

FINAL

Depreciation Report

Robinson Tower Strata Corporation LMS 1902

488 Helmcken Street, Vancouver, British Columbia

Presented to:

The Owners of LMS 1902

c/o Shannon Rae, Property Manager
FirstService Residential BC Ltd.
#400 -1281 W. Georgia, Vancouver, BC V6E 3J7

Report No. 5131021.00

January 22, 2014

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DEPRECIATION REPORT FINAL.DOCX

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1. INTRODUCTION

As per our Proposal dated August 19, 2013 and your Authorization Form, completed by Gordon Harding and dated August 19, 2013, this letter report and attachments comprise your Depreciation Report.

To the best of our knowledge, this document was prepared in general compliance with Section 6.2 (Depreciation Report) of the Strata Property Regulation B.C. Reg. 43/2000 with Amendments July 1, 2000 and December 13, 2011. This report is subject to the limitations identified in Appendix E.

PROJECT TEAM AND QUALIFICATIONS

As per section 6.2 of the Act, clause 1d, the report must provide the name of the person from whom the depreciation report was obtained and a description of:

- i) their qualifications
 - ii) the error and omission insurance, if any, carried by that person, and
 - iii) the relationship between that person and the strata corporation
- i) Morrison Hershfield Limited (MH) prepared this report. MH is a prominent, privately held, multi-disciplinary engineering and management firm. Our mandate is to provide services and solutions that will assist our clients in achieving their objectives in a cost effective, efficient, professional and friendly manner. The firm was established in 1946 and has a broad range of engineering, architectural and specialist skills that are used to serve clients in the public and private sectors.
- Asal Souri of MH is a building science consultant experienced in construction and assessment of both low-rise and high-rise occupied buildings. Ms. Souri addressed the building and site elements and prepared these sections of the report;
 - Jae Ryu, P.Eng. of MH is a mechanical engineer with experience in building systems design, telecommunications design and inspections, building condition/reserve fund assessments and custom design work. Mr. Ryu addressed the mechanical systems and prepared these sections of the report;
 - Alex Rubin of MH is an electrical designer with over 20 years of experience in design, review and assessment of electrical systems. Mr. Rubin addressed the electrical systems and prepared these sections of the report;
 - Jacquelyn White, P.Eng. is a Principal of MH and project manager in facility assessment with over ten years of experience in the design, review and assessment of buildings. Ms. White has been performing depreciation report/reserve fund studies since the late 1990's while working in Ontario. Ms. White reviewed the report.
 - Patrick Ho, P.Eng. of KJA Consultants is a mechanical engineer with experience in the construction, modernization and review of elevator systems. Mr. Ho prepared the elevator section of the report.

Depreciation Report
Strata Corporation LMS 1902 – Robinson Towers

ii) We confirm that we carry professional liability insurance in the amount of \$2,000,000 per claim.

iii) Morrison Hershfield is not associated with Strata Corporation LMS 1902 beyond being retained to perform professional services. We are not aware of any conflicts of interest.

The draft report was issued on December 6, 2013 for the review of council. Changes made draft to final were limited to the removal of air conditioner units as they are not common property.

2. PHYSICAL ASSESSMENT

This study is based on a review of relevant documents provided by BCS 1902, and a visual review of the common elements as described in the Building Data Sheet (Appendix A). The following documents were reviewed:

- Architectural Drawings prepared by Raymond Y. Ching Architect & Associates INC., dated August 1992.
- As built Drawings prepared by Herbert H. Kwan Architect, dated March 1994.
- Structural Drawings prepared by Read Jones Christoffersen Ltd., dated October 1993.
- Sprinkler Drawings prepared by Martina Enterprises Ltd. dated March 1994.
- Financial Information

The visual reviews were completed on 10/4/2013 by Asal Souri, Jae Ryu and Alex Rubin from MH and Patrick Ho from KJA. We were provided access to all areas of the facility including suites 507, 1104, 1101, 1106, P1 to P4. We accessed the main roof and roof deck patios on the fifth floor; no other terrace or lower roofs were accessed directly.

Current condition and recommendations by component are included in the attached Tables (Appendix C). The component inventory excludes capital expenses less than \$28,000. As directed by the property manager, these smaller items will be covered out of the operating budget. Following accounting standards, we identify a fiscal year by the year in which it ends. For example, the 2013/2014 fiscal year is referred to throughout as 2014. To maintain consistency in calculations, a component's year of acquisition is also shown as the fiscal year rather than the calendar year.

In summary, we recommend planning for the following renewal projects and studies:

Short Term (within two years)	Middle Term (within six years)
<i>Projects</i>	<i>Projects</i>
• Re-seal the brick cladding	• Replace traffic coating at parking garages • Replace plumbing including Domestic Water Distribution, Pipes and Fittings • Replace boilers • Repaint the exterior concrete and stucco walls • Replace sealant
<i>Studies</i>	<i>Studies</i>
• A full envelope assessment (stucco and brick cladding)	• Study for plumbing replacement • Update depreciation report

It is important to note that any significant project should be preceded with a detailed review of that specific component. A pipe analysis will determine the actual condition of the pipes

and further refine replacement cost estimates, as well as remaining life. Once this is done, the timing and budget of the replacement project can be adjusted to reflect the analysis findings.

Ultimately, every identified project should be reviewed by council to determine if it will proceed in that year based on assumed risk and available funds.

We would be pleased to provide a proposal to perform any of the additional investigations identified. We also provide full engineering design, tender, construction management and contract administration services for major repair or replacement projects required at your site, and welcome the opportunity to provide Engineering services to assist you with these undertakings.

3. FINANCIAL ANALYSIS

The Strata Corporation's annual contributions to the Reserve Fund Account should be established by the Council. The funding Scenarios are summarized below and detailed in Appendix D.

Scenario 1

This Scenario is based on the last approved funding plan.

This Scenario shows contribution increases due to inflation only. Projects are fully funded by Other Contributions. The Reserve Fund Balance remains positive over the next thirty years, with a minimum balance of approximately \$140,277 in fiscal year 2025. For details, please see the 30 Year Reserve Fund Cash Flow Table for Scenario 1.

	2014	2015	2016	2017
Annual Reserve Contribution*	\$57,660	\$58,813	\$59,989	\$61,189
% Increase	n/a	2.0%	2.0%	2.0%
Average Increase per Unit	n/a	\$8.67	\$8.84	\$9.02
Average Annual Contribution per Unit	\$433.53	\$442.20	\$451.05	\$460.07
Total Other Contributions**	\$0	\$0	\$0	\$85,000
Average Other Contribution per Unit	\$0.00	\$0.00	\$0.00	\$639.10

Scenario 2

This Scenario shows contribution increases of 4% per year, including inflation, for 29 years. Other contributions are included as required. The Reserve Fund Balance remains positive over the next thirty years, with a minimum balance of approximately \$140,049 in fiscal year 2017. For details, please see the 30 Year Reserve Fund Cash Flow Table for Scenario 2.

	2014	2015	2016	2017
Annual Reserve Contribution*	\$57,660	\$59,966	\$62,365	\$64,860
% Increase	n/a	4.0%	4.0%	4.0%
Average Increase per Unit	n/a	\$17.34	\$18.04	\$18.76
Average Annual Contribution per Unit	\$433.53	\$450.88	\$468.91	\$487.67
Total Other Contributions**	\$0	\$0	\$0	\$75,000
Average Other Contribution per Unit	\$0.00	\$0.00	\$0.00	\$563.91

Scenario 3

This Scenario shows contribution increases of 10% per year, including inflation, for the first 10 years, followed by increases due to inflation only thereafter. Other contributions are included as required. The Reserve Fund Balance remains positive over the next thirty years, with a minimum balance of approximately \$139,401 in fiscal year 2019. For details, please see the 30 Year Reserve Fund Cash Flow Table for Scenario 3.

	2014	2015	2016	2017
Annual Reserve Contribution*	\$57,660	\$63,426	\$69,769	\$76,745
% Increase	n/a	10.0%	10.0%	10.0%
Average Increase per Unit	n/a	\$43.35	\$47.69	\$52.46
Average Annual Contribution per Unit	\$433.53	\$476.89	\$524.58	\$577.03
Total Other Contributions**	\$0	\$0	\$0	\$55,000
Average Other Contribution per Unit	\$0.00	\$0.00	\$0.00	\$413.53

* Annual Reserve Contribution refers to the amount contributed each year to the reserve fund from the monthly common expenses.

** Total Other Contributions refers to other contributed amounts including special assessments or surplus funds transferred from other sources (i.e. operating budget or contingency fund).

Scenario 1 shows a forecast based on the last approved funding plan; however, if the strata make no increases other than inflation, significant special assessments will be required.

Scenario 2 shows gradual increasing in contribution to reduce the amounts of special assessments (other contribution).

Scenario 3 shows more aggressive contribution increases for the first ten years to further reduce the need for special assessments (other contribution).

The minimum balance of \$139,212 (25 percent of operating budget) was maintained for all three scenarios as directed by the strata.

4. CLOSURE

Thank you for trusting Morrison Hershfield to complete this study. At a minimum, you are required to complete a Depreciation Update within three years of the date of this study. Circumstances that could accelerate this timeline are discussed in Appendix E. Please contact us at any time if you wish to update this study or to pursue the recommended investigations and/or capital projects.

If you have any questions, please contact the undersigned.

Yours truly,

MORRISON HERSHFIELD LIMITED

Asal Sourì, B.Sc.
Building Science Consultant

Jacquelyn White, P.Eng
Principal, Project Manager

APPENDIX A: Building Data Sheet

BUILDING DATA SHEET

Strata Name:	LMS 1902, Robinson Towers				
Address:	488 Helmcken Street, Vancouver, British Columbia				
Units:	125+8	Stories:	17	Constructed:	circa 1995
Recreation Facilities:	Lounge room, building manager office, exercise area, reading room, billiard room, dry-sauna, out-door hot tub, change room and four common bathrooms		Garage:	3-level underground	
			Other Details:	Ground floor commercial units are included.	
Common Elements: • Structural systems • Parking garage • Exterior walls, all components up to the back-side of the interior gypsum wall board • Windows, to the interior unfinished surface • Roofing systems • Building common areas (lobbies, corridors, service rooms) • Recreational facilities listed above • Mechanical systems (components that serve more than one unit) • Electrical systems (components that serve more than one unit) • Elevators (3) • Common area landscaping					

APPENDIX B: Photographs

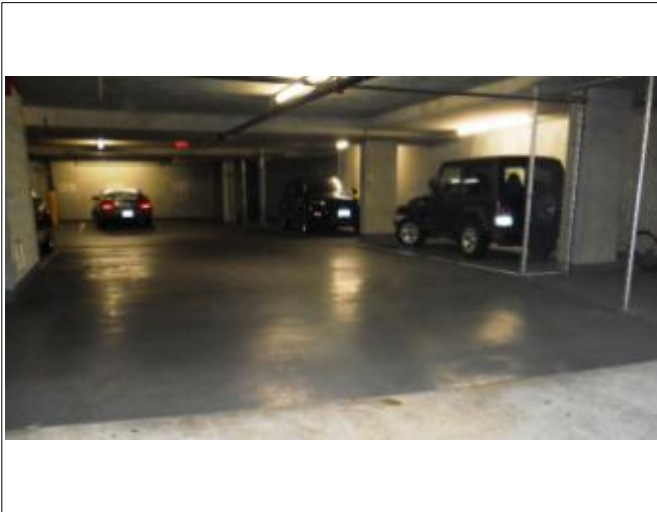
Robinson Tower - Photos



SS01



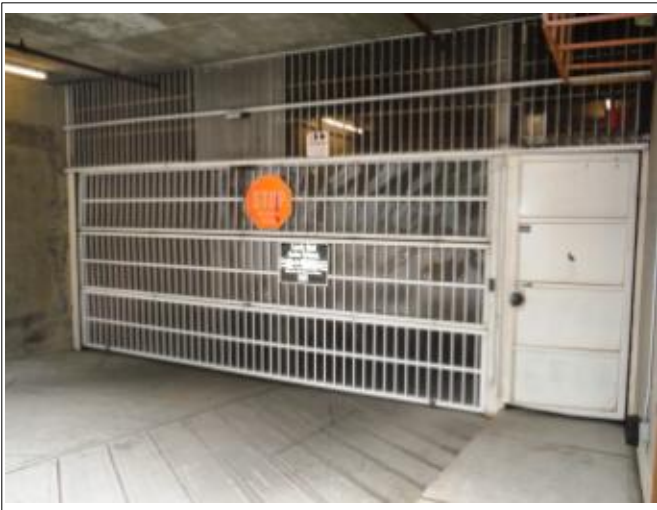
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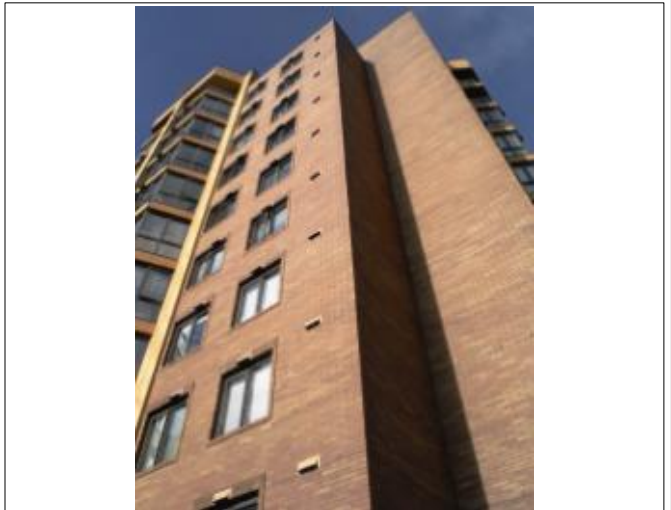
PG01



