observed to be de-bonding, this should be repaired immediately by the original contractor (Photo 3). Some water staining was observed on the stucco finish (Photo 4). No major repairs or replacements are expected in the next 5 years.

Replacement of the EIFS within the 30-year life cycle is not anticipated. Should the entire EIFS be covered or replaced for performance or cosmetic reasons, the costs would be substantial. For the purposes of this report, an allowance has been made for stucco repairs, which are scheduled to be implemented on a 20-year basis starting at the end of the identified service life. This component can be reviewed and updated in the next reserve fund cycle.

General Information: Due to the porous nature of EIFS finishes, staining may eventually become more frequent as the complex ages. Although not a structural concern, this may eventually present an aesthetic problem. If the staining becomes a concern and budgets allow for the removal of this staining, there are two possible approaches. For both methods, we would recommend that a test wall be tried first, and that an established, reputable contractor who fully understands what is expected from their service be retained.

Method 1: Power wash to remove all surface dirt. The cleaning must start at the bottom and work upwards, so as not to drive the dirt further into the stucco pores. Although this method will not likely remove all staining, it will provide a new, fresh look for a minor capital expenditure. As with any power washing operation, experienced cleaners should be retained to ensure proper pressure and cleaning detergents are used.

Method 2: Paint coating. As with all paint applications, the substrates must be cleaned as per the applicator’s recommendation. Following the cleaning, a variety of stucco paints can be applied. These acrylic-based products are relatively new, and as such, historical performance data is not readily available. The products provide a clean and new look, and allow for easier cleaning in the future, as well as a variety of colours. Possible problems include flaking, or re-application being required in five to seven years. Another disadvantage is that future coats of stucco (repairs) will not adhere to any painted surface. It is also very important to ensure that the paint is breathable.

6.1.4 Composite Metal Panels

Expected Life:	30 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	28 Years
General Condition:	Good

Description: Composite metal panels are installed over the arch at the entrance of the building (Photo 5). Vapour impermeable self-adhered membrane was used as the drainage plane material. Metal Z-girts and rigid insulation were then installed and the panels fastened to the Z-girts.

Condition and Recommendations: The composite metal panels were observed to be in good condition. No major repairs are expected in the next five years. The expected service life may be extended based on how the component ages. This may be adjusted in the next reserve fund study cycle.

6.1.5 Masonry

Expected Life:	50 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	48 Years
General Condition:	Good

Description: Stone and brick masonry is located at various wall sections of the building at or below the 10th floor. The moisture barrier behind the stone veneer is self-adhesive, vapour impermeable membrane. Stone veneer is installed over concrete or steel-stud walls. Semi-rigid mineral wool insulation is applied behind the stone to provide the thermal barrier. There is a cavity between the stone, insulation, and self-adhered membrane to facilitate drainage, and weep holes are located between stones at various locations to direct moisture to the exterior.

Condition and Recommendations: The stone and brick masonry was observed to be in good condition. Stone was observed to be missing on the South elevation at the 10th floor, this should be repaired immediately by the original contractor (Photo 6). Water staining was observed on the face of the stone (Photo 7). No major repairs or replacements are expected over the next 5 years. Funds have been allocated on a 10-year cycle for brick repair and masonry joint re-pointing.

6.1.6 Parkade Traffic Bearing Membrane

Expected Life:	10 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	8 Years
General Condition:	Variable

Description: There are seven levels of parkade at the Vogue building. The suspended slabs have a polyurethane waterproofing membrane coating.

Condition and Recommendations: Membrane was observed to be in good condition with only minor areas of deterioration due to wear noted (Photo 8 & 9). It is recommended that the membrane be reviewed annually for wear and patches applied as needed. Funds have been allocated for the membrane repair every 5 years.

6.1.7 Exterior Window Wall

Expected Life:	50 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	48 Years
General Condition:	Good

Description: The aluminum-framed window wall windows and doors are located in the majority of units around the building on all levels. These are a combination of fixed and awning window units. The doors are side-hinged, swinging doors as well as sliding doors.

Condition and Recommendations: The exterior window wall system was observed to be in good condition. No major repairs or replacements are expected in the next 5 years.

The dual-glazed sealed units installed within the window frames have a life expectancy of approximately 20 years. An allocation of funds for replacement of isolated sealed units has been provided every year.

6.1.8 Exterior Curtain Wall

Expected Life:	50 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	48 Years
General Condition:	Good

Description: The aluminum-framed curtain wall windows and doors are located on the main floor storefront entrances to the building and commercial spaces as well as within the arch on the south elevation (Photo 11). All windows are fixed. The doors are all side-hinged, swinging doors

Condition and Recommendations: The exterior curtain wall system was observed to be in good condition. No major repairs or replacements are expected in the next 5 years.

The dual-glazed sealed units installed within the window frames have a life expectancy of approximately 20 years. An allocation of funds for replacement of isolated sealed units has been provided over a 2-year spread.

6.1.9 Metal Doors

Expected Life:	40 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	38 Years
General Condition:	Good

Description: Aluminum framed, insulated steel man doors are located around the building at the staircases, garbage/recycling room, as well as mechanical room entrances

Condition and Recommendations: The metal doors were observed to be in good condition (Photo 12). No major repairs or replacements are expected in the next five years. The replacement value allocated is for the exterior doors only.

6.1.10 Overhead Doors

Expected Life:	15 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	13 Years
General Condition:	Good

Description: There is an automatic, steel-insulated, overhead door at the entrance to the parkade and garbage/storage room on the north elevation of the building

Condition and Recommendations: The overhead doors are in good condition (Photo 13). Door hinges/connections should be lubricated as required. No major repairs or replacements are expected in the next five years. Funds have been allocated at every 5 year increment.

6.1.11 Conventional 2-ply SBS Roofing

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

Description: The main roof system over the interior living space is cast-in place concrete construction with an overlying modified bituminous SBS roof assembly. A conventional roof system is located on Level 37 and the main roof. On the conventional roof systems, rigid insulation on the roof deck is installed under the 2-ply SBS roof membrane and is sloped toward centrally located roof drains. The primary defence against moisture migration into

the building is a 2-ply SBS roof membrane. The membrane is tied-in with roof penetrations such as drains, mechanical unit curbs, exhaust vents, roof anchors, etc. to prevent moisture from entering the building. A self-adhered membrane vapour retarder is applied over the concrete roof deck and under the insulation to prevent warm, moisture-laden air in the interior living space from entering the roofing system and condensing.

Condition and Recommendations: The roof was observed to be in good condition (Photo 14). It is recommended that the membrane is reviewed annually for damages and debris is removed from the roof and around drains. Funds have been allocated for replacement at the end of the service life spread.

6.1.12 Inverted SBS Roof Membrane System

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

Description: The roof system located on Levels 6, 7, 10, 30, 34, and 36 is protected from moisture ingress with an inverted 1-ply SBS membrane. Extruded polystyrene rigid insulation is placed over the SBS membrane to provide a thermal barrier. A drainage mat is located under the rigid insulation to provide a way for water to move to the drains. The roof system is protected with the use of concrete pavers. On the 6th and 7th floors, filter fabric and gravel was installed over the insulation to allow for landscaping.

Condition and Recommendations: The roof was observed to be in good condition (Photo 15). It is recommended that the roof be reviewed annually for damages and debris is removed from the roof and around drains. Funds have been allocated for replacement at the end of the service life spread over 2 years.

6.1.13 Metal Flashings

Expected Life:	50 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	48 Years
General Condition:	Good

Description: Flashing is used to direct bulk moisture away from the building to prevent water staining of the building components below. Flashings are located at the base of wall

assemblies above horizontal surfaces (grade level, decks, roofs), over horizontal surfaces such as curbs and parapets, above and below windows and doors, at horizontal transitions between exterior cladding types (EIFS to masonry), as well as above wall penetrations such as lights, vents, and electrical outlets.

Condition and Recommendations: Metal flashings on the building were observed to be in good condition (Photo 16). No major repairs or replacements are expected in the next 5 years.

6.1.14 Exterior Caulking

Expected Life:	10 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	8 Years
General Condition:	Good

Description: Sealant is used as the primary seal between EIFS panels and at the joints between the window wall assembly and the adjacent building envelope components (curbs, parapets, columns, etc.) Sealant is also used to hide small, but visible, architectural gaps between exterior finishes. It provides an aesthetic architectural finish.

Two types of sealant joints are used on this project, “backer rod and sealant” joints, and “finish” joints. For building joints where movement would be expected, a backer rod and sealant application was used. Backer rod is a closed cell foam rod that, when inserted in a joint, provides support for the subsequent sealant application. For small aesthetic gaps and joints, a “finish joint” was used where the sealant is used to fill and hide a visible gap.

Condition and Recommendations: The caulking was observed to be in good condition. No major repairs or replacements are expected in the next five years. A caulking allowance has been provided in the reserve fund on a 10-year cycle spread over 2 years.

6.1.15 Concrete Foundation Walls

Expected Life:	Variable
Present Equivalent Age:	2 Years
Estimated Remaining Life:	Years
General Condition:	Variable

Description: The foundation walls are concrete construction. The below grade waterproofing system on the foundation walls is comprised of a sheet waterproofing material composed of a combination high density polyethylene (HDPE) and bentonite sheet membrane applied over the majority of the parkade foundation walls. With a liquid-applied bituminous waterproofing membrane on isolated areas on lower parkade foundation walls where the outside of the wall was accessible.

Condition and Recommendations: The condition of the blind-side bentonite waterproofing cannot be observed however leakage was observed from the interior of the building on the concrete foundation walls and slabs (Photo 17). This should be reviewed and repaired by the foundation waterproofing contractor if it is still under warranty. Leakage was observed on levels P4 and P5.

Funds have been allocated for potential leak repair at various locations on the concrete walls every 10 years starting in the next year due to existing leaks being present should this not be covered under existing warranties.

6.2 Building Finishes

6.2.1 Building Furniture

Expected Life:	15 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	13 Years
General Condition:	Good

Description: Furniture has been provided in the main lobby and common/amenity areas. Furniture includes but is not limited to, couches, chairs, lamps, and tables (Photo 18)

Condition and Recommendations: The furniture appears to be in good condition. No major repairs or replacements are expected within the next five years. A replacement value has been allocated in the reserve.

6.2.2 Carpet/Laminate Floor Coverings

Expected Life:	15 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	13 Years
General Condition:	Good

Description: Carpet floor covering is located throughout the common spaces in the building such as on the main floor lobby, hallways at each floor, elevator lobbies, and throughout the amenities floor (Photo 19, 20). The yoga studio on the amenities floor has laminate floor covering that is also included in this section.

Condition and Recommendations: The carpet and laminate floor coverings were observed to be in good condition. No major repairs or replacements are expected in the next five years. A replacement value has been allocated in the reserve.

6.2.3 Elevator Finishes and Components

Finishes Service Life

Expected Life:	15 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	3 Years
General Condition:	Good

Description: A total of 5 elevators are operational within the building. The condo board has confirmed that there is a contract for maintenance of the elevator systems in the building.

Condition and Recommendations: Elevator finishes appear to be in good condition. No major replacement or repairs are expected to the floor finishes in the next 5 years. An allocation of funds has been provided for the finishes on a 10 year life cycle.

Based on discussions with the condo board, an allocation of funds has been provided for elevator overhauls in 10 years and 25 years under the recommendation of the elevator maintenance contractor.

6.2.4 Tile Floor and Wall Coverings

Expected Life:	15 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	13 Years
General Condition:	Good

Description: Tile floor and wall coverings are located in the parkade elevator lobbies, main floor lobby on both floors and walls, and at each floor on the walls between elevators (Photos 18, 20, 21).

Condition and Recommendations: The finishes are in good condition. No major repairs or replacements are expected in the next five years. An allocation has been made to the reserve for replacement.

6.2.5 Interior Wall Coverings – Paint and Wall Panels

Expected Life:	10 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	8 Years
General Condition:	Good

Description: Aside from the tile wall sections, the majority of the common spaces located on each floor have either painted drywall or a combination of painted drywall and painted wall panels.

Condition and Recommendations: The wall coverings were observed to be in good condition. No major repairs or re-painting is expected over the next five years. An allocation has been provided for re-painting at the end of the above expected service life.

6.2.6 Ceilings

Expected Life:	30 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	28 Years
General Condition:	Good

Description: The ceilings finishes in the building are painted gypsum, and a dropped ceiling tile system. The dropped ceiling tiles are located mainly on the amenities floor. Painted gypsum is the ceiling finish on all other floors.

Condition and Recommendations: The ceilings are in good condition. No major repairs are expected over the next five years. An allocation has been provided for the replacement of ceiling tiles at the end of the service life. No allocation has been provided for painted ceilings at this time.

6.2.7 Bathrooms

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

Description: Male and female bathrooms are located on floors 6, 7, 8, 9, 36, and the main floor. A toilet, sink, and mirror are located in the bathrooms. There are also showers in the washrooms on the amenity levels (Photo 22).

Condition and Recommendations: The bathrooms are in good condition. No major repairs are expected over the next 5 years. No funds have been allocated for the bathrooms aside from updates to the paint and floor finishes as described in the above sections.

6.2.8 Common Amenity Appliances

Expected Life:	15 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	13 Years
General Condition:	Good

Description: Common appliances are located on the amenities floor. Appliances include a fridge, dishwasher, stove, and coffee maker.

Condition and Recommendations: The appliances were visually observed to be in good condition. No major repairs are expected over the next 5 years. Funds have been allocated for replacement at the end of the 15-year lifecycle.

6.3 Miscellaneous

6.3.1 Reserve Fund Study

Performing the reserve fund study is a necessary endeavour every 5 years, it is prudent to include the cost for the study in the reserve fund. Funds have been allocated for a reserve fund study every 5 years.

7.0 Mechanical

7.1 Systems Overview

The condominium site contains a number of mechanical systems that are considered part of the Corporation's common property. These systems include the domestic water system, sanitary and storm drainage system, natural gas system, heating and ventilating systems, and fire protection systems.

A review and inventory of all the external mechanical systems was conducted. The underground services to the building could not be inspected directly, so we have assessed them in comparison to similar installations of similar age, assuming a normal life cycle associated with the systems. Due to the inability to directly examine these systems, unforeseen defects or excessive wear on the systems cannot be accounted for, which could change the underlying assumptions associated with the assessment of these systems.

Interviews with maintenance personnel in conjunction with a review of mechanical system components and their arrangement is a reasonable source of information upon which to estimate the condition of the mechanical systems.

7.2 Mechanical Site Services

7.2.1 Domestic Water Service (Piping)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Indeterminate

Description: The domestic water service includes the underground piping from the municipal water main, the underground connection to mechanical room via two side wall penetrations with one connection to fire sprinkler protection system and the other connection to the domestic water service.

Condition and Recommendations: The underground portion of these lines could not be visually examined; however, they are anticipated to be in good condition. The water meter should be inspected regularly to ensure proper operation. No funds have been allocated to the Reserve Fund for this system. Normal replacement of these systems would likely occur outside of the recommended 25 year life expectancy for this system, therefore no reserve fund amount has been included.

7.3 Plumbing Systems

7.3.1 Domestic Hot and Cold-Water Piping, Tanks, Water Softener and Pumps

Domestic Water Piping

Expected Life:	30 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	28 Years
General Condition:	Good

Domestic Water Expansion Tanks (2 unit)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Domestic Water Drawdown Tank (1 unit)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Domestic Hot Water Recirc. Pumps (7 units)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Domestic Gas Fired Water Heaters (4 units)

Expected Life:	10 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	8 Years
General Condition:	Good

Domestic Electric Hot Water Heaters (6 units)

Expected Life:	10 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	8 Years
General Condition:	Good

Water Softener (1 unit)

Expected Life:	10 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	8 Years
General Condition:	Good

Domestic Booster Pumps (2 units)

Expected Life:	10 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	8 Years
General Condition:	Good

Sanitary Water Sump Pump (1 unit)

Expected Life:	10 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	8 Years
General Condition:	Good

Storm Water Sump Pump (1 unit)

Expected Life:	10 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	8 Years
General Condition:	Good

Elevator Sump Pump (1 unit)

Expected Life:	10 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	8 Years
General Condition:	Good

Description: The domestic cold-water piping system is distributed to each suite, including the irrigation system, hot water heating boiler feed and domestic hot water tank connections. The domestic hot water system consists of four (4) tanked A.O. Smith water heaters, models BTH-500A, each @ 500 MBH INPUT and 119 USG capacity (Photo M-01, M-02) and six (6) electric water heaters to serve public washrooms (located on level 6, 10, 16, 22, 29 and 33). The water softener system (one duplex system model FAF450) consists of softener tanks and brine tanks and is installed in the mechanical room in front of the domestic water heaters (Photo M-03).

Condition and Recommendations:

When observed the domestic water system is in good condition.

Humidity in the Water Entry room was an issue and a new dehumidifier unit was installed in January 2019 to solve the problem (Photo M-07).

It was noted by the building manager that the parkade floods during the fire pump testing and the sump pump cannot keep up with the drain flow. It is recommended to test the pump to confirm that it can handle the water flowrates from the fire pump. If unable the pump may require an increased diameter impeller or upsize to the pump (Photo M-08, M-09).

Funds have been allotted to the Reserve Fund for the replacements of the Domestic Water Piping and Hot Water Heaters, respectively, at the end of their serviceable life. Replacement amounts are located in the table below.

For the purposes of the Reserve Fund, the following allowances **per unit** have been allocated:

Item	Allotment	Reason
Domestic Water Piping:	\$5,000	System repairs per floor
Domestic Water Expansion Tanks:	\$1,000	Life Cycle Replacement
Domestic Water Drawdown Tank:	\$1,000	Life Cycle Replacement
Domestic Hot Water Recirc Pumps:	\$1,000	Life Cycle Replacement
Domestic Gas Fired Water Heaters:	\$5,000	Life Cycle Replacement
Domestic Electric Hot Water Heaters:	\$3,000	Life Cycle Replacement
Water Softener:	\$1,000	Life Cycle Replacement
Domestic Booster Pumps:	\$5,000	Life Cycle Replacement
Sanitary Water Sump Pump:	\$2,000	Life Cycle Replacement
Storm Water Sump Pump:	\$2,000	Life Cycle Replacement
Elevator Sump Pump:	\$2,000	Life Cycle Replacement

7.3.2 Sanitary Waste System

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Indeterminate

Description: The sanitary waste system includes all sanitary drains and sanitary vent piping inside the building from where it leaves the building and where its designation changes from the building drain to the building sewer. All plumbing fixture drains are a part of this system.

Condition and Recommendations: The visible portions of the sanitary drainage system appear to be in generally good condition. Most of the system is located inside walls and underground and is not visible; however, it is anticipated to be in good condition.

An allowance of \$5,000 has been allocated in the Reserve Fund for this system which includes an allowance for plumbing fixture replacement. Expected life cycle replacement for the building sanitary waste system should surpass the 25 year expected service life for this system.

7.3.3 Storm Drainage System

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Indeterminate

Description: There are roof drains located around the roof. Watts model # RD-104TG-1-5-8-15 Roof drainage will pass through the interior of the building via rainwater leaders that connect below the municipal stormwater drainage system. A total of 14 roof drains were observed.

Condition and Recommendations: The storm system is located inside walls and underground and therefore is not visible; the system condition is therefore indeterminate. Roof drains should be cleaned annually, and rainwater leader extensions should have their connections reviewed.

No allowance has been allocated in the Reserve Fund for this system. Expected life cycle replacement for the building storm waste system should surpass the 25 year expected service life for this system.

7.3.4 Natural Gas Distribution Piping

Expected Life:	25 Years
Present Equivalent Age:	6 Years
Estimated Remaining Life:	19 Years
General Condition:	Good

Description: The natural gas distribution system includes all natural gas piping upstream of where the main gas line enters the building from the gas meter. The system piping runs to the building mechanical room boiler, hot water tanks, air handling units and kitchen equipment. The main gas line enters the building on north side.

Condition and Recommendations: In general, the natural gas distribution piping system appears to be in good condition.

No allowance has been allocated in the Reserve Fund for this system. Expected life cycle replacement for the building natural gas system should surpass the 25 year expected service life for this system.

7.4 Fire Protection

7.4.1 Fire Protection System and pumps

Fire Hoses

Expected Life:	35 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	32 Years
General Condition:	Good

Fire Extinguishers

Expected Life:	35 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	32 Years
General Condition:	Good

Electric Fire Pumps (1 unit)

Expected Life:	35 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	32 Years
General Condition:	Good

Jockey Pumps (1 unit)

Expected Life:	35 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	32 Years
General Condition:	Good

Description: The building is serviced with an automatic fire suppression system that appears to be in conformance with NFPA standards. There is a sprinkler tree located in the mechanical room connected off the main water service into the building. Fire extinguishers and cabinets are located throughout the building.

The electric fire pump is installed in the Water Entry room (Photo M-04, M-05, M-06).

Condition and Recommendations: All systems appear to be in good condition.

For the purposes of the Reserve Fund, no capital allowances have been assigned as the systems and components are covered under the yearly operational budget.

7.5 Heating, Ventilating, and Air Conditioning Systems

7.5.1 Hydronic Piping System, Boilers, Pumps, Expansion Tanks, Heating units, Heat Exchangers, Heat Recovery Units, and Hydronic System Feeder

Heating Water Boilers (2 units)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Boiler Circulation Pumps (2 units)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Heating Circulation Pumps (2 units)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Heating Water Expansion Tanks (3 units)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Hot Water Unit Heaters (26 units)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Force Flow Heaters (6 units)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Electric Duct Heaters (6 units)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Hot Water Heat Exchanger (1 unit)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Heat Recovery Unit (1 unit)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Hydronic System Feeder (1 unit)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Description: The boiler provides hot water to fan coils (see separate section), unit heaters and force flow heaters are located in parkade and levels 1, 2, 3, 4, 5 and 36. The two boilers are Camus model DRNH-3000-MSI unit capable of 3,000 MBU input (Photo M-10, M-11, M-12). The unit shows no signs of aging. The hot water is circulated through insulated steel pipes using duplex circulation pumps with VFD's (Photo M-13). The pumps are Bell and Gossett the pumps show no evidence of leaking. The system is complete with a chemical feeder system and an Amtrol expansion tank. Glycol circulation pumps with VFD's are located in the level five (5) mechanical room and were observed to be in good condition (Photo M-14).