PG02



PG03



BE01

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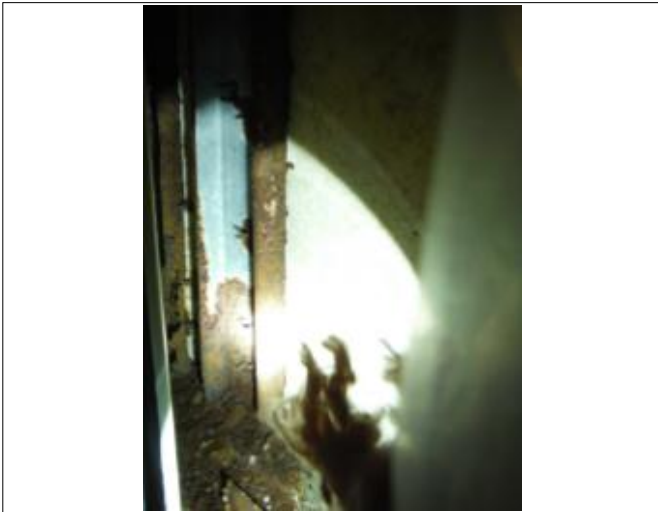
Robinson Tower - Photos



BE02



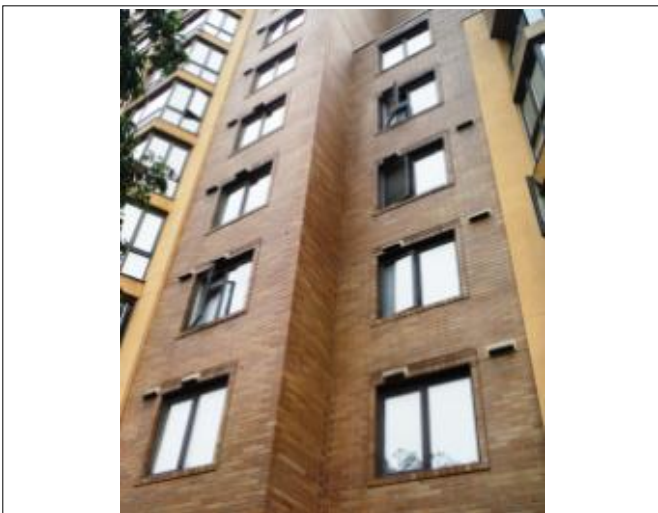
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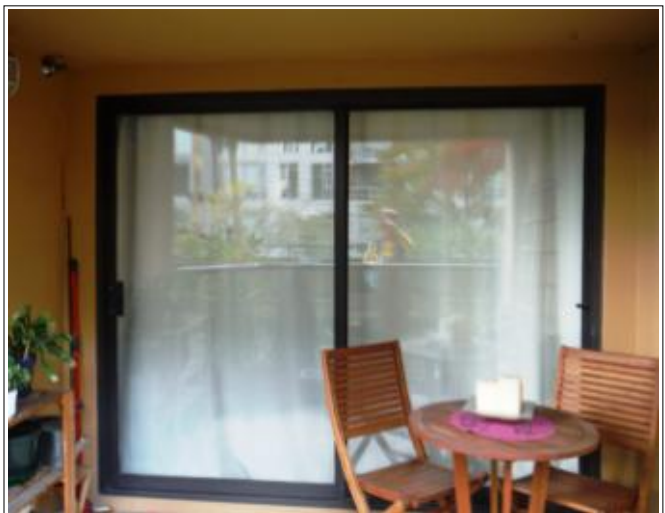
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BE05



BE06



BE07

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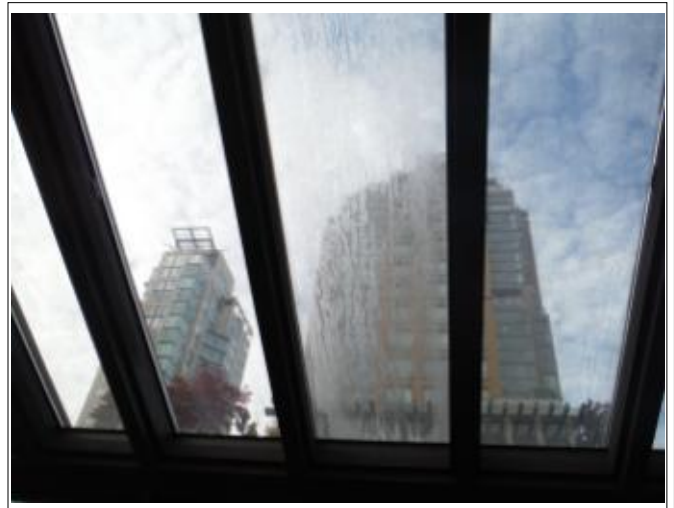
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BE09



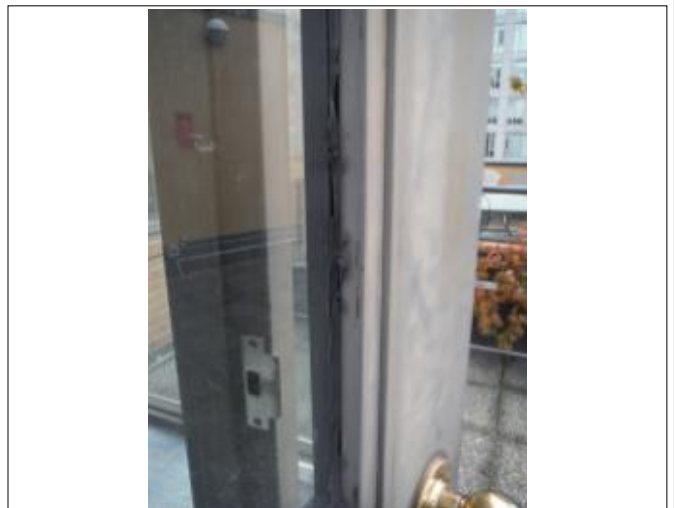
BE10



BE11



BE12



BE13

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BE14



BE15



BE16



RS01



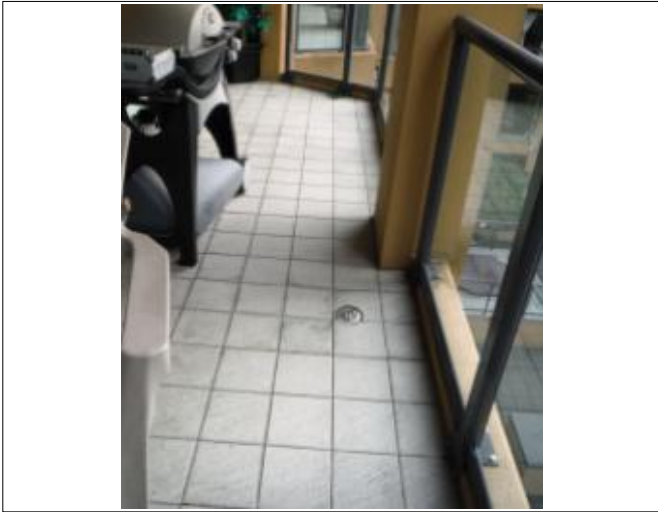
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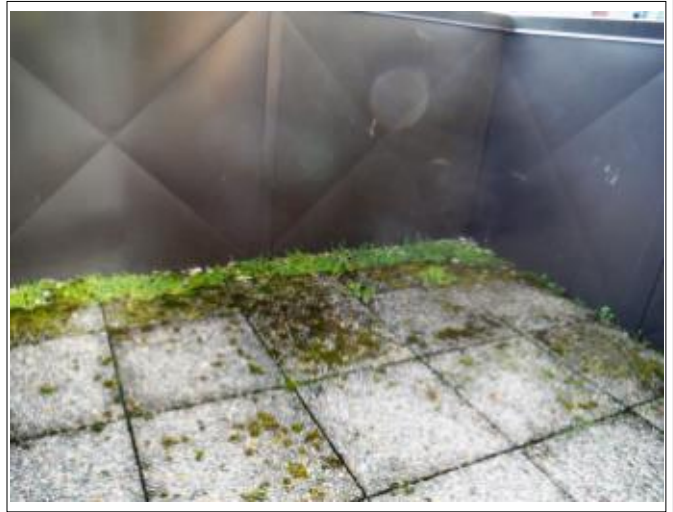
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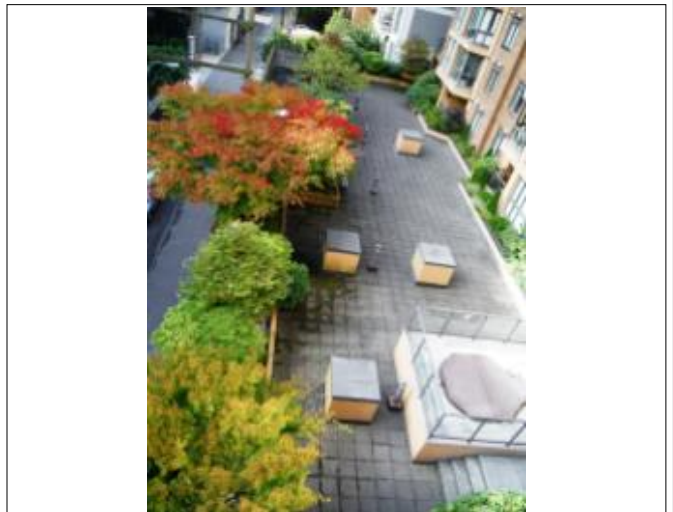
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RS05



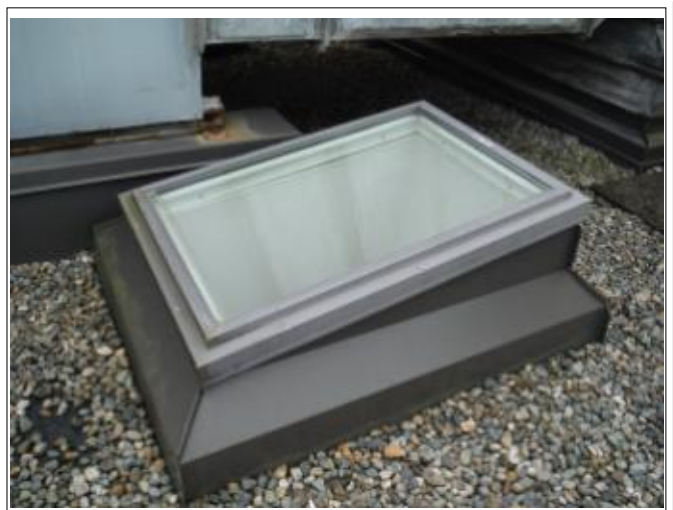
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RS07



RS08



RS09

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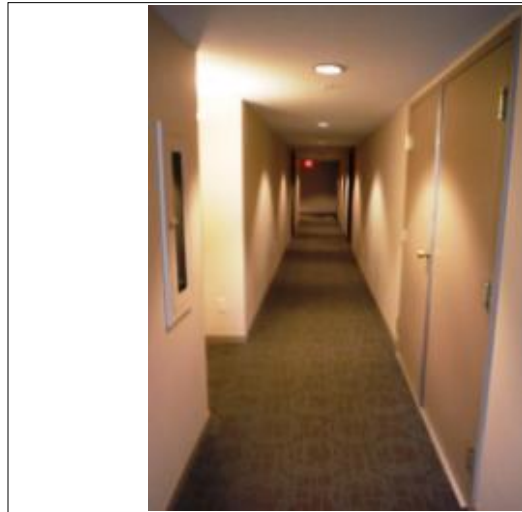
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RS11



IF01



IF02



IF03



IF04

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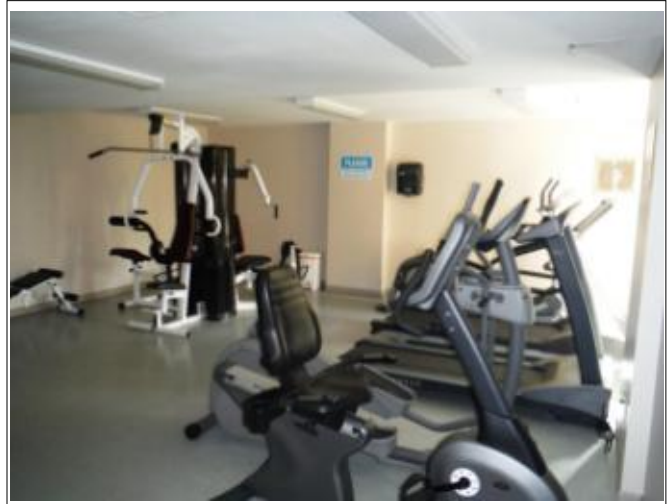
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IF06



IF07



IF08



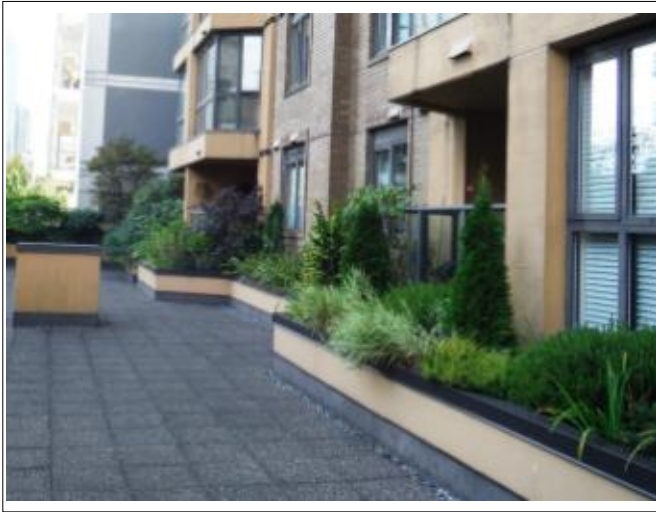
IF09



SF01

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Robinson Tower - Photos



SF02



SF03



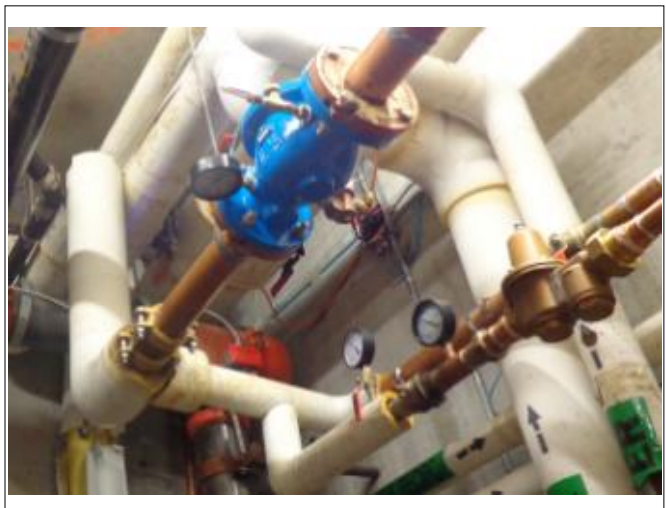
SF04



MS01



MS02



MS03

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Robinson Tower - Photos



MS04



MS05



MS06



MS07



MS08



MS09

Morrison Hershfield

Robinson Tower - Photos



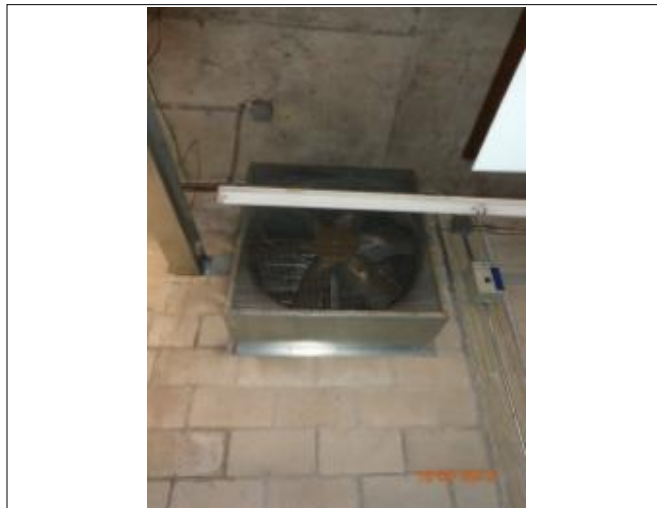
MS10



MS11



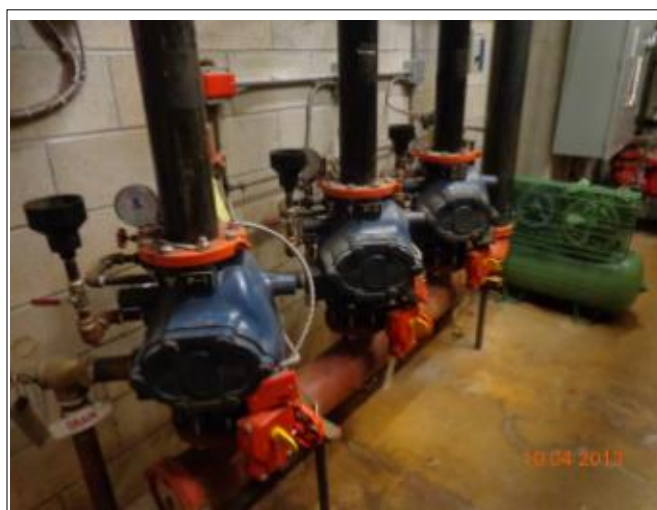
MS12



MS13



MS14



MS15

Morrison Hershfield

Robinson Tower - Photos



MS16



MS17



ES01



ES02



ES03



ES04

Morrison Hershfield

Robinson Tower - Photos



ES05



ES06



ES07



ES08



ES09



ES10

Morrison Hershfield

APPENDIX C: Condition Assessment

Depreciation Report - Condition Assessment
Robinson Tower - 488 Helmcken Street, Vancouver, BC
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1: Immediate, items that require immediate repair or replacement because of either a code deficiency or a safety concern. page 1 of 8
2: Deferred Maintenance, required to restore functionality.
3: Renewal, items that will require future repair or replacement to maintain functionality (life cycle replacement).
4: Discretionary, items where the timing and scope of work of the renewal is at the owner's discretion.

Row	COMPONENT		CONDITION ASSESSMENT			RECOMMENDATION			LIFE CYCLE DATA					
	ID	Location / Type	Description & History	Condition	Actual or Estimated Year of Acquisition	Recommendation	Type	Priority	Age in 2014	Typical Life Cycle	Estimated Remaining Life	Years Over Which Project is Phased	Include Y/N	Recommended Budget in 2014 Dollars
1	STRUCTURE SYSTEMS													
2	A1010 Standard Foundations-concrete	Slab on Grade/ P3	P3 parkade floor is a slab on grade and it is in good condition. Photo #SS01.	Good	1995	The slab on grade is expected to last the life of the building with regular maintenance. No anticipated capital expenses; however a regular allowance to address cracking is recommended.	Repair Allowance	3	19	5	1	1	N	\$2,000
3	A1010 Standard Foundations-concrete	Concrete Substructure	The foundation walls are poured in place concrete. The structural framing of the parking garage consists of reinforced concrete slabs on reinforced concrete shearwalls, foundation walls and columns. Levels P1 and P2 of the parking garages as well as the podium are constructed with a reinforced suspended concrete slab. According to the back ground documents cracks were injected in 2010.	Good	1995	The concrete suspended slab is expected to last the life of the building. An allowance it is recommended to conduct periodic concrete repairs to the suspended slabs (including through-slab, top surface and soffit repairs), as well as isolated repairs to the column bases, perimeter walls and ramps.	Repair Allowance	3	19	5	1	1	N	\$5,000
4	B1010 Superstructure	Balcony Guardrails	Balcony guardrails are glass panels in aluminum frames top-mounted over a concrete curb. Photo #SS02.	Good	1995	Replace guardrails at end of expected service life.	Renewal	3	19	35	16	1	Y	\$42,000
5	PARKING GARAGE													
6	B1010 Suspended Slabs	P2 & P1/ Traffic Coating	The suspended slabs are protected with a liquid-applied elastomeric polyurethane waterproofing membrane. Photo #PG01.	Good	1995	Replace traffic coating at end of expected service life. Replacement includes repainting of stall and traffic lines. Regular maintenance including patch repairs in high use areas (typically drive aisles) is recommended.	Renewal	3	19	20	5	2	Y	\$435,000
7	B1015 Exterior Stairs and Fire Escapes		There are three exterior stairwells at this complex; one connecting each floor of low-rise section to the roof deck patio on the fifth floor and the second one for commercial units to have access to the visitor parkings as well as the third stairwell located in the tower connecting parking garages to each floor. They are concrete stairs with aluminum handrails and guardrails.	Good	1995	Stairs likely to last the life of the complex. Handrails and guardrails may require replacement.	Renewal	3	19	40	21	1	N	\$6,000
8	C3000 Interior Finishes	Parking Garages	The walls, columns and ceilings are not currently painted. Photo #SS01.	Not Applicable	N/A	Recommend painting garage walls and columns for improved visibility and safety.	Upgrade	3	N/A				N	\$100,000
9	B2034 Man Doors		Pedestrian exit doors provide egress to the exterior of the parking garage and commercial section. The doors are hollow metal units with safety glasses in metal frames. Service room doors, including mechanical, electrical and locker rooms are solid steel. Photo #PG02.	Good	1995	Likely last the life of the complex. No capital replacements anticipated.		3	19				N	
10	B2034 Overhead Door-Metal		There are two steel grated overhead doors, one located at the main parkade entrance and the second one installed between the visitors and residents parking. Photo #PG03.	Good	1995	Replace at end of expected service life. Replacement including the operating system as well as the door itself.	Renewal	3	19	20	5	2	N	\$16,000
11	BUILDING ENVELOPE													
12	B2010 Exterior Wall Construction-Masonry	Brick Cladding	The majority of cladding used in this complex is drained cavity brick cladding. The full exterior assembly is brick, air space, exterior sheathing supported on steel studs. Photo #BE01. According to the drawings there is no sheathing membrane (building paper) provided over the exterior sheathing.	Good	1995	While the brick masonry is expected to last the life of the building, it is recommended that further review of the wall assembly be undertaken to confirm assembly. (See item #113 study). As a minimum localized replacement of damaged bricks, repointing mortar is required.	Repair Allowance	3	19	25	6	1	Y	\$68,000
13					1995	Re-seal the brick cladding as required.	Renewal	3	19	10	1	1	Y	\$113,000
14	B2010 Exterior Wall Construction-Concrete	Concrete Walls	Exposed concrete walls are coated with an elastomeric paint and they were repainted in 2005. Photo #BE02.	Good	2005	Repaint the exterior concrete walls when required. Regular cleaning and maintenance is recommended.	Renewal	3	9	12	3	1	Y	\$119,000
15						An allowance for repair cracking is recommended.	Renewal	3	9	12	3	1	N	\$27,000
16	B2010 Exterior Wall Construction	Stucco Cladding	Face-sealed stucco cladding is used at the exterior walls around the columns at enclosed balconies as well as the curved walls of the tower. According to the drawings stucco wall assemblies are comprised of finished stucco, sheathing membrane, Dens Glass Gold, supported by steel studs. Stucco clad walls were repaired and repainted partially in 2005. Overall stucco cladding is in good condition; however we observed severe corrosion on the two steel studs inside the wall at one unit. According to the owner there was a stain on the wall and they have opened to investigate the source of staining. Photos #BE03 & #BE04.	Good	Varied	Replace original stucco cladding at end of expected service life. Repainting is included in repainting concrete walls. It is recommended to address the known issue on the exterior wall immediately and review other similar locations (See item #113 study).	Renewal	3	N/A	30	11	1	Y	\$132,000



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Row	COMPONENT		CONDITION ASSESSMENT			RECOMMENDATION			LIFE CYCLE DATA					
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17	B2010 Exterior Wall Construction-Sealants	Windows, Doors	Sealants are provided between different cladding materials (brick to concrete and stucco), around the window and door frames. According to the back ground documents sealants provided around all in-slab duct penetration through the cladding (stucco, brick and concrete) were replaced in 2005 including deteriorated sealant at saddles and along cold and transition joints.	Good	2005	Replace sealant at end of service life ideally in conjunction with respected components.	Renewal	3	9	12	3	1	Y	\$95,000
18	B2011 Exterior Wall Construction-Flashings		Sheet metal flashing is provided at the roof and roof deck patios over parapet walls as well as the base perimeter of the parapet walls to direct water away from the building.	Good	1995	Replace flashings at the same time as associated assembly replacement. The cost has been included in the respected components.	Renewal	3	19				N	
19	B2020 Exterior Windows	Aluminum Window Walls	The window walls used throughout the complex are double glazed units in aluminum frames with casement operables. At some reviewed units the seal (butyl) was bleeding at the window walls frames. Photos #BE03 & #BE05.	Good	1995	Replace at end of expected service life.	Renewal	3	19	35	16	1	Y	\$1,589,000
20		Aluminum Punched Window	The majority of the punched windows are installed on the brick cladding walls. Photo #BE06.		1995	Monitor for failed units and an allowance is recommended to replace the failed units and repair hardware as they failed.	Repair Allowance	3	19	2	2	1	N	\$5,000
21					1995	Replace at end of expected service life.	Renewal	3	19	35	16	1	Y	\$181,000
22	B2020 Exterior Doors	Aluminum/ Sliding Doors	The sliding glass units used at the balconies and the roof deck patios are double glazed aluminum framed doors. Photo #BE07.	Good	1995	Recommend an allowance to replace failed units and repair hardware.	Repair Allowance	3	19	2	2	1	N	\$6,000
23					1995	Replace at end of expected service life.	Renewal	3	19	35	16	1	Y	\$62,000
24	B2030 Exterior Doors Storefront	Main Entry & Backyard Entry Doors	The ground floor main entrance of the building has a double glazed aluminum storefront assembly. Also access to the backyard on the second floor is provided via a double glazed aluminum framed double swing unit door. Photos #BE08 & #BE09.	Good	1995	Replace at end of expected service life. Repair cost is included in sliding units repair allowance.	Renewal	3	19	40	21	1	N	\$8,000
25	B2030 Exterior Doors Storefront	Roof Deck Entry Unit	Access to the roof deck patio on the south side on the fifth floor is provided via a double glazed aluminum framed storefront assembly including a sloped glazing canopy on top. Photo #BE10. Sign of condensation was observed between panes at the sloped canopy as well as corrosion on the aluminum frame of the assembly. Also failed sealant was noted between the glazing and the frame. The assembly is dated but still functioning. Photos #BE11 & #BE12 & #BE13.	Fair	1995	Replace at end of service life.	Renewal	3	19	30	11	1	N	\$9,000
26	B2030 Exterior Doors Storefront	Commercial Units /Entry Doors	Each commercial unit has an aluminum framed double glazed storefront entry door. Photo #BE14. A few commercial units replaced the entry unit in the past.	Good	Varied	Replace original ones at end of expected service life. Repair included in sliding units repair allowance.	Renewal	3	N/A	35	15	1	Y	\$29,000
27	B2030 Exterior Windows- Storefront	Ground Level	The building manager office as well as the commercial units have aluminum framed double glazed storefront windows. Photo #BE15.	Good	1995	Replace at end of expected service life. Repair cost is included in the window repair allowance.	Renewal	3	19	35	16	1	Y	\$127,000
28	B2030 Exterior Windows	Glass Block Windows	A few glass block windows are installed on the east elevation of the complex. Photo #BE16.	Good	1995	Replace at end of expected service life. Repair cost is included in the window repair allowance.	Renewal	3	19	25	6	1	N	\$16,000
29	ROOFING SYSTEMS													
30	B3010 Roof Coverings	Tower Roof	The roof system is an inverted roof system. The roof system is 2-ply SBS torch-on roofing membrane directly applied to the concrete deck with insulation, filter fabric and gravel as top surface. Photo #RS01. According to back ground documents the roof was replaced in 2003.	Good	2003	Replacement at end of service life includes all associated work such as flashing and joint sealing. Assumed the majority of the gravel and insulation will be reused.	Renewal	3	11	30	19	1	Y	\$239,000
31		Low-rise Section Roof	The main roof of the low-rise section on the sixth level has 2-Ply (SBS) torch-on roofing membrane directly applied to the concrete deck with insulation, filter fabric and ballast on top. The roof was replaced in 2005.		2005		Renewal	3	9	30	21	1	Y	\$150,000