Condition and Recommendations:

The piping system should have an extended life expectancy if properly maintained and provided with chemical treatment. Basic maintenance should be performed on all heating system components on a regular basis and each component should be provided with a maintenance log to track activities.

For the purpose of the Reserve Fund, the following allowances **per unit** have been allocated budgeting purposes related to life cycle replacement of each component:

- Heating Water Boilers \$30,000
- Boiler Circulation Pumps \$10,000
- Heating Circulation Pumps \$5,000
- Heating Water Expansion Tanks \$2,500
- Hot water Unit Heaters \$1,500
- Force Flow Heaters \$1,000
- Electric Duct Heaters \$1,000
- Hot Water Heat Exchanger \$5,000
- Heat Recovery Unit \$1,500
- Hydronic System Feeder \$1,000

7.5.2 Parkade Exhaust and Ventilation

Make-Up Air Units (2 units)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Parkade Exhaust Fan (1 unit)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

CO Sensors (16 units)

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Description: There are two (2) make up air units, one for the below grade parkade and one for the above grade parkade. One unit is installed over the ramp and is an Engineered Air model HE-401 with 3,960 MBTU firing rate, a 25 hp fan and a capacity of 36,000 CFM (Photo M-14, M-19). The second unit is an Engineered Air model HE-221 with 2244 MBTUH and a capacity of 20,400 CFM (Photo M-15). Exhaust from each level of the

parkade is achieved by the Parkade Exhaust Fan located on parkade level 1. It is noted that the parkades are connected (Photo M-18).

Condition and Recommendations: It is recommended that filters in the MUA be repaired regularly and the bearings greased as per the manufacturer's instruction to increase the unit's lifespan. In addition, the CO sensors should be serviced at regular intervals and the detectors should be replaced every 8 years as part of regular maintenance (Photo M-17). These costs are assumed to be part of the Operating budget. Should the client wish to have these costs assigned to the Reserve Fund, this can be amended in the Final report.

For the purposes of the Reserve Fund, allowances per unit for the following have been set aside for life cycle replacement:

- Make-Up Air Units \$12,000
- Parkade Exhaust Fans \$2,500
- CO Sensors \$800

7.5.3 Lobby/Common and Corridor Pressurization Make-up Air Unit (1 unit)

Make-Up Air Unit

Expected Life:	25 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	23 Years
General Condition:	Good

Description: There is one corridor make up air unit installed on the roof. The unit is an Engineered Air model DG-180 delivering approximately 11,635 CFM air volume with a heating capacity of 1,800 MBH (Photo M-20 M-21).

Condition and Recommendations: The roof top unit appears to be in good condition. It is recommended that filters be replaced regularly, and the bearing greased as per the manufacturers instruction to increase the unit's lifespan. These costs are assumed to be located in operating costs. No serious problems could be observed or were noted on site.

For the purposes of the Reserve Fund, a contingency allowance has been made in the event of unexpected failure of the MUA or furnace unit components such as blower, coils or heat exchanger. The allowance is for life cycle replacement.

- Make-Up Air Unit \$35,000

7.5.4 Cooling System

Air Cooled Chiller (1 unit)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

Dry Fluid Cooler (1 unit)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

Fluid Cooler Circulation Pumps (2 units)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

Chilled Water Circulation Pumps (2 units)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

Chilled Water Expansion Tanks (2 units)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

Chilled Water Buffer Tanks (2 units)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

Air Cooled Condensers (8 units)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

Chilled Water Heat Exchanger (1 unit)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

Description: The chiller and dry fluid cooler are installed on the roof (Photo M-22, M-23). Fan coils are installed as per drawings (Photo M-24, M-25). The heat exchanger is installed in the Mechanical Room on the 37 floor (Photo M-26).

Condition and Recommendations: The units should be maintained as per the manufacturer’s instructions and Refrigerant changed, as needed. No problems were observed.

For the purpose of the Reserve Fund, the following per unit have been set aside for the various components of this system for life cycle replacement:

- Air Cooled Chiller \$20,000
- Dry Fluid Cooler \$5,000
- Fluid Cooler Circulation Pumps \$7,500
- Chilled Water Circulation Pumps \$7,500
- Chilled Water Expansion Tanks \$2,500
- Chilled Water Buffer Tanks \$3,500
- Air Cooled Condensers \$5,000
- Chilled Water Heat Exchanger \$10,000

7.5.5 Fan Coils

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

Description: There are two types of fan coils in the building:

1. Hot water heating coil/chilled water cooling coil (43 units) model “FIRST COMPANY”
2. Hot water heating coil/DX cooling coil (11 units) model IEC

Condition and Recommendations: Fan coils are installed as per drawings (Photo M-24, M-25). The units should be maintained as per the manufacturer’s instructions. No problems were observed.

For the purpose of the Reserve Fund, the following **per unit** have been set aside for the various components of this system for life cycle replacement:

- Fan Coils \$2,400

7.5.6 Exhaust Fans

Fractional hp (33 units)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

0.5 hp (4 units)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

1.0 hp (3 units)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

2.0 hp (1 unit)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

3.0 hp (3 units)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

10 hp (1 unit)

Expected Life:	20 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	18 Years
General Condition:	Good

Description: Exhaust fans are installed throughout the site as per mechanical drawings and the Fan Schedule.

Condition and Recommendations: The exhaust fans appear to be in good condition.

For the purposes of the Reserve Fund, the following allowances **per unit** have been set aside for the various components of this system for life cycle replacement:

- Fractional hp exhaust fans \$2,000
- 0.5 hp exhaust fans \$1,000
- 1.0 hp exhaust fans \$2,000
- 2.0 hp exhaust fan \$3,000
- 3.0 hp exhaust fans \$3,000
- 10 hp exhaust fan \$20,000

7.6 Building Automation Control Systems

7.6.1 Building Automation Control Systems

Expected Life:	20 Years
Present Equivalent Age:	N/A
Estimated Remaining Life:	N/A
General Condition:	N/A

Description: As per discussions with the Building Manager the Building Control System connecting controls for the entire building Mechanical system and/or connectivity for remote access is being installed/upgraded in 2019. In addition, the units are controlled at the hub of each unit located in the mechanical rooms.

Condition and Recommendations: The BAC System will be new and in excellent condition.

An allowance of \$25,000 has been added to the Reserve Fund for upgrades in 20 years.

8.0 Electrical

8.1 Electrical Overview

A number of electrical items are considered to be common property under the condominium bylaws. These items include the underground power service, underground communications, exterior and interior lighting, building power distribution, life safety systems (i.e., emergency generator and lighting, fire alarm system, exit signs), building communications distribution, parkade electrical systems, and common area electrical systems.

8.2 Lighting Systems

8.2.1 Exterior Building Luminaires

Expected Life:	10 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	8 Years
General Condition:	Good

Description: There are twenty (20) exterior narrow beam LED flood luminaires at the 7th floor elevation around the building, and eight (8) exterior narrow beam LED flood luminaires at the 10th floor elevation on the north and south exterior walls of the building; on the 34th, 35th and 36th levels, there are thirty-eight (38) exterior narrow beam LED flood luminaires; on the 37th level, there are fourteen (14) exterior narrow beam LED flood luminaires located on the south wall of the main entrance, there are six (6) wall sconce luminaires and eight (8) exterior narrow beam LED flood luminaires; and on north wall of the building, there are eight (8) exterior down luminaires above doors.

Exterior luminaires are controlled by time clocks in the main floor electrical room (2) and mechanical room on level 37.

Condition and Recommendations: All light fixtures appear to be in good condition and have been well maintained on a continuous basis. General maintenance such as cleaning, re-lamping, re-ballasting and replacing lenses is recommended to help extend the life of the fixtures.

An allowance of \$50,000 has been added to the Reserve Fund for exterior lighting replacement at the life cycle and ten (10) year increments.

8.2.2 Interior Lighting

Expected Life:	10 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	8 Years
General Condition:	Good

Description:

Parkade levels P1 to P5: there are two hundred (200) eight (8) feet florescent strip luminaires for parking areas; there are four (4) four (4) feet florescent wrap luminaires for elevator lobbies (totally twenty (20) luminaires); there are six (6) four (4) feet florescent wrap luminaires for east and west corridors (totally thirty (30) luminaires); there are two (2) four (4) feet florescent wrap luminaires for stairs (totally ten (10) luminaires); front entrance is lit with six (6) canopy spot luminaires.

Main floor: main electrical room (125), garbage room (120), lease space #3 (131) and #4 (132) are lit with nine (9) eight (8) feet florescent strip luminaires; ENMAX transformer vault room (113), EDD vault room (116) and generator room (126) are lit with thirteen (13) four (4) feet wall mount florescent strip luminaires; parkade ramp #1 (134) and #2 (133) are lit with four (4) eight (8) feet florescent strip luminaires, two (2) exterior down luminaires and four (4) exterior ramp wall luminaires; loading bay (118) is lit with two (2) ceiling mounted flood luminaires; corridors (111), (119) and (121), stair #1 (122) and fire control room (128) are lit with twenty-nine (29) four (4) feet florescent wrap luminaires; mechanical room (110) is lit with three (3) four (4) feet florescent strip luminaires; laundry room (109) and concierge room (105) are lit with eight (8) two (2) feet by four (4) feet recess mounted florescent luminaires; office lobby is lit with three (3) pendant luminaires, two (2) wall sconce luminaires and twenty (20) four (4) inch Halogen pot luminaires; vestibule (100) is lit with two (2) pendant luminaires and six (6) four (4) inch Halogen pot luminaires; elevator lobby (103) is lit with Two (2) wall sconce luminaires and eight (8) four (4) inch Halogen pot luminaires; lobby (101) is lit with four (4) wall sconce luminaires, five (5) pendant light, five (5) floor luminaires and sixty-nine (69) four (4) inch Halogen pot luminaires; washroom (107) is lit with three (3) Halogen pot luminaires; janitor room (106) is lit with one (1) four (4) feet ceiling mount florescent strip luminaire.

Second floor: there are ten (10) eight (8) feet florescent strip luminaires for long stay storage (203) and (204); there is one (1) eight (8) feet florescent strip luminaires and three

(3) four (4) feet florescent strip luminaires for resident storage (202); there are nine (9) four (4) feet florescent wrap luminaires for east and west corridors, stair and corridor (201).

Third floor: there are thirty-five (35) eight (8) feet florescent strip luminaires for parking areas; there are two (2) wall sconce luminaires and four (4) four (4) feet florescent wrap luminaires for elevator lobby; there are six (6) four (4) feet florescent wrap luminaires for east and west corridors; there are two (2) four (4) feet florescent wrap luminaires for stair; there are three (3) four (4) feet florescent strip luminaires for storage (307).

Fourth floor: there are thirty-five (35) eight (8) feet florescent strip luminaires for parking areas; there are two (2) wall sconce luminaires and four (4) four (4) feet florescent wrap luminaires for elevator lobby; there are six (6) four (4) feet florescent wrap luminaires for east and west corridors; there are two (2) four (4) feet florescent wrap luminaires for stair; there are three (3) four (4) feet florescent strip luminaires for storage.