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32	B3010 Roof Coverings	5th Floor/ Roof Decks	There are common roof deck patios on the fifth floor on the south and the east sides of the property as well as the roof deck patios for individual units located on the fifth floor of low-rise section. According to background documents they have 2-Ply (SBS) torch-on roofing membrane directly applied to the concrete deck with insulation, filter fabric and concrete pavers and tiles as top traffic surface. Photos #RS02 & #RS03 & #RS04. The waterproofing membrane was replaced at indicated areas in 2005. Organic growth was observed at a few locations on the common roof deck patio adjacent to the lounge room. Photo #RS05.	Good	2005	Replacement at end of service life. Assumes the majority of pavers and insulation will be reused. Regular cleaning and maintenance is recommended. Cleaning should include lifting pavers at drain. Replacement includes for a drainage layer to improve drainage.	Renewal	3	9	30	21	1	Y	\$196,000
33	B3010 Roof Coverings	Roof Deck Patios At Penthouse Units	There are roof decks (over living space) at the penthouse level. They are comprised of a 2-ply SBS torch-on roofing membrane and pavers as the top traffic surface. Photo #RS06.	Good	1995	Replacement at end of service life ideally in conjunction with tower roof replacement. Replacement includes all associated work such as flashing replacement and joint sealing at parapet walls.	Renewal	3	19	30	11	1	Y	\$244,000
34	B3010 Roof Coverings	Balconies/ Tower	According to the drawings balconies floor are protected with a liquid applied (urethane) traffic coating and covered by tiles.	Not Reviewed	1995	Replace waterproofing membrane at end of service life.	Renewal	3	19	15	2	1	N	\$8,000
35	B3010 Roof Coverings- Liquid Applied	Backyard/ Podium	Podium includes the backyard on the east side of the property including all landscaping. According to the drawings it is comprised of a liquid applied waterproofing membrane, composite drainage layer and filter fabric on top of the garage roof suspended slab. Organic growth was noted at few locations. Photos #RS07 & #RS08. In addition over the parking at the south-east side of the property podium includes a lower level roof section including mechanical parts. According to the drawings it is comprised of a liquid applied waterproofing membrane, composite drainage layer and filter fabric on top of the garage roof suspended slab covered by gravel as top surface.	Not Reviewed	1995	Replace waterproofing membrane at end of service life. Cost includes removal and replacement of all overburden. Overburden includes plantings, asphalt paving, gravel and mechanical equipments.	Renewal	3	19	40	21	1	Y	\$342,000
36	B3010 Roof Coverings	Skylights/ Penthouse Units	Aluminum framed skylights are installed at penthouse units. They appear in good condition. Photo #RS09.	Good	1995	Replace skylights at end of expected service life.	Renewal	3	19	25	6	1	N	\$4,000
37		Skylights/ Main Entry	Three steel framed skylights with wired glazing are installed over the main entry canopy of the complex. Photo #RS10.	Not Reviewed	1995		Renewal	3	19	25	6	1	N	\$6,000
38	B3010 Soffit	Residential	Soffits at the balconies and roof deck patios of individual units are painted concrete with a drip edge at the perimeter. Photo #RS11.	Good	1995	Repaint soffits in conjunction with repainting exterior concrete walls.	Renewal	3	19	20	6	1	N	\$17,000
39		Commercial Section	According to the drawings stucco soffits are installed at the projections above the commercial units. Photo #BE15.	Good	1995	Replace at end of service life ideally in conjunction with stucco cladding replacement. Repainting is included in repainting exterior concrete and stucco clad walls.	Renewal	3	19	30	11	1	N	\$22,000
40	INTERIOR FINISHES													
41	C1020 Interior Doors-Wood	Suite Entries	Suite entry doors are solid wood units in aluminum frames. Photo #IF01.	Good	1995	Phased replacement if required.	Contingency	4	19	35	16	5	Y	\$86,000
42	C3000 Interior Finishes	Corridor Floors	The corridor flooring is carpeted except for the corridor at the common area on the second floor leading into the gym and backyard. Carpets at all corridors were replaced in 2007. Photo #IF02.	Good	2007	Replace carpets at end of expected service life.	Renewal	4	7	15	8	1	Y	\$45,000
43	C3000 Interior Finishes	Corridor Walls & Ceilings	The corridors have painted gypsum walls and painted ceilings except for a small area around the elevators as well as corridor walls at the 17th floor which are covered by decorative panels. According to the back ground documents all corridor walls and ceilings were repainted in 2007. Photo #IF03.	Good	2007	Repaint corridor walls and ceilings when required.	Renewal	4	7	10	5	1	Y	\$83,000
44	C3000 Interior Finishes	Lobby	The main entrance lobby has ceramic tiles flooring, painted walls with decorative panels and painted ceiling. The lobby was refinished and redecorated in 2007. Photo #IF04.	Good	2007	An allowance to renew finishes as needed.	Contingency	4	7	20	13	1	N	\$10,000
45	C3000 Interior Finishes	Building Manager Office	The office has carpeted flooring, painted gypsum walls and painted ceiling including some furniture, shelving, desk and a chair. The finishes in the office including the carpet floor were replaced in conjunction with corridor refinishing in 2007. Photo #IF05.	Good	2007	An allowance to renew furniture. Refinishing the room is included in corridors refinishing line item.	Contingency	4	7	15	8	1	N	\$2,000



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46	C3000 Interior Finishes	Lounge Room and Reading Room	The lounge room has carpeted flooring, painted gypsum walls and painted ceiling. Furniture include couches, arm chairs and a coffee table. The room also includes a cabinetry, a sink and a fridge. Carpet was replaced in 2007. The lounge room is connected to the reading room located one floor below via a carpeted stairwell. The reading room includes some stored furniture. In addition an opening in the dropped ceiling was noted at the reading room. Photo #IF06.	Good	1995	An allowance to renew furniture and appliances as needed. Refinishing is included in refinishing corridor. Further investigation is recommended for the opening in the ceiling.	Contingency	4	19	20	5	1	N	\$5,000
47	C3000 Interior Finishes	Billiard Room	The billiard room including a billiard table has carpeted floor, painted gypsum walls and painted ceiling. Carpet was replaced in 2007. Photo #IF07.	Good	1995	Replace billiard table when required. Refinishing is included in refinishing corridor.	Contingency	4	19	20	3	1	N	\$1,000
48	C3000 Interior Finishes	Exercise Room	The exercise room has rolled vinyl flooring, painted gypsum walls, painted ceiling. Equipment includes universal gyms and several cardio machines as well as some lockers. Photo #IF08.	Good	1995	An allowance to renew equipment and finishes when required.	Contingency	4	19	20	5	1	N	\$10,000
49	C3000 Interior Finishes	Dry-Sauna	There is a dry-sauna in the exercise room. Photo #IF09.	Good	1995	Renew finishes of sauna room at end of service life.	Contingency	4	19	20	5	1	N	\$3,000
50	C3000 Interior Finishes	Outdoor Hot-tub	There is an outdoor hot-tub located at the backyard of the complex. According to property manager it is closed down.	Not Reviewed	1995	No capital expenses if not planed on being used.	Contingency	4	19				N	
51	C3000 Interior Finishes	Common Bathrooms	There are two common bathrooms located adjacent to the lounge room provided for men and women each including a lavatory and a toilet. In addition two more common bathrooms are provided inside the exercise room. They are equipped with two lavatories and two toilets and a shower for each. The bathrooms located at the lounge room are covered by tiled flooring and painted walls and those located at the exercise room have tiled flooring and tiles on the lower mid half of the walls and painted the upper half including the ceilings. The finishes are aged but functional.	Good	1995	An allowance to renew finishes as needed.	Renewal	4	19	15	3	1	N	\$10,000
52	SITE FEATURES													
53	G2040 Site Development	Railings	Aluminum picket railing is installed around the planters located in front of the commercial units. Photo #BE15.	Good	1995	Replaced the railings at end of service life. Regular maintenance and repainting is recommended.	Renewal	4	19	35	16	1	N	\$18,000
54	G2040 Site Development	Concrete Retaining Walls	Concrete retaining walls are constructed at the backyard of the complex to hold the landscaping. At some areas on the south side concrete walls around the planters need to be cleaned and repainted. Photos #SF01 & #SF02.	Good	1995	The retaining walls are expected to last the life of the complex; however, a repair allowance to address localized issues is recommended. Repainting the retaining walls is included in repainting exterior concrete walls.	Renewal	4	19	10	1	1	N	\$2,000
55	G2040 Site Development	Brick Retaining Walls	Brick retaining walls are constructed around the planters located at the front of the commercial units. Photo #BE15.	Good	1995	Brick retaining walls are expected to last the life of the building; however, a repair allowance to address localized issues is recommended.	Renewal	4	19	10	1	1	N	\$2,000
56	G2050 Landscaping	Planters/ Landscaping	Planters are constructed in front of each commercial unit as well as landscaping areas located at the backyard perimeter including those provided in front of the deck patios of individual units. In addition there are small planter areas on the fifth floor roof deck patios, which according to the back ground documents the waterproofing membrane was replaced in 2004 and the planters are closed out. Photos #SF01 & #SF02 #BE15.	Good	1995	Replace the waterproofing membrane at end of service life ideally in conjunction with podium membrane.	Renewal	4	19	40	21	1	Y	\$57,000
57		Caped Planters		Good	2004	Since they are capped, likely last life of the building.	Renewal	4	10				N	
58	G2040 Site Development	Glazed Canopies	Metal framed canopies with glass inserts are installed over the main entry of each commercial unit. Photo #SF03.	Good	1995	Replace canopies at end of expected service life.	Renewal	3	19	35	16	1	Y	\$37,000
59	B3010 Roof Coverings	Curved Canopy	There is a canvas curved canopy installed over the corner commercial unit. Photo #RS04	Good	1995	According to councils it is individual commercial tenant responsibility to repair/replace.		Not Applicable	19				N	
60	MECHANICAL SYSTEMS													
61	PLUMBING													
62	D201001 Plumbing, Fixtures	Common Fixtures	Common property plumbing fixtures includes those in the common restrooms, showers, janitor sinks, as well as the hose-bibbs in the parkade and exterior of the building. The fixtures are dated but in good condition (photo #MS01).	Good	1995	Replace fixtures as they fail. The replacement costs of individual fixtures are below the cost threshold of this report and should be accounted in the Strata's annual maintenance budget.	Renewal	4	19				N	