Fifth floor: there are sixteen (16) eight (8) feet florescent strip luminaires for parking areas; there are two (2) wall sconce luminaires and four (4) four (4) feet florescent wrap luminaires for elevator lobby; there are six (6) four (4) feet florescent wrap luminaires for east and west corridors; there are two (2) four (4) feet florescent wrap luminaires for stair; there are three (3) four (4) feet florescent strip luminaires for corridor and mechanical room (506).

Sixth floor: there are twelve (12) eight (8) feet florescent strip luminaires for rental office areas; there are two (2) wall sconce luminaires and four (4) pot luminaires for elevator lobby; there are four (4) wall sconce luminaires and ten (10) pot luminaires for east and west corridors; there are two (2) four (4) feet florescent wrap luminaires for stair; there are four (4) vanity luminaires and twelve (12) Halogen pot luminaires for men and women washrooms; there are two (2) four (4) feet florescent strip luminaires for electrical closet and janitor room.

Seventh floor: there are ten (10) eight (8) feet florescent strip luminaires for rental office areas; there are two (2) wall sconce luminaires and four (4) pot luminaires for elevator lobby; there are four (4) wall sconce luminaires and ten (10) pot luminaires for east and west corridors; there are two (2) four (4) feet florescent wrap luminaires for stair; there are four (4) vanity luminaires and twelve (12) Halogen pot luminaires for men and women washrooms; there are two (2) four (4) feet florescent strip luminaires for electrical closet and janitor room.

Eighth floor: there are ten (10) eight (8) feet florescent strip luminaires for rental office areas; there are two (2) wall sconce luminaires and four (4) pot luminaires for corridor (800); there are four (4) wall sconce luminaires and eleven (11) pot luminaires for east and west corridors; there are two (2) four (4) feet florescent wrap luminaires for stair; there are four (4) vanity luminaires and twelve (12) Halogen pot luminaires for men and women washrooms; there are two (2) four (4) feet florescent strip luminaires for electrical closet and janitor room.

Ninth floor: there are ten (10) eight (8) feet florescent strip luminaires for rental office areas; there are four (4) pot luminaires for corridor (900); there are four (4) wall sconce luminaires and eleven (11) pot luminaires for east and west corridors; there are two (2) four (4) feet florescent wrap luminaires for stair; there are four (4) vanity luminaires and twelve (12) Halogen pot luminaires for men and women washrooms; there are two (2) four (4) feet florescent strip luminaires for electrical closet and elevator control room (912).

Tenth floor: there are ten (10) pot luminaires and four (4) wall sconce luminaires for corridor (1000); there are two (2) wall incandescent luminaires for electrical closet and garbage chute; there are two (2) four (4) feet florescent wrap luminaires for stair.

Eleventh to twenty-eighth floor: there are ten (10) pot luminaires and six (6) wall sconce luminaires for each corridor (1100 to 2800) (totally one hundred and eighty (180) pot luminaires and one hundred and eight (108) wall sconce luminaires); there are two (2) wall incandescent luminaires for electrical closet and garbage chute (totally thirty-six (36) wall incandescent luminaires); there are two (2) four (4) feet florescent wrap luminaires for stair (totally thirty-six (36) four (4) feet florescent wrap luminaires).

Twenty-ninth to thirty-fourth floor: there are eight (8) pot luminaires and six (6) wall sconce luminaires for each corridor (2900 to 3400) (totally forty-eight (48) pot luminaires and thirty-six (36) wall sconce luminaires); there are two (2) wall incandescent luminaires for electrical closet and garbage chute (totally twelve (12) wall incandescent luminaires); there are two (2) four (4) feet florescent wrap luminaires for stair (totally twelve (12) four (4) feet florescent wrap luminaires).

Thirty-fifth floor: there are thirteen (13) four (4) feet florescent wrap luminaires for fitness room (3500); there are thirty-two (32) pot luminaires for amenity room (3507), studio room

(3505) and meeting room (3506); there are twelve (12) pot luminaires and eight (8) wall sconce luminaires for corridor (3501); there are two (2) vanity luminaires and four (4) Halogen pot luminaires for men and women washrooms; there are two (2) four (4) feet florescent wrap luminaires for stair.

Thirty-sixth floor: there are ten (10) eight (8) feet florescent strip luminaires for mechanical room (3603); there are four (4) four (4) feet florescent strip luminaires for elevator machine room (3602) and east and west corridors; there are two (2) four (4) feet florescent wrap luminaires for stair.

All internal lighting is controlled by line voltage switches and occupancy sensors. Corridor lighting is lit 24 hours.

Condition and Recommendations: The interior light fixtures appear to be in good condition and have been well maintained on a continuous basis. General maintenance such as cleaning, re-lamping, re-ballasting and replacing lenses is recommended to help extend the life of the fixtures.

An allowance of \$10,000 has been added to the Reserve Fund for interior lighting replacement at the life cycle and ten (10) year increments.

8.3 Distribution

8.3.1 Electrical Distribution

Expected Life:	40 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	38 Years
General Condition:	Good

Description: The main electrical distribution panel is located in the main electrical room on the main floor of building; it is a 4000A, 120/208V, 3 phase, 4 wire “Spectra Series Switchboard” with five (5) sections, and is comprised of one (1) 600A breaker servicing meter stack #1 for main floor lease areas; one (1) 800A breaker servicing meter stack #2 on the 6th floor, meter stack #3 on the 7th floor, meter stack #4 on the 8th floor and meter stack #5 on the 9th floor; one (1) 600A breaker servicing meter stack #6 on the 10th floor, meter stack #7 on the 12th floor, meter stack #8 on the 14th floor and meter stack #9 on the 16th floor; one (1) 600A breaker servicing meter stack #10 on the 18th floor, meter stack #11 on the 20th floor, meter stack #12 on the 22nd floor and meter stack #13 on the

24th floor; one (1) 400A breaker servicing meter stack #14 on the 26th floor, meter stack #15 on the 28th floor, meter stack #16 on the 30th floor and meter stack #17 on the 32nd floor; one (1) 2800A breaker for house service panel B. ENMAX electricity meter is also located in the main electrical room of the main floor.

For house service panel B, one (1) 200A breaker servicing panel C for the main electrical room; one (1) 200A breaker servicing panel D in the parkade level P2; one (1) 200A breaker servicing panel E in the parkade level P3; one (1) 200A breaker servicing panel F in the 7th floor electrical closet; one (1) 125A breaker servicing mechanical equipment MUA-1-1 in the 7th floor electrical closet; one (1) 1600A breaker servicing 600KVA step up transformer #1 in the main electrical room for panel G in the mechanical penthouse for the 600 volt mechanical equipment, and another 45KVA step down transformer #2 in the penthouse serving panel H for 120/208 volt mechanical equipment in the penthouse; one (1) 1200A breaker servicing the 1200A automatic transfer switch #1 for the generator and emergency power panel EA in the main electrical room of the main floor; one (1) 400A breaker servicing 400A automatic transfer switch #2 for the generator and fire pump in the parkade P1; one (1) 150A breaker servicing 45KVA step up transformer #2 for mechanical equipment Domestic Water Booster Pump DWBP-1 & 2; one (1) ENMAX electricity meter is also located in the main electrical room.

The following electrical equipment components make up the Vogue Condominiums building electrical system:

- Main Distribution Panel A – General Electric “Spectra Series Switchboard” with five (5) sections; it is 4000A, 120/208V, 3 phase, 4 wire, located in the main electrical room of the main floor. Spaces are available for new circuits.
- Step up Transformer #1 - General Electric, 600kVA, 120/208-600V, 3 phase, fed from house panel B, located in in the main electrical room of the main floor.
- Step up Transformer #2 - General Electric, 45kVA, 120/208-600V, 3 phase, fed from house panel B, located in in the main electrical room of the main floor.
- Three step up Transformers for three elevators - General Electric, 34kVA, 208-460V, 3 phase, fed from splitter, located in the elevator in the penthouse.
- Panel for three step up transformers for three elevators - General Electric, “Spectra Series Power Panelboard, 800A, 120/208, 3 phase, 4 wire , fed from panel EA, located in the elevator in the penthouse.

- Step down Transformer #1 - General Electric, 45kVA, 600-120/208V, 3 phase, 4 wire, fed from panel G, located in in the Mechanical penthouse .
- Panel B – General Electric “Spectra Series Power Panelboard”; it is 1200A, 120/208V, 3 phase, 4 wire, located in the main electrical room of the main floor. Spaces are available for new circuits.
- Panel C - General Electric, “A-Series II Panelboard”, 225A, 84 circuits, 120/208V, 3 phase, 4 wire fed from house panel B, located in the main electrical room of the main floor. Spaces are available for new circuits.
- Panel H - General Electric, “A-Series II Panelboard”, 225A, 66 circuits, 120/208V, 3 phase, 4 wire fed from step down transformer #2, located in the penthouse. Spaces are available for new circuits.
- Panel G - General Electric, “Spectra Series Power Panelboard”, 800A, 347/600V, 3 phase, 4 wire fed from step up transformer #1, located in the penthouse. Spaces are available for new circuits.
- Panel EA - General Electric, “Spectra Series Power Panelboard”, 1200A, 120/208V, 3 phase, 4 wire fed from the main distribution panel A and emergency generator, located in the main electrical room of the main floor. Spaces are available for new circuits.
- Panel EB - General Electric, “A-Series II Panelboard”, 225A, 72 circuits, 120/208V, 3 phase, 4 wire fed from panel EA, located in the generator room of the main floor. Spaces are available for new circuits.
- Panel EC - General Electric, “A-Series II Panelboard”, 225A, 42 circuits, 120/208V, 3 phase, 4 wire fed from panel EA, located in the parkade level 2. Spaces are available for new circuits.
- Panel D - General Electric, “A-Series II Panelboard”, 225A, 60 circuits, 120/208V, 3 phase, 4 wire fed from panel EA, located in the parkade level 2. Spaces are available for new circuits.
- Panel E - General Electric, “A-Series II Panelboard”, 225A, 42 circuits, 120/208V, 3 phase, 4 wire fed from house panel B, located in the electrical room of parkade level 2. Spaces are available for new circuits.
- Panel ED - General Electric, “A-Series II Panelboard”, 225A, 66 circuits, 120/208V, 3 phase, 4 wire fed from panel EA, located in the electrical room of parkade level 2. Spaces are available for new circuits.
- Panel F - General Electric, “A-Series II Panelboard”, 225A, 72 circuits, 120/208V, 3 phase, 4 wire fed from house panel B, located in the electrical closet of 7th floor. Spaces are available for new circuits.