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63	D202001 Plumbing, Domestic Water Distribution, Pipes and Fittings	All Areas / DCW. DHW. DHWR Dist. Pipes & Fittings	This item includes the domestic cold water (DCW), domestic hot water (DHW), and domestic hot water re-circulation (DHWR) pipes and fittings that make up the domestic water distribution system throughout the building. The CW main are of ductile iron, while the rest of the mains and distribution pipes are of copper piping. This building has experienced multiple pin-hole leaks, which indicates the onset of systemic pipe failure. Although a water treatment system has been installed about 1 year ago, the last pinhole leak occurred about 6 months after the installation of the system.	Poor	1995	Copper for domestic service in the GVD has been subject to earlier than expected corrosion failures due to the historically acidic and turbid nature of the water supplies (although conditions may improve as new water treatment facilities come online), and we allow no more than 25 years for the estimated life of standard type "L" copper pipes. Although, a well managed water PH treatment system can prevent further corrosion, it cannot undo damage already done. As such, we shall assume no more than a 5 year remaining life. Also refer to the recommendation item just below. Total replacement costs include replacement of in-suite piping w/ PEX, and all other piping w/ type "K" copper.	Renewal	3	19	25	4	1	Y	\$1,075,000
64	D202001 Plumbing, Domestic Water Distribution, Pipes and Fittings	All Areas / DCW. DHW. DHWR Dist. Pipes & Fittings	As stated above: Although a well managed water PH treatment system can prevent further corrosion, it cannot undo the damage has already occurred. Given the history of multiple pinhole leaks, with at least the last one occurring after the installation of the water treatment system, the Strata should perform a comprehensive pipe analysis that can provide an empirical estimate of the remaining life of the various pipe sections. The empirical analysis can provide the information upon which the Strata can best plan a replacement schedule.	Not Applicable	1995	Recommend a comprehensive pipe corrosion analysis by a professional materials engineer. This will entail the cutting and replacement of multiple pipe sections (Col, Hot, Recirculation) from the main, branch, and in-suite portions of the system. The various pipe sections will then be analyzed by the materials engineer to determine the extent of corrosion and the estimated remaining life. Report shall include a recommendation and estimated costs for the replacement options.	Study	1 – Immediate	19	99	0	1	N	\$7,000
65	D202002 Plumbing, Domestic Water Distribution, Valves and Hydrants	Water Entry & Boiler Room / Major Valves	Includes the major valves (3" and over) serving the domestic water system in the water entry room, boiler room, and in the P1 parking level: Pressure Reducing Valves, Double-Check Backflow Preventer Assemblies, Strainers (photo #MS02) Water Meter, & major Shut-Off Valves. A few of these valves appear to have been replaced with new at some point after the initial construction (i.e. of different age). The newer valves are in good condition, and the older valves are functional but showing signs of external corrosion Photos #MS03 & #MS04.	Good	2000	The major valves will fail at different times based on use and function; as such, the combined replacement costs of all the valves will be spread over 5 years around their estimated effective life. Ensure that routine inspection of the DCBFP and PRVs are included in the maintenance contract; replace or refurbish at end of expected service life.	Renewal	3	14	20	4	5	Y	\$40,000
66	D202003 Plumbing, Domestic Water and Heating Equipment, Boilers	Boiler Room / Boilers	The domestic hot water for this building is generated by 2 gas-fired, copper water-tube boilers, with capacities estimated at 1,000,000 to 1,800,000 BTUH each. Photo #MS05. One of the boilers has had its heat-exchanger replaced in 2007. These are both conventional, medium efficiency boilers.	Fair	1995	The statistical median service life of water-tube boilers is 25 years. Perform manufacturer's recommended service and maintenance (by mechanical maintenance contractor); given the usage of these boilers, replace with higher efficiency units/system at end of expected service life. Replacement cost reflects higher-efficiency boilers.	Renewal	3	19	25	6	1	Y	\$95,000
67	D202003 Plumbing, Domestic Water Equipment, Tanks	Boiler Room / HW Storage Tanks	The building's DHW heating system includes 4 x 120-180 gallon, glass-lined storage tanks. The tanks were installed in 2007 and appear to be in good condition. Photo #MS06.	Good	2007	Perform manufacturer's recommended service and maintenance (by mechanical maintenance contractor); replace at end of expected service life. Replacement phased over 3 years around the end of estimated remaining life.	Renewal	3	7	20	12	3	Y	\$30,000
68	D202003 Plumbing, Domestic Water Equipment, Circ Pumps	Boiler and Water Entry Room/ DHW Circulation & Re-Circulation Pumps	The DHW system is provided with 4 in-line, fractional horsepower pumps, 2 are for boiler to tank circulation, and 2 are for DHW re-circulation. They are of different ages, and generally appear to be in good to fair condition.	Good	2007	Perform manufacturer's recommended service and maintenance (by mechanical maintenance contractor); replace at end of expected service life. Replacement costs phased over 3 years around their statistical median life.	Renewal	3	7	15	7	3	N	\$7,000
69	D202003 Plumbing, Domestic Water Equipment, Booster Pumps	Water Entry Room / Booster Pumps	The domestic water system is pressure-boosted by a packaged duplex pump system consisting of the system controller and 2 booster pumps. They are in fair condition but still functioning. Photo #MS07.	Fair	1995	Perform manufacturer's recommended service and maintenance (by mechanical maintenance contractor); replace/refurbish when major components starts to fail. Replacement cost reflects replacement with a VFD Duplex system.	Renewal	3	19	20	4	1	Y	\$47,000
70	D203001 Waste & Drainage, Pipe & Fittings	All Areas / Sanitary and Stormwater Drainage Lines	The building's sanitary pipes are "hubless" ASTM B70 cast iron pipes with mechanical compression fittings. Observable pipe sections are in good condition (photo #MS08).	Good	1995	Cast iron pipes in sanitary or storm service can last anywhere from 40 to 80 years. Expect replacement of individual compression fittings and/or individual sections of pipes as they age. Provide a repair allowance 10 years before the 40 year minimum expected life of these pipes (start repair allowance at year 30).	Repair Allowance	3	19	1	11	1	N	\$2,000



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71	D204004 Drainage, Equipment	Parkade /Sump Pump	The building's storm-water drainage system from the roof and perimeter empties to a storm sump below the parkade level. The sump is emptied to the City's storm-water main via a duplex sump pump system (photo #MS09). The pumps themselves are not visible. Statistical median life for sump pumps is 10 years, as such last replacement (renewal) at 2005 is assumed.	Not Reviewed	2005	Perform manufacturer's recommended service and maintenance (by mechanical maintenance contractor); replace at end of expected service life.	Renewal	3	9	10	1	1	N	\$15,000
72	D209099 Plumbing, Spa/ Hot Tub	Spa Equipment Room / Spa Equipment	The building is equipped with an outdoor spa. The spa is serviced by a filtration, heating, and jet system consisting of 1 filtration pump, sand filter, chlorine injector, electric heater, and 1 jet pump. Age of the individual equipment is unknown, they appear to be in fair condition (photo #MS10). The spa is reportedly not in use.	Fair	2005	Perform manufacturer's recommended service and maintenance (by spa equipment maintenance contractor); replace components as they fail, if desired.	Renewal	4	9	15	6	1	N	\$10,000
73	HVAC													
74	D303007 HVAC, Exhaust System	Parkade / Exhaust Fans	Primary parkade exhaust is provided by 2 large capacity (15 HP) vane-axial exhaust fans (photos #MS11 & M12). One unit's motor was replaced in 2007.	Fair	1995	Replace or refurbish at end of expected service life. Costs spread over 2 years after the statistical median service life.	Renewal	3	19	20	5	1	N	\$17,000
75					2007		Renewal	3	7	20	13	1	N	\$17,000
76	D303007 HVAC, Exhaust System	Utility Spaces / Exhaust Fans	Ventilation exhaust for the various mechanical and electrical spaces are provided by propeller type fans with dampered opening (photo #MS13). They are in good condition and still functioning.	Good	2005	Replace or refurbish at end of expected service life. Costs spread over 3 years around the statistical median service life.	Renewal	3	9	15	6	3	N	\$7,000
77	D304008 HVAC, Air Handling Units	Rooftop / Makeup Air Unit	The corridors, lobby and parkade stairs for this building is ventilated by a gas-fired make-up air unit (photo #MS14). The make-up air unit is provided with an indirect gas burner module, which tempers the outside air when necessary, and a fan sized for 9,000 CFM; no cooling is provided.	Fair	1995	Perform manufacturer's recommended service and maintenance (by mechanical maintenance contractor); replace at end of expected service life.	Renewal	3	19	20	3	1	Y	\$32,000
78	FIRE SUPPRESSION/SPRINKLER													
79	D401002 Sprinkler Water Supply Equipment and Piping	Fire Pump Room / Sprinkler Valves	This item includes the major sprinkler valves: 3 dry sprinkler valve assemblies (photo #MS15), 1 main wet sprinkler valve, and approximately 24 Zone Control Valve assemblies (photo #MS16).	Good	1995	Ensure that all these valves and valve assemblies are inspected, maintained, and tested per NFPA 25. Replace or refurbish components as they fail. System cost phased over 7 years around the expected service life.	Renewal	3 – Renewal	19	30	11	7	Y	\$57,000
80	D401002 Sprinkler Water Supply Equipment and Piping	All Areas / Sprinklers and Sprinkler Piping	Sprinklers are quick-response glass bulb type, upright type for the dry-system and mostly pendant for the rest of the building. Pipes are of black steel with grooved mechanical fittings (standpipe system is included in this item), the components appear to be in good condition.	Good	1995	Ensure that water flow tests and internal pipe inspections are performed per NFPA 25. Pipes and sprinklers as a system should last in excess of 40 years, but a repair allowance for annual repairs after 25 years is recommended.	Repair Allowance	3 – Renewal	19	1	6	1	N	\$2,000
81	D401002 Sprinkler Water Supply Equipment and Piping	Fire Pump Room / Fire Pump	The wet sprinkler system includes an electric driven fire pump, fire pump controller, and jockey pump (photo #MS17). The components are in good condition.	Good	1995	Ensure that components and system are inspected, maintained, and tested per NFPA 20 and 25. Electric fire pumps run during tests and emergency situations only, as such, a well maintained fire pump system should last in excess of 30 years. Replacement of system after 30 years is assumed.	Renewal	3 – Renewal	19	30	11	1	N	\$27,000
82	OTHER													
83	G306004 Liquid Fuel Storage Tanks	Generator Room / Diesel Tank	The building is provided with a 300 gal (1,140 L) diesel fuel storage tank for the emergency generator. The steel tank is single-walled, but provided with an outer partial containment tank.	Good	1995	Tank should last in excess of 40 years. Replace at end of expected service life.	Renewal	3	19	40	21	1	N	\$5,000
84	ELECTRICAL SYSTEMS													
85	D5010 - Electrical Service and Distribution	High Voltage Switchgear	BC Hydro provides service to the building from two different circuits. 12.5 KV medium voltage switch gear is consist of two disconnect switches, two load breakers for each circuit and main disconnect switch. Photo #ES01. Expenses are shared between commercial and residential part of the strata.	Fair	1995	With proper maintenance may survive age of the building. Regular cleaning (every 5 years) and infrared scanning is recommended. Replace switchgear and disconnect switches at the end of service life.	Renewal	4	19	30	11	1	Y	\$105,000
86	D5010 - Electrical Service and Distribution	Main High-voltage Transformer	1000 kVA 12.5kV input step down transformer with 120/208V secondary output. Manufactured by Hummond located in the main electrical room. photo #ES02. The transformer winding temperature was noted to be approximately 70deg.C which is well below the alarm point for transformers of this type. Photo #ES03. Expenses are to be shared between commercial and residential part of the strata.	Good	1995	With proper maintenance may survive age of the building. Regular cleaning (every 5 years) and infrared scanning is recommended. Replace transformer at the end of service life.	Renewal	4	19	30	11	1	Y	\$105,000



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87	D5010 - Electrical Service and Distribution	Main Building Switch Gear	3500A, 120/208V, 3-phase, 4-wire main switch gear consists of three panels and is housing miscellaneous disconnect switches for retail, house and residential loads. Photo #ES04. Expenses are to be shared between commercial and residential part of the strata.	Fair	1995	With proper maintenance may survive age of the building. Regular cleaning (every 5 years) and infrared scanning is recommended. Replace switchgear and disconnect switches at the end of service life.	Renewal	4	19	30	11	1	Y	\$53,000
88	D5010 - Electrical Service and Distribution	Emergency Distribution	Emergency building power loads are fed via two automatic transfer switches; 400A "TS-1" - fire pump and 600A "TS-2" - HVAC & elevators, emergency lighting and 600A, 120/208V, 3-phase, 4-wire electrical panel. Photos #ES05 & E06. Expenses are to be shared between commercial and residential part of the strata.	Fair	1995	Replace transfer switches at the end of service life. Require regular maintenance.	Renewal	4	19	30	11	1	N	\$27,000
89	D5010 - Electrical Service and Distribution	Electrical Equipment	Electrical equipment is original but in good condition and require regular maintenance. Expenses are to be shared between commercial and residential part of the strata.	Good	1995	With proper maintenance may survive age of the building. The infrared scan, maintenance and cleaning is recommended every 5 years.	Repair Allowance	4	19	5	1	1	N	\$6,000
90	D5010 - Electrical Service and Distribution	Metering Centers	Metering combo (el. meter + breaker) dedicated for each unit. Metering combos are combined into metering centers. Photo #ES07.	Good	1995	Replace metering combos (excluding electrical meters).	Renewal	4	19	30	11	1	N	\$27,000
91	D5010 - Electrical Service and Distribution	Residential Load Centers	120/240V load center.	Good	1995	Replace load centers inside apartment units.	Renewal	4	19	30	11	1	Y	\$66,000
92	D5020 - Lighting and Branch Wiring	Building Indoor Lighting	The majority of the lighting system is a mixture of CFL (compact fluorescent light) and T8 tube fluorescent lighting fixtures. The lighting level in corridors, stair wells and underground parkade is 5, 20 and 15 LUS respectively, which is very close to recommended lighting level in these areas.	Fair	1995	Replace lighting fixtures at the end of the service life. Lighting technology changes and new type of energy efficient lighting appears on market. LED type lighting is becoming more and more affordable every year. We recommend performing of energy study before replacement.	Renewal	4	19	20	5	1	Y	\$32,000
93	D5030 - Communications and Security	Telephone and TV Cable	Located in the mechanical/communication room.	Good	1995	Maintenance and replacement of the equipment by service provider. No capital expenses anticipated.	Renewal	4	19				N	
94	D5030 - Communications and Security	Security System	Enter Phone entrance panel is located at the main and under ground parkade entrances. Cameras are located throughout the complex. Control panel and recording equipment is located in the communication room. Panels and cameras were replaced in 2005. Photo #ES08.	Good	2005	Condition of security equipment is good and may require periodic maintenance. As with most electronic equipment, its lifespan can be estimated to be approximately 15 years, as advances in technology will make the system obsolete and it will become difficult to source replacement parts.	Renewal	4	9	15	6	1	N	\$13,000
95	D5040 - Other Electrical Systems	Fire Alarm Panel	Notifier Fire Alarm Panel is located in main lobby. The panel is original but some parts were upgraded in 2012. Photo #ES09. Expenses are to be shared between commercial and residential part of the strata.	Fair	1995	Fire Alarm Panel is in serviceable condition and require periodic maintenance. As with most electronic equipment, its lifespan can be estimated to be approximately 15 years, as advances in technology will make the system obsolete and it will become difficult to source replacement parts.		4	19	15	5	1	Y	\$32,000
96	D5040 - Other Electrical Systems	Back up Power	Emergency power distribution is from Onan 200kW, 250kVA, 120/208V stand-by diesel generator. Photo #ES10. Expenses are to be shared between commercial and residential part of the strata.	Fair	1995	The generator is in good condition. Require regular testing and maintenance. Replace the generator at the end of the service life.	Renewal	4	19	35	16	1	Y	\$105,000
97	ELEVATORS													
98	D1010- Passenger Elevators	Hydraulic Elevator: Mechanical Safety Edges and Dual Light-rays	The door reopening equipment presently installed consists of a mechanical safety edge and dual light-rays.	Not Applicable	1995	It is recommended to provide an infrared multi-beam device to improve the reliability of the elevator within next year.	Upgrade	4	19	99	1	1	N	\$3,000
99	D1010- Passenger Elevators	Hydraulic Elevator: Hydraulic Cylinder	The elevator's hydraulic cylinder is not provided with any form of corrosion protection, such as a cathodic protection system or a PVC liner.	Good	1995	The average life expectancy of a buried cylinder is in the range of 25 years. It is recommended to replace the cylinder or the elevator converted to an above-ground design within the next 5 years.	Contingency	4	19	99	5	1	Y	\$79,000
100	D1010- Passenger Elevators	All 3 Elevators: Code & Vandalism	Code requirements have become more onerous over the past decade and the interval between code changes has decreased.	Not Applicable	1995	Budget for code changes and general repairs for vandalism at 5 year interval.	Contingency	2	19	5	1	1	N	\$16,000
101	D1010- Passenger Elevators	All 3 Elevators: Barrier- Free Access	The elevators do not meet barrier-free access requirements as listed in the KJA report.	Not Applicable	N/A	While not mandatory to modify existing elevators, barrier-free upgrades are recommended to be performed within the next 2 to 3 years.	Upgrade	4	N/A	99	3	1	N	\$15,000



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1: Immediate, items that require immediate repair or replacement because of either a code deficiency or a safety concern. page 8 of 8
2: Deferred Maintenance, required to restore functionality.
3: Renewal, items that will require future repair or replacement to maintain functionality (life cycle replacement).
4: Discretionary, items where the timing and scope of work of the renewal is at the owner's discretion.