- Space panel T1-1 - General Electric, “A-Series II Panelboard”, 225A, 42 circuits, 120/208V, 3 phase, 4 wire fed from meter stack in the main electrical room, the panel is located in the rental space 934. Spaces are available for new circuits.
- Space panel T1-2 - General Electric, “A-Series II Panelboard”, 225A, 42 circuits, 120/208V, 3 phase, 4 wire fed from meter stack in the main electrical room, the panel is located in the rental space 918. Spaces are available for new circuits.
- Space panel T1-3 - General Electric, “A-Series II Panelboard”, 225A, 42 circuits, 120/208V, 3 phase, 4 wire fed from meter stack in the main electrical room, the panel is located in the rental space 932. Spaces are available for new circuits.
- Space panel T1-4 - General Electric, “A-Series II Panelboard”, 225A, 42 circuits, 120/208V, 3 phase, 4 wire fed from meter stack in the main electrical room, the panel is located in the rental space 914. Spaces are available for new circuits.
- Space panel T6-1 - General Electric, “A-Series II Panelboard”, 225A, 42 circuits, 120/208V, 3 phase, 4 wire fed from meter stack in the electrical closet, located in the rental spaces in 6th floor. Spaces are available for new circuits. There are totally six (6) space panels.
- Space panel T7-1 - General Electric, “A-Series II Panelboard”, 225A, 42 circuits, 120/208V, 3 phase, 4 wire fed from meter stack in the electrical closet, located in the rental spaces in 7th floor. Spaces are available for new circuits. There are totally six (6) space panels.
- Space panel T8-1 - General Electric, “A-Series II Panelboard”, 225A, 42 circuits, 120/208V, 3 phase, 4 wire fed from meter stack in the electrical closet, located in the rental spaces in 8th floor. Spaces are available for new circuits. There are totally six (6) space panels.
- Space panel T9-1 - General Electric, “A-Series II Panelboard”, 225A, 42 circuits, 120/208V, 3 phase, 4 wire fed from meter stack in the electrical closet, located in the rental spaces in 9th floor. Spaces are available for new circuits. There are totally six (6) space panels.
- Unit Panel - General Electric, “PowerMark GOLD Load Center”, 60A, 16 circuits, 120/208V, 1 phase 3 wire fed from meter stack in the electrical closet of each floor, located in each unit. Spaces are available for new circuits. There are totally 232 unit panels.

Condition and Recommendations: The power distribution equipment for the building appears to be in good condition. The physical condition of the cabling appears to be well

maintained, and in good condition, and can be expected to operate well for the next 38 years as is typical for these types of equipment.

No funds have been identified in the Reserve Fund to replace this element as the estimated remaining life is outside the 25 years scope of this study. Reassess in 5 years, when the next Reserve Fund Study is conducted.

8.4 Life Safety Systems

8.4.1 Emergency Power System

Expected Life:	30 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	28 Years
General Condition:	Good

Description: The emergency power system for the building is comprised of a SIMSON MAXWELL generator with 550kW, 120/208V, 3 phase, 4 wire and a MARATHON Power System with a control unit and two automatic transfer switches #1 and #2; automatic transfer switch #1 is a 1200A, 120/208V, 3 phase, 4 wire for emergency power panel EA in the main electrical room of the main floor; automatic transfer switch #2 is a 400A, 120/208V, 3 phase, 4 wire for fire pump in the parkade P1.

Two (2) battery packs with lighting heads are located in the generator room and mechanical room on the main floor.

Condition and Recommendations: The emergency power system and battery packs appear to be in good condition, appear to be well maintained and tested regularly as per Code CSA C282 “Emergency electrical power supply for buildings”. These can be expected to operate well for the next 28 years. It is reported that the emergency power system and battery packs are inspected and tested regularly per code requirements.

No funds have been identified in the Reserve Fund to replace this element as the estimated remaining life is outside the 25 years scope of this study. Reassess in 5 years, when the next Reserve Fund Study is conducted.

8.4.2 Fire Alarm System

Expected Life:	30 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	28 Years
General Condition:	Good

Description: The Fire Alarm System consists of an EDWARDS ESI fire alarm control panel located in the fire control room of the main floor. The smoke detectors and fire speakers are located in stairwells, initiation devices including smoke detectors and pull stations are located in corridors, audio devices, visual devices, fire telephones and sprinkler devices are located on each floor and remote booster power supplies for visual loop are located on P5, P2, 4th, 7th, 10th, 13th, 16th, 19th, 22nd, 25th, 28th, 31st and 34th floors as needed. Duct smoke detectors are installed in the mechanical air supply systems. Heat detectors are installed in the elevator control room on the 36th floor, ENMAX transformer vault room and EDD vault room on the main floor. There is a smoke alarm device and a fire speaker in each unit. The building is equipped with a sprinkler system.

Condition and Recommendations: The fire alarm system appears to be well maintained, in good condition, and can be expected to operate well for the next 28 years. It is reported that the fire alarm system is inspected annually per code requirements.

No funds have been identified in the Reserve Fund to replace this element as the estimated remaining life is outside the 25 years scope of this study. Reassess in 5 years, when the next Reserve Fund Study is conducted.

8.4.3 Exit Lighting

Expected Life:	35 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	33 Years
General Condition:	Good

Description: Exit signs are installed in corridors, above the exit doors of common rooms and egresses doors of the building. It is reported that all exit signs are inspected and tested regularly per code requirements.

Condition and Recommendations: The exit signs appear to be well maintained and in good condition, and can be expected to operate well for the next 33 years life cycle.

No funds have been identified in the Reserve Fund to replace this element as the estimated remaining life is outside the 25 years scope of this study. Reassess in 5 years, when the next Reserve Fund Study is conducted.

8.4.4 Access Control System

Expected Life:	30 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	28 Years
General Condition:	Good

Description: The buildings are equipped with a KEYSKAN security and access system. The system consists of control unit in the concierge room on the main floor, one (1) monitor in the reception area, and key pads, card readers, cameras, door strikes, request to exit and door contacts are located throughout the building. Access control units are located inside the concierge office and in the 23rd floor storage closet and 36th floor janitor closet. There are sixteen (16) cameras located in the main lobby (101), office lobby (127), parkade ramp #1 and #1 (134 and 133), loading bay (118), fitness room (3500) and party room (3507). The system has recording functionality.

Condition and Recommendations: The security and access system appear to be in good condition. It can be expected to operate well for the next 28 years of life as is typical for physical telecommunication distribution.

No funds have been identified in the Reserve Fund to replace this element as the estimated remaining life is outside the 25 years scope of this study. Reassess in 5 years, when the next Reserve Fund Study is conducted.

8.4.5 Music System

Expected Life:	30 Years
Present Equivalent Age:	2 Years
Estimated Remaining Life:	28 Years
General Condition:	Good

Description: The buildings are equipped with a music system. The system consists of a control unit and player in the concierge room on the main floor, and speakers in corridors and public rooms throughout the building.

Condition and Recommendations: The music system appears to be in good condition. It can be expected to operate well for the next 28 years of life as is typical for physical telecommunication distribution.

No funds have been identified in the Reserve Fund to replace this element as the estimated remaining life is outside the 25 years scope of this study. Reassess in 5 years, when the next Reserve Fund Study is conducted.

9.0 Annual Maintenance Items

The following maintenance outline is intended to be an aid for the board to help in the overall planning and expenditure requirements. The list is not intended to be exhaustive but rather a prompt to examine elements of significant importance.

- .1 Review capital expenditures (Appendix B) outlined within.
- .2 Contact each unit holder to gather unit-specific information related to common property concerns.
- .3 Periodically inspect the grounds and units to ensure any possible safety issues are addressed (i.e., snow build-up, sidewalk settlement, grade settlement, etc.).
- .4 Review the roof for missing, broken, or otherwise damaged materials.
- .5 Review wood surfaces for possible wood rot or mould.
- .6 Review all decking and railing surfaces for damaged membrane or loose connections. Repair any defects and ensure any possible safety issues are addressed (i.e., handrail connections, step and deck integrity, etc.).
- .7 Review stucco exteriors and identify possible areas of cracking, discolouration, or delamination.
- .8 Annually review landscaping and grading to ensure positive drainage away from building perimeters and that large trees are not located in close proximity to building foundations or roof profiles.
- .9 Review caulking locations for possible cracks, tears, or breaches and repair as required.
- .10 Inspect all asphalt paving for cracking and repair. Particular attention should be spent in areas adjacent to manholes or catch basins.
- .11 Inspect all concrete surfaces to identify concrete cracking, spalling, or vertical displacement.
- .12 Visually inspect and replace all loose, missing, or broken fencing components. Re-nail popping or missing nails.

- .13 Review window surfaces for excess condensation or ice build-up.
- .14 Review catch basins for debris accumulation every three years.
- .15 Ensure bi-annual checks are conducted of all interior sump pumps, and service is conducted as recommended by pump supplier. If failures are occurring, develop a system of early detection to water back-up.
- .16 Dryer vents and fresh air intakes should be checked/cleaned on an annual basis.

10.0 Closure

This report has been prepared using generally accepted engineering principles for the exclusive use of Bedouin Suites. Williams Engineering Canada Inc. has no affiliation with either or the Board of Directors of the Condominiums other than being retained for the purposes of this Reserve Fund Study.

This report was prepared on the basis of a walkthrough visual review of the suites and areas identified, not all the areas of the complex. This report is not intended to warrant the future performance of the building or its systems.

The costs identified are based on our experience with similar systems in other buildings, not a detailed or exhaustive examination of the required quantities of equipment, materials, or labour.

In the event that additional information, data, or drawings are made available, Williams Engineering Canada Inc. requests the opportunity to be advised and to issue revisions to this report.

Prepared by,

Williams Engineering Canada Inc.



BRENNA LOCH, E.I.T.
 Structural

T 403.410.3749 F 403.262.9075
 E bloch@williamsengineering.com


Reviewed by

Williams Engineering Canada Inc.




MIKE NOWLAN, P.Eng.
 Structural

T 403.410.3727 F 403.262.9075
 E mnowlan@williamsengineering.com

PERMIT TO PRACTICE	
WILLIAMS ENGINEERING CANADA INC.	
Signature	
Date	2019 04 09
PERMIT NUMBER: P10527	
The Association of Professional Engineers, Geologists and Geophysicists of Alberta.	

Williams Engineering Canada Inc.



HARRY BADAU
Mechanical

T 403.410.3723 F 403.262.9075
E hbadau@williamsengineering.com

Williams Engineering Canada Inc.



GARTH GRUNERUD, P.Eng.
Mechanical

T 807.355.8519
E ggrunerud@williamsengineering.com

Williams Engineering Canada Inc.



HENRY SUN
Electrical

T 403.520.3719 F 403.262.9075
E hsun@williamsengineering.com

Williams Engineering Canada Inc.



KHALIL AL-ARAB, P.Eng
Electrical

T 403.805.2610 F 403.262.9075
E kalarab@williamsengineering.com

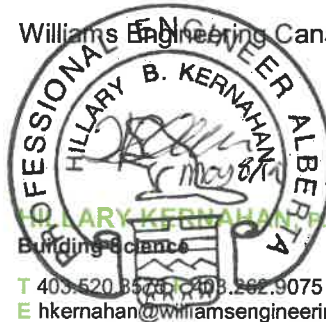
Williams Engineering Canada Inc.



SHANDLER KOHLMAN, T.T.
Building Science

T 403.520.3577 F 403.262.9075
E skohlman@williamsengineering.com

Williams Engineering Canada Inc.



HILLARY KERNAHAN, P.Eng
Building Science

T 403.520.3577 F 403.262.9075
E hkernahan@williamsengineering.com

Williams Engineering Canada Inc.



AAMIR SHAIKH, C.E.T.
Building Science

T 780.409-3184 F 780.425.1520
E ashaikh@williamsengineering.com

Williams Engineering Canada Inc.



LIV EHLERT
Project Manager

T 403.410.3741 F 403.262.9075
E lehlert@williamsengineering.com

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Appendix A

Condition Assessment

Appendix A
CONDITION ASSESMENT

Project Name: Vogue Condominiums

Vogue Condominiums

Project Number: 40299.00

For the Year Ended: 2019

Date: 01-Jul-19

*July 2019 Present Fund Balance: \$206,500.00

Interest = 3.0%

Annual Contribution: \$198,000.00

Inflation = 3.0%

Reference	Description	Current Cost of Replacement	Expenditure Spread (Years)	Expected Normal Life (Years)	Present Equilivent Age	Condition	Required Annual Contribution	Funding % of Total	Adjusted Fund Contribution	Funding Required Now
TOTALS		\$6,510,500.00					\$383,590.19	100.00%	\$301,983.89	\$781,597.04
6.1.1	Metal Railings (Balconies)	\$1,030,000	1	30	2	Good	\$34,333	8.95%	\$21,649.84	\$68,667
6.1.2	Balcony Membrane (Waterproofing)	\$240,000	2	10	2	Good	\$24,000	6.26%	\$20,935.32	\$48,000
6.1.3	Exterior Insulation and Finish System Wall Panels (E	\$890,000	1	30	2	Good	\$29,667	7.73%	\$18,707.14	\$59,333
6.1.4	Composite Metal Panels (Entrance Arch)	\$270,000	1	30	2	Good	\$9,000	2.35%	\$5,675.20	\$18,000
6.1.5	Masonry (Allowance - Repointing and repairs)	\$19,000	1	10	2	Good	\$1,900	0.50%	\$1,657.38	\$3,800
6.1.6	Traffic Bearing Membrane (Parkades)	\$790,000	2	10	2	Good	\$79,000	20.59%	\$68,912.10	\$158,000
6.1.6	Traffic Bearing Membrane - Repairs (Parkades)	\$40,000	1	5	1	Good	\$8,000	2.09%	\$7,534.18	\$8,000
6.1.7	Exterior Window Wall - Sealed Unit (substantial rep	\$5,000	1	20	20	Good	\$250	0.07%	\$186.08	\$5,000
6.1.8	Exterior Curtain Wall - Sealed Unit (substantial rep:	\$13,000	10	20	20	Good	\$650	0.17%	\$483.80	\$13,000
6.1.9	Metal doors (exterior only)	\$13,000	1	40	2	Good	\$325	0.08%	\$172.41	\$650
6.1.10	Overhead doors - 16'	\$1,500	1	15	10	Good	\$100	0.03%	\$80.65	\$1,000
6.1.10	Overhead doors - 20'	\$1,500	1	15	0	Good	\$100	0.03%	\$80.65	\$0
6.1.11	Roofing - Conventional 2-ply SBS	\$160,000	1	20	2	Good	\$8,000	2.09%	\$5,954.51	\$16,000
6.1.12	Roofing - Inverted 1-ply SBS	\$410,000	2	20	2	Good	\$20,500	5.34%	\$15,258.44	\$41,000
6.1.14	Exterior Caulking (Allowance)	\$160,000	2	10	2	Good	\$16,000	4.17%	\$13,956.88	\$32,000
6.1.15	Concrete Foundation Walls - Leak Repair	\$7,500	1	10	9	Variable	\$750	0.20%	\$654.23	\$6,750
6.2.1	Building Furniture	\$50,000	1	15	2	Good	\$3,333	0.87%	\$2,688.33	\$6,667
6.2.2	Carpet/Laminate Floor Coverings (Common Areas -	\$120,000	1	15	2	Good	\$8,000	2.09%	\$6,451.99	\$16,000
6.2.3	Elevator Finishes and Components - 25 year Elevatc	\$950,000	1	27	2	Good	\$35,185	9.17%	\$23,336.00	\$70,370
6.2.3	Elevator Finishes and Components - 10 year Elevatc	\$125,000	1	12	2	Good	\$10,417	2.72%	\$8,807.76	\$20,833
6.2.3	Elevator Finishes and Components - Allowance	\$40,000	1	15	2	Good	\$2,667	0.70%	\$2,150.66	\$5,333
6.2.4	Tile Floor and Wall Coverings (floor and wall sectio	\$170,000	1	15	2	Good	\$11,333	2.95%	\$9,140.32	\$22,667
6.2.6	Ceiling Tile (Ammenities Level)	\$60,000	1	10	2	Good	\$6,000	1.56%	\$5,233.83	\$12,000
6.2.8	Common Amenity Appliances (Lobby and Ammenity	\$11,000	1	30	2	Good	\$367	0.10%	\$231.21	\$733
6.3.1	Reserve Fund Study	\$16,000	1	15	0	Good	\$1,067	0.28%	\$860.27	\$0
7.2.1	Domestic Water Service (Piping)	\$180,000	1	5	2	Good	\$36,000	9.39%	\$33,903.82	\$72,000
7.3.1	Domestic Gas Fired Water Heaters	\$20,000	1	30	2	Indeterminate	\$667	0.17%	\$420.39	\$1,333
7.3.1	Domestic Electric Hot Water Heaters	\$18,000	1	10	2	Good	\$1,800	0.47%	\$1,570.15	\$3,600
7.3.1	Domestic Hot Water Recirculation Pumps	\$7,000	1	10	2	Good	\$700	0.18%	\$610.61	\$1,400
7.3.1	Domestic Water Expansion Tanks	\$2,000	1	25	2	Good	\$80	0.02%	\$54.86	\$160
7.3.1	Domestic Water Drawdown Tanks	\$1,000	1	10	2	Good	\$100	0.03%	\$87.23	\$200
7.3.1	Water Softener	\$1,000	1	25	2	Good	\$40	0.01%	\$27.43	\$80
7.3.1	Sanitary Water Sump Pump	\$2,000	1	10	2	Good	\$200	0.05%	\$174.46	\$400
7.3.1	Storm Water Sump Pump	\$2,000	1	10	2	Good	\$200	0.05%	\$174.46	\$400
7.3.1	Domestic Booster Pumps	\$10,000	1	10	2	Good	\$1,000	0.26%	\$872.31	\$2,000
7.3.1	Elevator Sump Pump	\$2,000	1	10	2	Good	\$200	0.05%	\$174.46	\$400
7.3.2	Sanitary Waste System	\$5,000	1	10	2	Good	\$500	0.13%	\$436.15	\$1,000
7.5.1	Heating Water Boilers	\$60,000	1	25	2	Indeterminate	\$2,400	0.63%	\$1,645.67	\$4,800
7.5.1	Boiler Circulation Pumps	\$20,000	1	25	2	Good	\$800	0.21%	\$548.56	\$1,600
7.5.1	Heating Circulation Pumps	\$10,000	1	25	2	Good	\$400	0.10%	\$274.28	\$800
7.5.1	Hot Water Unit Heaters	\$40,000	1	25	2	Good	\$1,600	0.42%	\$1,097.11	\$3,200
7.5.1	Heating Water Expansion Tanks	\$8,000	1	25	2	Good	\$320	0.08%	\$219.42	\$640
7.5.1	Hot Water Heat Exchanger	\$5,000	1	25	2	Good	\$200	0.05%	\$137.14	\$400
7.5.2	Parkade Exhaust Fan	\$3,000	1	25	2	Good	\$120	0.03%	\$82.28	\$240
7.5.2	CO Sensors	\$13,000	1	25	2	Good	\$520	0.14%	\$356.56	\$1,040
7.5.2	Parkade Make-up Air Units	\$25,000	1	25	2	Good	\$1,000	0.26%	\$685.70	\$2,000
7.5.3	Lobby/Common and Corridor Pressurization Make-u	\$35,000	1	25	2	Good	\$1,400	0.36%	\$959.98	\$2,800
7.5.4	Air Cooled Chiller	\$20,000	1	20	2	Good	\$1,000	0.26%	\$744.31	\$2,000
7.5.4	Dry Fluid Cooler	\$5,000	1	20	2	Good	\$250	0.07%	\$186.08	\$500
7.5.4	Fluid Cooler Circulation Pumps	\$15,000	1	20	2	Good	\$750	0.20%	\$558.24	\$1,500
7.5.4	Chilled Water Circulation Pumps	\$15,000	1	20	2	Good	\$750	0.20%	\$558.24	\$1,500
7.5.4	Chilled Water Expansion Tanks	\$5,000	1	20	2	Good	\$250	0.07%	\$186.08	\$500
7.5.4	Chilled Water Buffer Tanks	\$7,000	1	20	2	Good	\$350	0.09%	\$260.51	\$700
7.5.4	Air Cooled Condensers	\$40,000	1	20	2	Good	\$2,000	0.52%	\$1,488.63	\$4,000
7.5.4	Fan Coil Units	\$130,000	1	20	2	Good	\$6,500	1.69%	\$4,838.04	\$13,000
7.5.5	Chilled Water Heat Exchanger	\$10,000	1	20	2	Good	\$500	0.13%	\$372.16	\$1,000
7.5.6	Fractional hp exhaust fans	\$70,000	1	20	2	Good	\$3,500	0.91%	\$2,605.10	\$7,000
7.5.6	0.5 hp exhaust fans	\$4,000	1	20	2	Good	\$200	0.05%	\$148.86	\$400
7.5.6	1.0 hp exhaust fans	\$6,000	1	20	2	Good	\$300	0.08%	\$223.29	\$600
7.5.6	2.0 hp exhaust fan	\$3,000	1	20	2	Good	\$150	0.04%	\$111.65	\$300
7.5.6	3.0 hp exhaust fans	\$9,000	1	20	2	Good	\$450	0.12%	\$334.94	\$900
7.5.6	10 hp exhaust fan	\$20,000	1	20	2	Good	\$1,000	0.26%	\$744.31	\$2,000
7.6.1	Building Automation Systems	\$25,000	1	20	4	Good	\$1,250	0.33%	\$930.39	\$5,000
8.2.1	Exterior Building Luminaires	\$55,000	1	25	2	Good	\$2,200	0.57%	\$1,508.53	\$4,400
8.2.2	Interior Lights allowance	\$10,000	1	10	2	Good	\$1,000	0.26%	\$872.31	\$2,000

Appendix B

Expenditure Schedule

Appendix C

Cash Flow Projection (Recommended Contribution)

CASH FLOW PROJECTION
Vogue Condominiums
RECOMMENDED CONTRIBUTION

Appendix C

Project Name: Vogue Condominiums
 Project Number: 40299.00
 For the Year Ended: 2019
 Financial Analysis