Row	COMPONENT		CONDITION ASSESSMENT			RECOMMENDATION			LIFE CYCLE DATA					
	ID	Location / Type	Description & History	Condition	Actual or Estimated Year of Acquisition	Recommendation	Type	Priority	Age in 2014	Typical Life Cycle	Estimated Remaining Life	Years Over Which Project is Phased	Include Y/N	Recommended Budget in 2014 Dollars
102	D1010- Passenger Elevators	All 3 Elevators: Car Door Restrictor	There is currently no car door restrictor provided. The addition of a car door restrictor would prevent the car door from being manually opened by more than 100mm.	Not Applicable	N/A	While it is not mandatory on existing installations, it is recommended to provide car door restrictor as a safety enhancement within the next 2 years.	Upgrade	4	N/A	99	2	1	N	\$10,000
103	D1010- Passenger Elevators	Hydraulic Elevator: Emergency Power Operation	We understand that emergency power is not provided for the hydraulic elevator. In the event of a power failure the elevator would stop where it is (possibly between floors).	Not Applicable	N/A	While emergency power operation of the elevator is presently not required by code for this building is recommended within the next 2 to 3 years.	Upgrade	4	N/A	99	3	1	N	\$11,000
104	D1010- Passenger Elevators	All 3 Elevators: Equipment Guarding	Equipment Guarding is not provided to the elevators.	Not Applicable	N/A	While not mandatory to provide greater safety for workers, upgrades are recommended.	Upgrade	4	N/A	99	15	1	N	\$29,000
105	D1010- Passenger Elevators	Passenger Elevators: Car Top Railings	Car top railing is not provided for passenger elevators in this complex.	Not Applicable	N/A	It is prudent to budget for the installation of these railings.	Upgrade	4	N/A	99	15	1	N	\$9,000
106	D1010- Passenger Elevators	All 3 Elevators: Cab Finishes	The existing cab finishes are in average condition and show little to no signs of wear.	Good	1995	It is recommended to upgrade cab finishes in the next 5 years mainly for aesthetic reasons.	Renewal	4	N/A	30	5	1	Y	\$63,000
107	D1010- Passenger Elevators - Major Control Modernization	Passenger Elevators	The typical elevator "full maintenance" contract covers the replacement of major components in addition to the labour and materials necessary for ongoing repairs, adjustment and preventive maintenance work. Despite this, over time some components will require modernization.	Not Applicable	N/A	Modernize when parts become obsolete and prevent a proper maintenance program.	Upgrade	4	N/A	99	30	1	N	\$315,000
108		Hydraulic Elevator				Modernize when parts become obsolete and prevent a proper maintenance program.			N/A	99	30	1	N	\$63,000
109	OTHER PROFESSIONAL SERVICES													
110	Depreciation Report Updates		Legislation requires updates every 3 years.	Not Applicable	2014	Update depreciation report.	Study	Not Applicable	0	3	3	1	N	\$8,000
111	Miscellaneous Engineering Reviews		Periodic reviews of the building envelope and mechanical systems are prudent.	Not Applicable	N/A	Miscellaneous engineering reviews prior to major renewals.	Study	Not Applicable	N/A	5	5	1	N	\$11,000
112	Miscellaneous Engineering Reviews		Several details reviewed on the drawings and on site indicate a potential for water ingress. These include a lack of sheathing membrane behind the brick, as well as the observed damage behind one stucco wall assembly.	Not Applicable	N/A	We recommend a full envelope assessment be performed to confirm existing conditions and better refine renewal costs and timing.	Study	Not Applicable	N/A	99	0	1	N	\$9,000



APPENDIX D: Capital Plan and Funding Scenarios

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Component			Recommendation	Capital Plan / Reserve Fund Expenditure Forecast																													
Row	ID	Location / Type		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
				\$0	\$113,000	\$0	\$246,000	\$1,130,000	\$514,500	\$388,500	\$8,000	\$53,000	\$0	\$0	\$826,143	\$18,143	\$18,143	\$18,143	\$334,143	\$2,168,343	\$25,343	\$17,200	\$256,200	\$49,200	\$858,000	\$0	\$77,000	\$55,000	\$340,500	\$225,500	\$222,000	\$8,000	\$0
1	STRUCTURE SYSTEMS																																
2	A1010 Standard Foundations-concrete	Slab on Grade/ P3	The slab on grade is expected to last the life of the building with regular maintenance. No anticipated capital expenses; however a regular allowance to address cracking is recommended.																														
3	A1010 Standard Foundations-concrete	Concrete Substructure	The concrete suspended slab is expected to last the life of the building. An allowance it is recommended to conduct periodic concrete repairs to the suspended slabs (including through-slab, top surface and soffit repairs), as well as isolated repairs to the column bases, perimeter walls and ramps.																														
4	B1010 Superstructure	Balcony Guardrails	Replace guardrails at end of expected service life.																	\$42,000													
5	PARKING GARAGE																																
6	B1010 Suspended Slabs	P2 & P1/ Traffic Coating	Replace traffic coating at end of expected service life. Replacement includes repainting of stall and traffic lines. Regular maintenance including patch repairs in high use areas (typically drive aisles) is recommended.						\$217,500	\$217,500																			\$217,500	\$217,500			
7	B1015 Exterior Stairs and Fire Escapes		Stairs likely to last the life of the complex. Handrails and guardrails may require replacement.																														
8	C3000 Interior Finishes	Parking Garages	Recommend painting garage walls and columns for improved visibility and safety.																														
9	B2034 Man Doors		Likely last the life of the complex. No capital replacements anticipated.																														
10	B2034 Overhead Door-Metal		Replace at end of expected service life. Replacement including the operating system as well as the door itself.																														
11	BUILDING ENVELOPE																																
12	B2010 Exterior Wall Construction-Masonry	Brick Cladding	While the brick masonry is expected to last the life of the building, it is recommended that further review of the wall assembly be undertaken to confirm assembly. (See item #113 study). As a minimum localized replacement of damaged bricks, repointing mortar is required.							\$68,000																							
13			Re-seal the brick cladding as required.		\$113,000										\$113,000									\$113,000									
14	B2010 Exterior Wall Construction-Concrete	Concrete Walls	Repaint the exterior concrete walls when required. Regular cleaning and maintenance is recommended.				\$119,000												\$119,000											\$119,000			
15			An allowance for repair cracking is recommended.																														
16	B2010 Exterior Wall Construction	Stucco Cladding	Replace original stucco cladding at end of expected service life. Repainting is included in repainting concrete walls. It is recommended to address the known issue on the exterior wall immediately and review other similar locations (See item #113 study).												\$132,000																		
17	B2010 Exterior Wall Construction-Sealants	Windows, Doors	Replace sealant at end of service life ideally in conjunction with respected components.				\$95,000												\$95,000												\$95,000		
18	B2011 Exterior Wall Construction-Flashings		Replace flashings at the same time as associated assembly replacement. The cost has been included in the respected components.																														
19	B2020 Exterior Windows	Aluminum Window Walls	Replace at end of expected service life.																	\$1,589,000													
20		Aluminum Punched Window	Monitor for failed units and an allowance is recommended to replace the failed units and repair hardware as they failed.																														
21			Replace at end of expected service life.																	\$181,000													
22	B2020 Exterior Doors	Aluminum/ Sliding Doors	Recommend an allowance to replace failed units and repair hardware.																														
23			Replace at end of expected service life.																	\$62,000													
24	B2030 Exterior Doors- Storefront	Main Entry & Backyard Entry Doors	Replace at end of expected service life. Repair cost is included in sliding units repair allowance.																														



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Row	ID	Location / Type		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	
				\$0	\$113,000	\$0	\$246,000	\$1,130,000	\$514,500	\$388,500	\$8,000	\$53,000	\$0	\$0	\$826,143	\$18,143	\$18,143	\$18,143	\$334,143	\$2,168,343	\$25,343	\$17,200	\$256,200	\$49,200	\$858,000	\$0	\$77,000	\$55,000	\$340,500	\$225,500	\$222,000	\$8,000	\$0	
25	B2030 Exterior Doors- Storefront	Roof Deck Entry Unit	Replace at end of service life.																															
26	B2030 Exterior Doors- Storefront	Commercial Units /Entry Doors	Replace original ones at end of expected service life. Repair included in sliding units repair allowance.																\$29,000															
27	B2030 Exterior Windows- Storefront	Ground Level	Replace at end of expected service life. Repair cost is included in the window repair allowance.																	\$127,000														
28	B2030 Exterior Windows	Glass Block Windows	Replace at end of expected service life. Repair cost is included in the window repair allowance.																															
29	Roofing Systems																																	
30	B3010 Roof Coverings	Tower Roof	Replacement at end of service life includes all associated work such as flashing and joint sealing. Assumed the majority of the gravel and insulation will be reused.																				\$239,000											
31		Low-rise Section Roof																								\$150,000								
32	B3010 Roof Coverings	5th Floor/ Roof Decks	Replacement at end of service life. Assumes the majority of pavers and insulation will be reused. Regular cleaning and maintenance is recommended. Cleaning should include lifting pavers at drain. Replacement includes for a drainage layer to improve drainage.																							\$196,000								
33	B3010 Roof Coverings	Roof Deck Patios At Penthouse Units	Replacement at end of service life ideally in conjunction with tower roof replacement. Replacement includes all associated work such as flashing replacement and joint sealing at parapet walls.												\$244,000																			
34	B3010 Roof Coverings	Balconies/ Tower	Replace waterproofing membrane at end of service life.																															
35	B3010 Roof Coverings- Liquid Applied	Backyard/ Podium	Replace waterproofing membrane at end of service life. Cost includes removal and replacement of all overburden. Overburden includes plantings, asphalt paving, gravel and mechanical equipments.																							\$342,000								
36	B3010 Roof Coverings	Skylights/ Penthouse Units	Replace skylights at end of expected service life.																															
37		Skylights/ Main Entry																																
38	B3010 Soffit	Residential	Repaint soffits in conjunction with repainting exterior concrete walls.																															
39		Commercial Section	Replace at end of service life ideally in conjunction with stucco cladding replacement. Repainting is included in repainting exterior concrete and stucco clad walls.																															
40	Interior Finishes																																	
41	C1020 Interior Doors- Wood	Suite Entries	Phased replacement if required.																	\$17,200	\$17,200	\$17,200	\$17,200	\$17,200										
42	C3000 Interior Finishes	Corridor Floors	Replace carpets at end of expected service life.									\$45,000															\$45,000							
43	C3000 Interior Finishes	Corridor Walls & Ceilings	Repaint corridor walls and ceilings when required.						\$83,000										\$83,000										\$83,000					
44	C3000 Interior Finishes	Lobby	An allowance to renew finishes as needed.																															
45	C3000 Interior Finishes	Building Manager Office	An allowance to renew furniture. Refinishing the room is included in corridors refinishing line item.																															