Date: 01-Jul-19
 Interest: 3.0%
 Inflation: 3.0%

Year	Opening Balance	Annual Contribution	Catchup Contribution	Expenditure	Interest	Closing Balance
2019	\$206,500.00	\$198,000		\$6,300	\$11,946	\$410,146
2020	\$410,146	\$203,940		\$13,800	\$18,009	\$618,295
2021	\$618,295	\$214,137		\$6,300	\$24,784	\$850,916
2022	\$850,916	\$224,844		\$6,300	\$32,084	\$1,101,543
2023	\$1,101,543	\$236,086		\$46,300	\$38,740	\$1,330,069
2024	\$1,330,069	\$247,890		\$25,300	\$46,580	\$1,599,239
2025	\$1,599,239	\$260,285		\$6,300	\$55,597	\$1,908,821
2026	\$1,908,821	\$273,299		\$6,300	\$65,275	\$2,241,094
2027	\$2,241,094	\$286,964		\$740,300	\$53,633	\$1,841,391
2028	\$1,841,391	\$301,312		\$641,300	\$45,042	\$1,546,446
2029	\$1,546,446	\$316,378		\$150,300	\$51,376	\$1,763,899
2030	\$1,763,899	\$332,197		\$13,800	\$62,469	\$2,144,765
2031	\$2,144,765	\$348,807		\$6,300	\$74,618	\$2,561,890
2032	\$2,561,890	\$366,247		\$397,300	\$75,925	\$2,606,762
2033	\$2,606,762	\$384,559		\$46,300	\$88,351	\$3,033,372
2034	\$3,033,372	\$403,787		\$25,300	\$102,356	\$3,514,215
2035	\$3,514,215	\$423,977		\$6,300	\$117,957	\$4,049,848
2036	\$4,049,848	\$445,175		\$6,300	\$134,662	\$4,623,385
2037	\$4,623,385	\$467,434		\$1,499,300	\$107,746	\$3,699,265
2038	\$3,699,265	\$467,434		\$846,300	\$99,612	\$3,420,011
2039	\$3,420,011	\$467,434		\$25,300	\$115,864	\$3,978,010
2040	\$3,978,010	\$467,434		\$38,800	\$132,199	\$4,538,843
2041	\$4,538,843	\$467,434		\$6,300	\$149,999	\$5,149,977
2042	\$5,149,977	\$467,434		\$212,300	\$162,153	\$5,567,264
2043	\$5,567,264	\$467,434		\$6,300	\$180,852	\$6,209,250
2044	\$6,209,250	\$467,434		\$972,300	\$171,132	\$5,875,516

Assumptions:

Inflation and interest are assumed to be constant over the examined period.

Finish current year with the current annual contribution and inflation contribution, then gradually increase the annual contribution over the next 18 years with 5% per year.

Appendix D

Photographs – Building Envelope



Photo 1 Typical balcony and aluminum railings

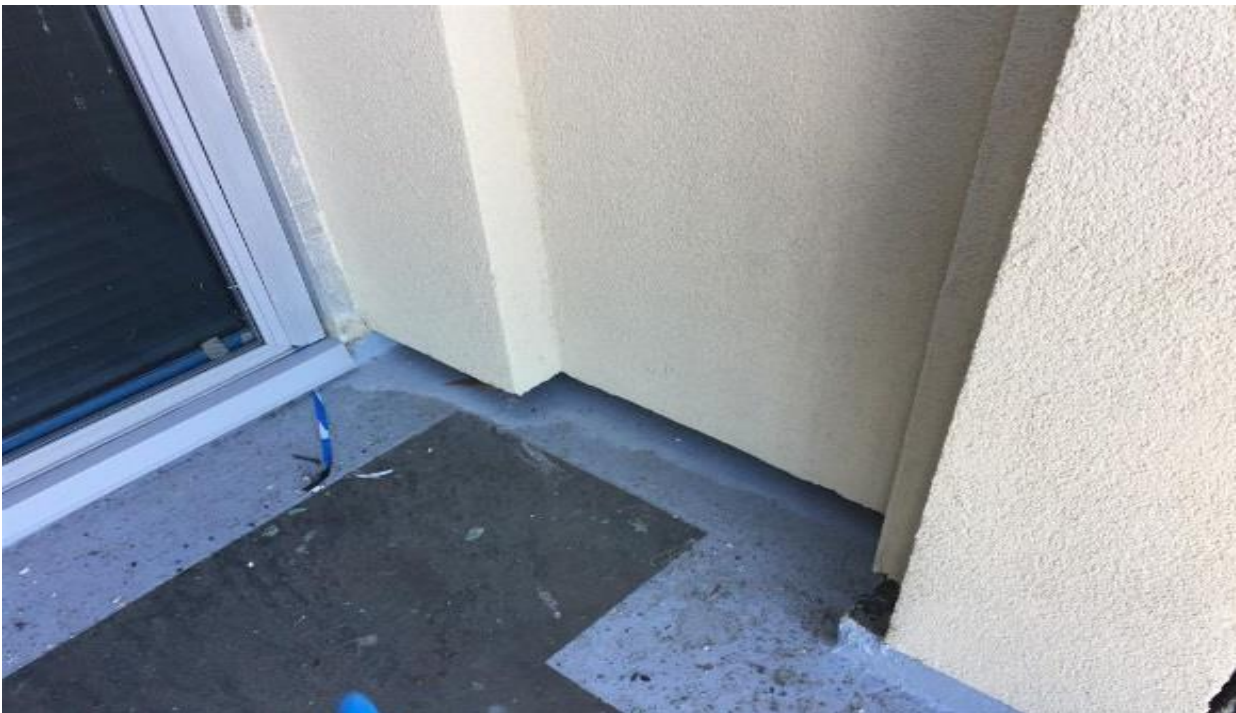


Photo 2 Application of balcony membrane



Photo 3 EIFS delaminating on East wall



Photo 4 EIFS installed on building. Some water staining can be observed.