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				\$0	\$113,000	\$0	\$246,000	\$1,130,000	\$514,500	\$388,500	\$8,000	\$53,000	\$0	\$0	\$826,143	\$18,143	\$18,143	\$18,143	\$334,143	\$2,168,343	\$25,343	\$17,200	\$256,200	\$49,200	\$858,000	\$0	\$77,000	\$55,000	\$340,500	\$225,500	\$222,000	\$8,000	\$0	
46	C3000 Interior Finishes	Lounge Room and Reading Room	An allowance to renew furniture and appliances as needed. Refinishing is included in refinishing corridor. Further investigation is recommended for the opening in the ceiling.																															
47	C3000 Interior Finishes	Billiard Room	Replace billiard table when required. Refinishing is included in corridor refinishing.																															
48	C3000 Interior Finishes	Exercise Room	An allowance to renew equipment and finishes when required.																															
49	C3000 Interior Finishes	Dry-Sauna	Renew finishes of sauna room at end of service life.																															
50	C3000 Interior Finishes	Outdoor Hot-tub	No capital expenses if not planed on being used.																															
51	C3000 Interior Finishes	Common Bathrooms	An allowance to renew finishes as needed.																															
52	SITE FEATURES																																	
53	G2040 Site Development	Railings	Replaced the railings at end of service life. Regular maintenance and repainting is recommended.																															
54	G2040 Site Development	Concrete Retaining Walls	The retaining walls are expected to last the life of the complex; however, a repair allowance to address localized issues is recommended. Repainting the retaining walls is included in repainting exterior concrete walls.																															
55	G2040 Site Development	Brick Retaining Walls	Brick retaining walls are expected to last the life of the building; however, a repair allowance to address localized issues is recommended.																															
56	G2050 Landscaping	Planters/ Landscaping	Replace the waterproofing membrane at end of service life ideally in conjunction with podium membrane.																						\$57,000									
57		Caped Planters	Since they are capped, likely last life of the building.																															
58	G2040 Site Development	Glazed Canopies	Replace canopies at end of expected service life.																	\$37,000														
59	B3010 Roof Coverings	Curved Canopy	According to councils it is individual commercial tenant responsibility to repair/replace.																															
60	MECHANICAL SYSTEMS																																	
61	PLUMBING																																	
62	D201001 Plumbing, Fixtures	Common Fixtures	Replace fixtures as they fail. The replacement costs of individual fixtures are below the cost threshold of this report and should be accounted in the Strata's annual maintenance budget.																															
63	D202001 Plumbing, Domestic Water Distribution, Pipes and Fittings	All Areas / DCW, DHW, DHWR Dist. Pipes & Fittings	Copper for domestic service in the GVD has been subject to earlier than expected corrosion failures due to the historically acidic and turbid nature of the water supplies (although conditions may improve as new water treatment facilities come online), and we allow no more than 25 years for the estimated life of standard type "L" copper pipes. Although, a well managed water PH treatment system can prevent further corrosion, it cannot undo damage already done. As such, we shall assume no more than a 5 year remaining life. Also refer to the recommendation item just below. Total replacement costs include replacement of in-suite piping w/ PEX, and all other piping w/ type "K" copper.					\$1,075,000																										
64	D202001 Plumbing, Domestic Water Distribution, Pipes and Fittings	All Areas / DCW, DHW, DHWR Dist. Pipes & Fittings	Recommend a comprehensive pipe corrosion analysis by a professional materials engineer. This will entail the cutting and replacement of multiple pipe sections (Col, Hot, Recirculation) from the main, branch, and in-suite portions of the system. The various pipe sections will then be analyzed by the materials engineer to determine the extent of corrosion and the estimated remaining life. Report shall include a recommendation and estimated costs for the replacement options.																															
65	D202002 Plumbing, Domestic Water Distribution, Valves and Hydrants	Water Entry & Boiler Room / Major Valves	The major valves will fail at different times based on use and function; as such, the combined replacement costs of all the valves will be spread over 5 years around their estimated effective life. Ensure that routine inspection of the DCBFP and PRVs are included in the maintenance contract; replace or refurbish at end of expected service life.					\$8,000	\$8,000	\$8,000	\$8,000	\$8,000															\$8,000	\$8,000	\$8,000	\$8,000	\$8,000			



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				\$0	\$113,000	\$0	\$246,000	\$1,130,000	\$514,500	\$388,500	\$8,000	\$53,000	\$0	\$0	\$826,143	\$18,143	\$18,143	\$18,143	\$334,143	\$2,168,343	\$25,343	\$17,200	\$256,200	\$49,200	\$858,000	\$0	\$77,000	\$55,000	\$340,500	\$225,500	\$222,000	\$8,000	\$0	
66	D202003 Plumbing, Domestic Water and Heating Equipment, Boilers	Boiler Room / Boilers	The statistical median service life of water-tube boilers is 25 years. Perform manufacturer's recommended service and maintenance (by mechanical maintenance contractor); given the usage of these boilers, replace with higher efficiency units/system at end of expected service life. Replacement cost reflects higher-efficiency boilers.							\$95,000																								
67	D202003 Plumbing, Domestic Water Equipment, Tanks	Boiler Room / HW Storage Tanks	Perform manufacturer's recommended service and maintenance (by mechanical maintenance contractor); replace at end of expected service life. Replacement phased over 3 years around the end of estimated remaining life.													\$10,000	\$10,000	\$10,000																
68	D202003 Plumbing, Domestic Water Equipment, Circ Pumps	Boiler and Water Entry Room/ DHW Circulation & Re-Circulation Pumps	Perform manufacturer's recommended service and maintenance (by mechanical maintenance contractor); replace at end of expected service life. Replacement costs phased over 3 years around their statistical median life.																															
69	D202003 Plumbing, Domestic Water Equipment, Booster Pumps	Water Entry Room / Booster Pumps	Perform manufacturer's recommended service and maintenance (by mechanical maintenance contractor); replace/refurbish when major components starts to fail. Replacement cost reflects replacement with a VFD Duplex system.					\$47,000																				\$47,000						
70	D203001 Waste & Drainage, Pipe & Fittings	All Areas / Sanitary and Stormwater Drainage Lines	Cast iron pipes in sanitary or storm service can last anywhere from 40 to 80 years. Expect replacement of individual compression fittings and/or individual sections of pipes as they age. Provide a repair allowance 10 years before the 40 year minimum expected life of these pipes (start repair allowance at year 30).																															
71	D204004 Drainage, Equipment	Parkade /Sump Pump	Perform manufacturer's recommended service and maintenance (by mechanical maintenance contractor); replace at end of expected service life.																															
72	D209099 Plumbing, Spa/ Hot Tub	Spa Equipment Room / Spa Equipment	Perform manufacturer's recommended service and maintenance (by spa equipment maintenance contractor); replace components as they fail, if desired.																															
73	HVAC																																	
74	D303007 HVAC, Exhaust System	Parkade / Exhaust Fans	Replace or refurbish at end of expected service life. Costs spread over 2 years after the statistical median service life.																															
75																																		
76	D303007 HVAC, Exhaust System	Utility Spaces / Exhaust Fans	Replace or refurbish at end of expected service life. Costs spread over 3 years around the statistical median service life.																															
77	D304008 HVAC, Air Handling Units	Rooftop / Makeup Air Unit	Perform manufacturer's recommended service and maintenance (by mechanical maintenance contractor); replace at end of expected service life.				\$32,000																				\$32,000							
78	FIRE SUPPRESSION/SPRINKLER																																	
79	D401002 Sprinkler Water Supply Equipment and Piping	Fire Pump Room / Sprinkler Valves	Ensure that all these valves and valve assemblies are inspected, maintained, and tested per NFPA 25. Replace or refurbish components as they fail. System cost phased over 7 years around the expected service life.												\$8,143	\$8,143	\$8,143	\$8,143	\$8,143	\$8,143														
80	D401002 Sprinkler Water Supply Equipment and Piping	All Areas / Sprinklers and Sprinkler Piping	Ensure that water flow tests and internal pipe inspections are performed per NFPA 25. Pipes and sprinklers as a system should last in excess of 40 years, but a repair allowance for annual repairs after 25 years is recommended.																															
81	D401002 Sprinkler Water Supply Equipment and Piping	Fire Pump Room / Fire Pump	Ensure that components and system are inspected, maintained, and tested per NFPA 20 and 25. Electric fire pumps run during tests and emergency situations only, as such, a well maintained fire pump system should last in excess of 30 years. Replacement of system after 30 years is assumed.																															
82	OTHER																																	
83	G306004 Liquid Fuel Storage Tanks	Generator Room / Diesel Tank	Tank should last in excess of 40 years. Replace at end of expected service life.																															
84	ELECTRICAL SYSTEMS																																	
85	D5010 - Electrical Service and Distribution	High Voltage Switchgear	With proper maintenance may survive age of the building. Regular cleaning (every 5 years) and infrared scanning is recommended. Replace switchgear and disconnect switches at the end of service life.												\$105,000																			
86	D5010 - Electrical Service and Distribution	Main High-voltage Transformer	With proper maintenance may survive age of the building. Regular cleaning (every 5 years) and infrared scanning is recommended. Replace transformer at the end of service life.												\$105,000																			
87	D5010 - Electrical Service and Distribution	Main Building Switch Gear	With proper maintenance may survive age of the building. Regular cleaning (every 5 years) and infrared scanning is recommended. Replace switchgear and disconnect switches at the end of service life.												\$53,000																			



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				\$0	\$113,000	\$0	\$246,000	\$1,130,000	\$514,500	\$388,500	\$8,000	\$53,000	\$0	\$0	\$826,143	\$18,143	\$18,143	\$18,143	\$334,143	\$2,168,343	\$25,343	\$17,200	\$256,200	\$49,200	\$858,000	\$0	\$77,000	\$55,000	\$340,500	\$225,500	\$222,000	\$8,000	\$0	
88	D5010 - Electrical Service and Distribution	Emergency Distribution	Replace transfer switches at the end of service life. Require regular maintenance.																															
89	D5010 - Electrical Service and Distribution	Electrical Equipment	With proper maintenance may survive age of the building. The infrared scan, maintenance and cleaning is recommended every 5 years.																															
90	D5010 - Electrical Service and Distribution	Metering Centers	Replace metering combos (excluding electrical meters).																															
91	D5010 - Electrical Service and Distribution	Residential Load Centers	Replace load centers inside apartment units.											\$66,000																				
92	D5020 - Lighting and Branch Wiring	Building Indoor Lighting	Replace lighting fixtures at the end of the service life. Lighting technology changes and new type of energy efficient lighting appears on market. LED type lighting is becoming more and more affordable every year. We recommend performing of energy study before replacement.						\$32,000																				\$32,000					
93	D5030 - Communications and Security	Telephone and TV Cable	Maintenance and replacement of the equipment by service provider. No capital expenses anticipated.																															
94	D5030 - Communications and Security	Security System	Condition of security equipment is good and may require periodic maintenance. As with most electronic equipment, its lifespan can be estimated to be approximately 15 years, as advances in technology will make the system obsolete and it will become difficult to source replacement parts.																															
95	D5040 - Other Electrical Systems	Fire Alarm Panel	Fire Alarm Panel is in serviceable condition and require periodic maintenance. As with most electronic equipment, its lifespan can be estimated to be approximately 15 years, as advances in technology will make the system obsolete and it will become difficult to source replacement parts.						\$32,000															\$32,000										
96	D5040 - Other Electrical Systems	Back up Power	The generator is in good condition. Require regular testing and maintenance. Replace the generator at the end of the service life.																	\$105,000														
97	ELEVATORS																																	
98	D1010- Passenger Elevators	Hydraulic Elevator: Mechanical Safety Edges and Dual Light-rays	It is recommended to provide an infrared multi-beam device to improve the reliability of the elevator within next year.																															
99	D1010- Passenger Elevators	Hydraulic Elevator: Hydraulic Cylinder	The average life expectancy of a buried cylinder is in the range of 25 years. It is recommended to replace the cylinder or the elevator converted to an above-ground design within the next 5 years.						\$79,000																									
100	D1010- Passenger Elevators	All 3 Elevators: Code & Vandalism	Budget for code changes and general repairs for vandalism at 5 year interval.																															
101	D1010- Passenger Elevators	All 3 Elevators: Barrier- Free Access	While not mandatory to modify existing elevators, barrier-free upgrades are recommended to be performed within the next 2 to 3 years.																															
102	D1010- Passenger Elevators	All 3 Elevators: Car Door Restrictor	While it is not mandatory on existing installations, it is recommended to provide car door restrictor as a safety enhancement within the next 2 years.																															
103	D1010- Passenger Elevators	Hydraulic Elevator: Emergency Power Operation	While emergency power operation of the elevator is presently not required by code for this building is recommended within the next 2 to 3 years.																															
104	D1010- Passenger Elevators	All 3 Elevators: Equipment Guarding	While not mandatory to provide greater safety for workers, upgrades are recommended.																															
105	D1010- Passenger Elevators	Passenger Elevators: Car Top Railings	It is prudent to budget for the installation of these railings.																															
106	D1010- Passenger Elevators	All 3 Elevators: Cab Finishes	It is recommended to upgrade cab finishes in the next 5 years mainly for aesthetic reasons.						\$63,000																									
107	D1010- Passenger Elevators - Major Control Modernization	Passenger Elevators	Modernize when parts become obsolete and prevent a proper maintenance program.																															
108	D1010- Passenger Elevators - Major Control Modernization	Hydraulic Elevator	Modernize when parts become obsolete and prevent a proper maintenance program.																															
109	OTHER PROFESSIONAL SERVICES																																	
110	Depreciation Report Updates		Update depreciation report.																															
111	Miscellaneous Engineering Reviews		Miscellaneous engineering reviews prior to major renewals.																															
112	Miscellaneous Engineering Reviews		We recommend a full envelope assessment be performed to confirm existing conditions and better refine renewal costs and timing.																															