Photo 5 Composite metal panels at front entrance

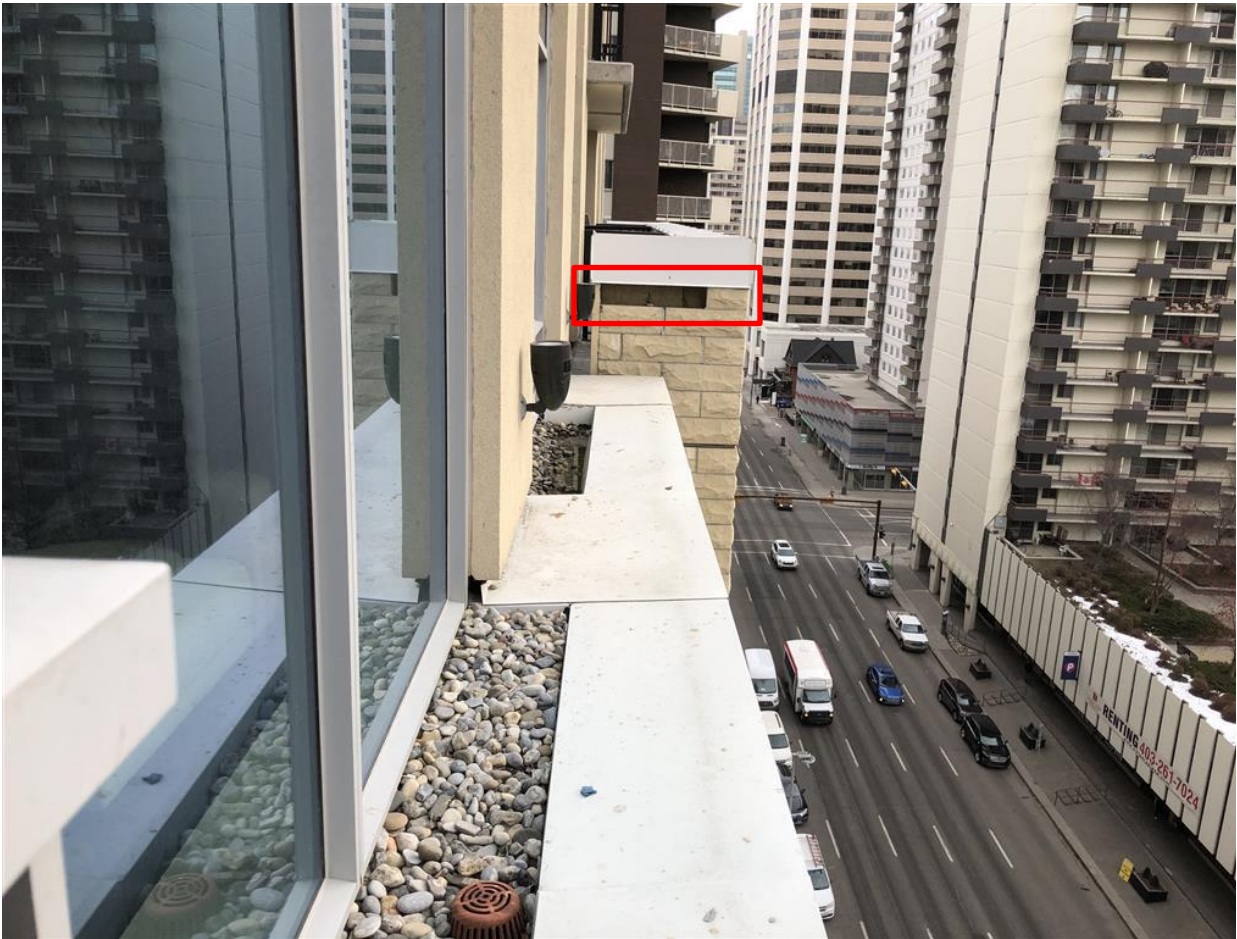


Photo 6 Stone missing on South elevation



Photo 7 Water staining on stone masonry



Photo 8 Overview of parkade membrane



Photo 9 Damage to parkade membrane



Photo 10 Exterior window wall



Photo 11 Exterior curtain wall

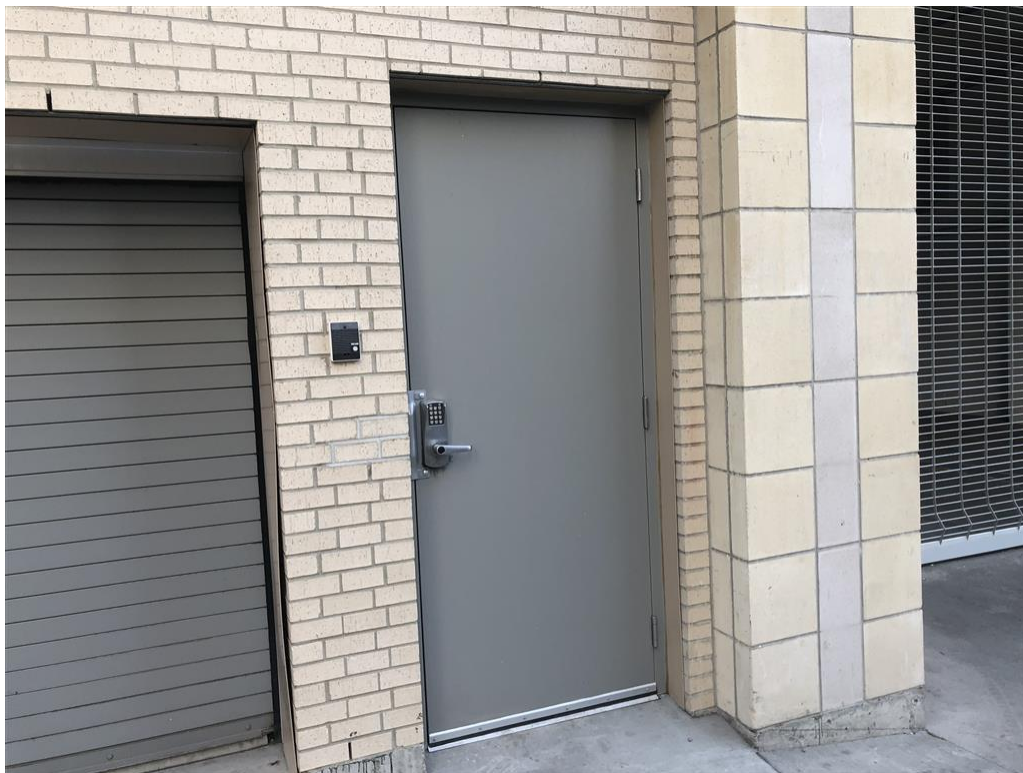


Photo 12 Insulated metal man door



Photo 13 Overhead door



Photo14 Overview of conventional 2-ply SBS roof

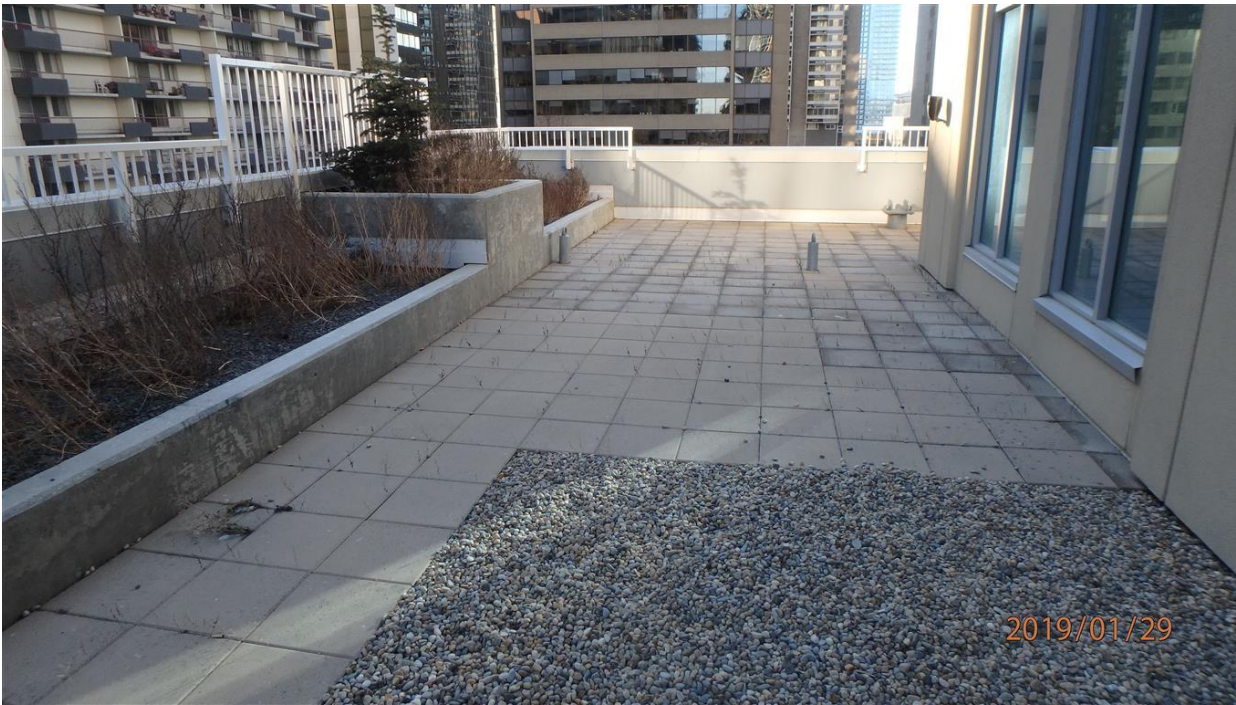


Photo 15 Overview of inverted SBS roof



Photo 16 Typical metal flashing



Photo 17 Leakage observed on concrete walls from interior of building



Photo 18 Finishes in Main Lobby include carpet, tile floor and wall coverings, wall panels



Photo 19 Carpet throughout hallways, elevator lobbies, and amenities floor



Photo 20 Typical elevator lobby finishes include tile wall coverings, wall panels and carpet



Photo 21 Typical parkade elevator lobby



Photo 22 Amenities level bathroom

Appendix E

Photographs – Mechanical



Photo 1 Domestic water heaters

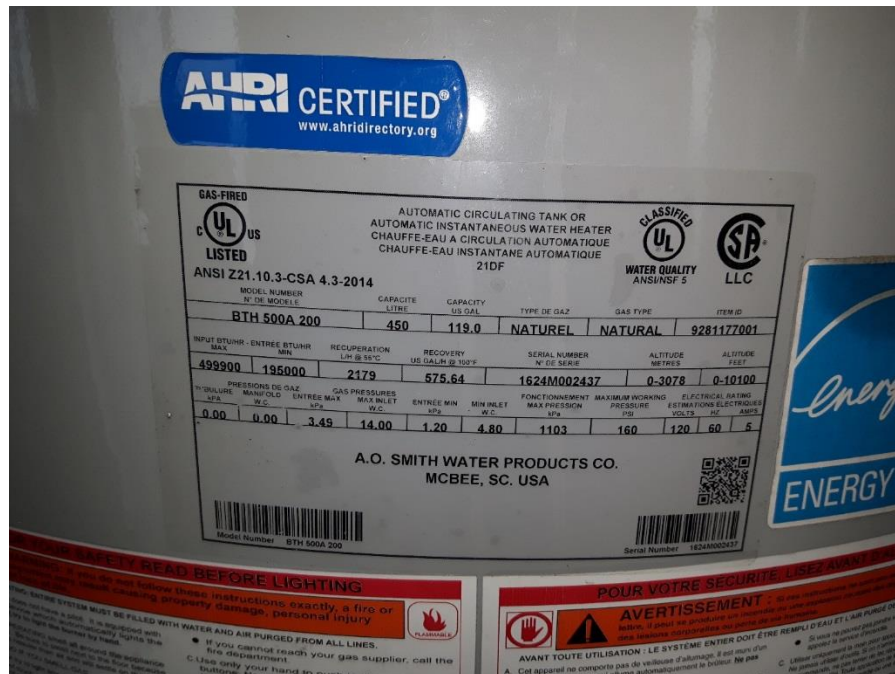


Photo 2 Domestic water heaters



Photo 3 Water Softener System



Photo 4 Water entry room



Photo 5 Fire Pump



Photo 6 Fire Pump Controller



Photo 7 Dehumidifier unit in Water Entry room



Photo 8 Sanitary sump floods during Fire Pump testing



Photo 9 Fire Pump discharge down to sanitary sump in parkade



Photo 10 Boilers



Photo 11 Boilers

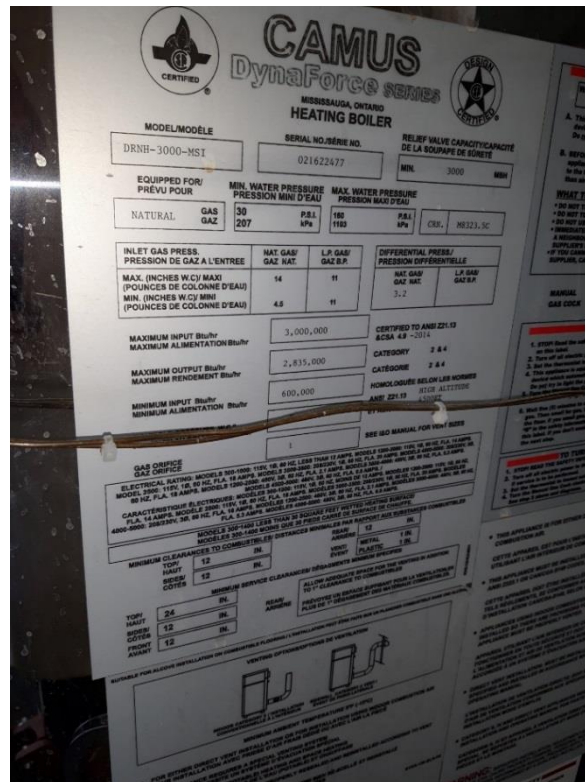


Photo 12 Boilers



Photo 13 Boiler pumps



Photo 13 Glycol Circulating pumps



Photo 14 Parkade make-up air unit



Photo 15 Parkade Make-up air unit



Photo 16 Unit Heater



Photo 17 CO sensors in parkade



Photo 18 Parkade Exhaust



Photo 19 Parkade Make-up Air unit



Photo 22 Dry Fluid Cooler

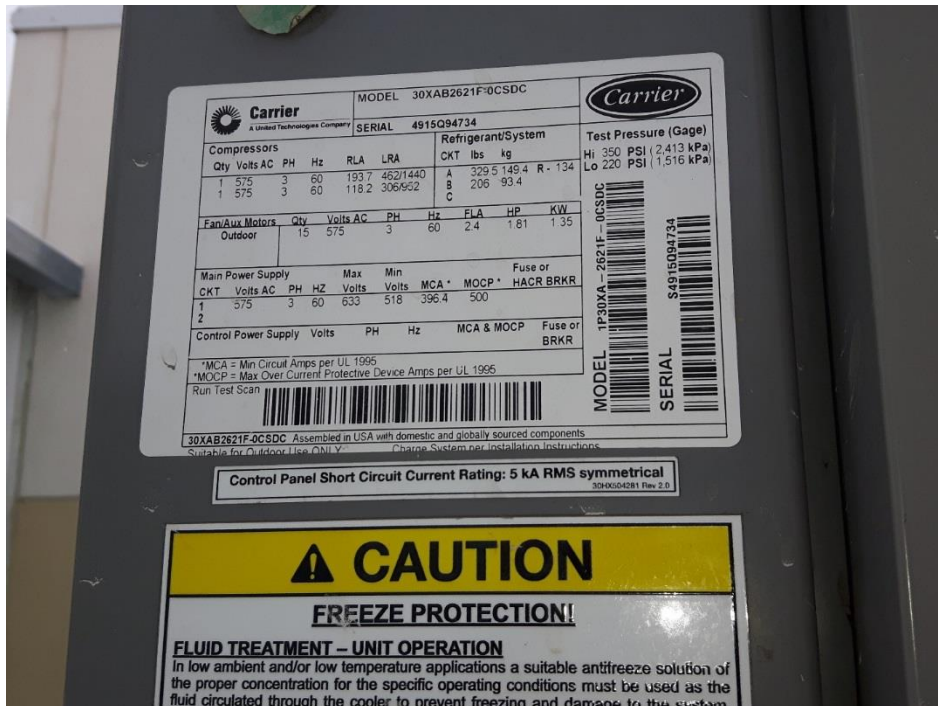


Photo 23 Chiller



Photo 24 Fan coils



Photo 25 Fan coil



Photo 26 Heat exchanger



Photo 27 Thermostat