30 Year Reserve Fund Cash Flow Table
Scenario 1 - FINAL - January, 2014
Current Contribution (Fully Funded by Other Contribution)

Assumed Interest Rate	2.0%
Assumed Inflation Rate	2.0%
Reserve Fund Balance at Start of 2014 Fiscal Year	\$180,392
Present Annual Contribution to the Reserve Fund	\$57,660
Minimum Reserve Fund Balance	\$140,277

Year Ending In	Opening Balance	Annual CRF Contribution *	Percent Increase over Previous Year	Other Contribution **	Estimated Future Inflated Expenditures ***	Projected Interest Earned	Closing Balance	Average Contribution Per Unit
2014	\$180,392	\$57,660			\$0	\$4,184	\$242,236	\$434
2015	\$242,236	\$58,813	2.0%		\$115,260	\$4,280	\$190,070	\$442
2016	\$190,070	\$59,989	2.0%		\$0	\$4,401	\$254,460	\$451
2017	\$254,460	\$61,189	2.0%	\$85,000	\$261,057	\$3,091	\$142,683	\$1,099
2018	\$142,683	\$62,413	2.0%	\$1,160,000	\$1,223,148	\$0	\$141,948	\$9,191
2019	\$141,948	\$63,661	2.0%	\$510,000	\$568,050	\$0	\$147,559	\$4,313
2020	\$147,559	\$64,935	2.0%	\$370,000	\$437,514	\$0	\$144,980	\$3,270
2021	\$144,980	\$66,233	2.0%		\$9,189	\$3,470	\$205,494	\$498
2022	\$205,494	\$67,558	2.0%		\$62,098	\$4,164	\$215,118	\$508
2023	\$215,118	\$68,909	2.0%		\$0	\$4,991	\$289,019	\$518
2024	\$289,019	\$70,287	2.0%		\$0	\$6,483	\$365,789	\$528
2025	\$365,789	\$71,693	2.0%	\$730,000	\$1,027,205	\$0	\$140,277	\$6,028
2026	\$140,277	\$73,127	2.0%		\$23,010	\$3,307	\$193,701	\$550
2027	\$193,701	\$74,589	2.0%		\$23,470	\$4,385	\$249,206	\$561
2028	\$249,206	\$76,081	2.0%		\$23,939	\$5,506	\$306,854	\$572
2029	\$306,854	\$77,603	2.0%	\$205,000	\$449,712	\$2,416	\$142,160	\$2,125
2030	\$142,160	\$79,155	2.0%	\$2,900,000	\$2,976,670	\$0	\$144,645	\$22,400
2031	\$144,645	\$80,738	2.0%		\$35,486	\$3,345	\$193,242	\$607
2032	\$193,242	\$82,353	2.0%		\$24,566	\$4,443	\$255,472	\$619
2033	\$255,472	\$84,000	2.0%	\$175,000	\$373,235	\$2,217	\$143,453	\$1,947
2034	\$143,453	\$85,680	2.0%		\$73,109	\$2,995	\$159,019	\$644
2035	\$159,019	\$87,393	2.0%	\$1,200,000	\$1,300,442	\$0	\$145,971	\$9,680
2036	\$145,971	\$89,141	2.0%		\$0	\$3,811	\$238,923	\$670
2037	\$238,923	\$90,924	2.0%		\$121,421	\$4,473	\$212,899	\$684
2038	\$212,899	\$92,742	2.0%		\$88,464	\$4,301	\$221,478	\$697
2039	\$221,478	\$94,597	2.0%	\$385,000	\$558,626	\$0	\$142,449	\$3,606
2040	\$142,449	\$96,489	2.0%	\$280,000	\$377,356	\$40	\$141,623	\$2,831
2041	\$141,623	\$98,419	2.0%	\$280,000	\$378,929	\$27	\$141,141	\$2,845
2042	\$141,141	\$100,387	2.0%		\$13,928	\$3,687	\$231,288	\$755
2043	\$231,288	\$102,395	2.0%		\$0	\$5,650	\$339,332	\$770
TOTALS		\$2,339,155		\$8,280,000	\$10,545,884			

* The term "annual contribution" refers to the amount contributed each year to the reserve fund from the monthly expenses.

** Total Other Contributions refers to other contributed amounts including special assessments or surplus funds transferred from other sources (i.e. operating budget or contingency fund).

*** Expenditures are presented as future dollars (based on 2% inflation), and are considered Class D estimates (+/-50%)

30 Year Reserve Fund Cash Flow Table
Scenario 2 - FINAL - January, 2014
Gradual Contribution Increase + Other Contribution as Required

Assumed Interest Rate	2.0%
Assumed Inflation Rate	2.0%
Reserve Fund Balance at Start of 2014 Fiscal Year	\$180,392
Present Annual Contribution to the Reserve Fund	\$57,660
Minimum Reserve Fund Balance	\$140,049

Year Ending In	Opening Balance	Annual CRF Contribution *	Percent Increase over Previous Year	Other Contribution **	Estimated Future Inflated Expenditures ***	Projected Interest Earned	Closing Balance	Average Contribution Per Unit
2014	\$180,392	\$57,660			\$0	\$4,184	\$242,236	\$434
2015	\$242,236	\$59,966	4.0%		\$115,260	\$4,292	\$191,234	\$451
2016	\$191,234	\$62,365	4.0%		\$0	\$4,448	\$258,048	\$469
2017	\$258,048	\$64,860	4.0%	\$75,000	\$261,057	\$3,199	\$140,049	\$1,052
2018	\$140,049	\$67,454	4.0%	\$1,160,000	\$1,223,148	\$0	\$144,355	\$9,229
2019	\$144,355	\$70,152	4.0%	\$495,000	\$568,050	\$0	\$141,458	\$4,249
2020	\$141,458	\$72,958	4.0%	\$365,000	\$437,514	\$0	\$141,902	\$3,293
2021	\$141,902	\$75,877	4.0%		\$9,189	\$3,505	\$212,094	\$571
2022	\$212,094	\$78,912	4.0%		\$62,098	\$4,410	\$233,318	\$593
2023	\$233,318	\$82,068	4.0%		\$0	\$5,487	\$320,873	\$617
2024	\$320,873	\$85,351	4.0%		\$0	\$7,271	\$413,495	\$642
2025	\$413,495	\$88,765	4.0%	\$665,000	\$1,027,205	\$0	\$140,055	\$5,667
2026	\$140,055	\$92,316	4.0%		\$23,010	\$3,494	\$212,855	\$694
2027	\$212,855	\$96,008	4.0%		\$23,470	\$4,982	\$290,376	\$722
2028	\$290,376	\$99,848	4.0%		\$23,939	\$6,567	\$372,852	\$751
2029	\$372,852	\$103,842	4.0%	\$110,000	\$449,712	\$3,998	\$140,980	\$1,608
2030	\$140,980	\$107,996	4.0%	\$2,870,000	\$2,976,670	\$0	\$142,306	\$22,391
2031	\$142,306	\$112,316	4.0%		\$35,486	\$3,614	\$222,751	\$844
2032	\$222,751	\$116,809	4.0%		\$24,566	\$5,377	\$320,371	\$878
2033	\$320,371	\$121,481	4.0%	\$70,000	\$373,235	\$3,890	\$142,506	\$1,440
2034	\$142,506	\$126,340	4.0%		\$73,109	\$3,382	\$199,120	\$950
2035	\$199,120	\$131,394	4.0%	\$1,110,000	\$1,300,442	\$0	\$140,073	\$9,334
2036	\$140,073	\$136,650	4.0%		\$0	\$4,168	\$280,890	\$1,027
2037	\$280,890	\$142,115	4.0%		\$121,421	\$5,825	\$307,409	\$1,069
2038	\$307,409	\$147,800	4.0%		\$88,464	\$6,742	\$373,487	\$1,111
2039	\$373,487	\$153,712	4.0%	\$170,000	\$558,626	\$3,421	\$141,993	\$2,434
2040	\$141,993	\$159,861	4.0%	\$215,000	\$377,356	\$665	\$140,163	\$2,819
2041	\$140,163	\$166,255	4.0%	\$220,000	\$378,929	\$677	\$148,165	\$2,904
2042	\$148,165	\$172,905	4.0%		\$13,928	\$4,553	\$311,696	\$1,300
2043	\$311,696	\$179,821	4.0%		\$0	\$8,032	\$499,549	\$1,352
TOTALS		\$3,233,858		\$7,525,000	\$10,545,884			

* The term "annual contribution" refers to the amount contributed each year to the reserve fund from the monthly expenses.

** Total Other Contributions refers to other contributed amounts including special assessments or surplus funds transferred from other sources (i.e. operating budget or contingency fund).

*** Expenditures are presented as future dollars (based on 2% inflation), and are considered Class D estimates (+/-50%)

30 Year Reserve Fund Cash Flow Table
Scenario 3 - FINAL - January, 2014
Aggressive Contribution Increase + Other Contribution as Required

Assumed Interest Rate	2.0%
Assumed Inflation Rate	2.0%
Reserve Fund Balance at Start of 2014 Fiscal Year	\$180,392
Present Annual Contribution to the Reserve Fund	\$57,660
Minimum Reserve Fund Balance	\$139,401

Year Ending In	Opening Balance	Annual CRF Contribution *	Percent Increase over Previous Year	Other Contribution **	Estimated Future Inflated Expenditures ***	Projected Interest Earned	Closing Balance	Average Contribution Per Unit
2014	\$180,392	\$57,660			\$0	\$4,184	\$242,236	\$434
2015	\$242,236	\$63,426	10.0%		\$115,260	\$4,326	\$194,729	\$477
2016	\$194,729	\$69,769	10.0%		\$0	\$4,592	\$269,089	\$525
2017	\$269,089	\$76,745	10.0%	\$55,000	\$261,057	\$3,539	\$143,316	\$991
2018	\$143,316	\$84,420	10.0%	\$1,140,000	\$1,223,148	\$0	\$144,588	\$9,206
2019	\$144,588	\$92,862	10.0%	\$470,000	\$568,050	\$0	\$139,401	\$4,232
2020	\$139,401	\$102,148	10.0%	\$340,000	\$437,514	\$0	\$144,035	\$3,324
2021	\$144,035	\$112,363	10.0%		\$9,189	\$3,912	\$251,121	\$845
2022	\$251,121	\$123,599	10.0%		\$62,098	\$5,637	\$318,259	\$929
2023	\$318,259	\$135,959	10.0%		\$0	\$7,725	\$461,943	\$1,022
2024	\$461,943	\$149,555	10.0%		\$0	\$10,734	\$622,233	\$1,124
2025	\$622,233	\$152,546	2.0%	\$390,000	\$1,027,205	\$3,698	\$141,273	\$4,079
2026	\$141,273	\$155,597	2.0%		\$23,010	\$4,151	\$278,012	\$1,170
2027	\$278,012	\$158,709	2.0%		\$23,470	\$6,913	\$420,164	\$1,193
2028	\$420,164	\$161,883	2.0%		\$23,939	\$9,783	\$567,891	\$1,217
2029	\$567,891	\$165,121	2.0%		\$449,712	\$8,512	\$291,811	\$1,242
2030	\$291,811	\$168,423	2.0%	\$2,660,000	\$2,976,670	\$0	\$143,565	\$21,266
2031	\$143,565	\$171,792	2.0%		\$35,486	\$4,234	\$284,105	\$1,292
2032	\$284,105	\$175,228	2.0%		\$24,566	\$7,189	\$441,955	\$1,318
2033	\$441,955	\$178,732	2.0%		\$373,235	\$6,894	\$254,347	\$1,344
2034	\$254,347	\$182,307	2.0%		\$73,109	\$6,179	\$369,724	\$1,371
2035	\$369,724	\$185,953	2.0%	\$890,000	\$1,300,442	\$0	\$145,235	\$8,090
2036	\$145,235	\$189,672	2.0%		\$0	\$4,801	\$339,709	\$1,426
2037	\$339,709	\$193,466	2.0%		\$121,421	\$7,515	\$419,268	\$1,455
2038	\$419,268	\$197,335	2.0%		\$88,464	\$9,474	\$537,613	\$1,484
2039	\$537,613	\$201,282	2.0%		\$558,626	\$7,179	\$187,447	\$1,513
2040	\$187,447	\$205,307	2.0%	\$125,000	\$377,356	\$2,028	\$142,427	\$2,484
2041	\$142,427	\$209,413	2.0%	\$170,000	\$378,929	\$1,153	\$144,065	\$2,853
2042	\$144,065	\$213,602	2.0%		\$13,928	\$4,878	\$348,616	\$1,606
2043	\$348,616	\$217,874	2.0%		\$0	\$9,151	\$575,641	\$1,638
TOTALS		\$4,552,750		\$6,240,000	\$10,545,884			

* The term "annual contribution" refers to the amount contributed each year to the reserve fund from the monthly expenses.

** Total Other Contributions refers to other contributed amounts including special assessments or surplus funds transferred from other sources (i.e. operating budget or contingency fund).

*** Expenditures are presented as future dollars (based on 2% inflation), and are considered Class D estimates (+/-50%)



Summary of Funding Scenarios

FINAL - January, 2014

Current Fiscal Year 2014

From May 1, 2013 to April 30, 2014

Number of Units

133

Operating Budget \$556,847

Minimum Balance \$139,212 (25% of Operating Budget)

Scenario 1

This Scenario is based on the last approved funding plan.

This Scenario shows contribution increases due to inflation only. Projects are fully funded by Other Contributions. The Reserve Fund Balance remains positive over the next thirty years, with a minimum balance of approximately \$140,277 in fiscal year 2025. For details, please see the 30 Year Reserve Fund Cash Flow Table for Scenario 1.

	2014	2015	2016	2017
Annual Reserve Contribution*	\$57,660	\$58,813	\$59,989	\$61,189
% Increase	n/a	2.0%	2.0%	2.0%
Average Increase per Unit	n/a	\$8.67	\$8.84	\$9.02
Average Annual Contribution per Unit	\$433.53	\$442.20	\$451.05	\$460.07
Total Other Contributions**	\$0	\$0	\$0	\$85,000
Average Other Contribution per Unit	\$0.00	\$0.00	\$0.00	\$639.10

Scenario 2

This Scenario shows contribution increases of 4% per year, including inflation, for 29 years. Other contributions are included as required. The Reserve Fund Balance remains positive over the next thirty years, with a minimum balance of approximately \$140,049 in fiscal year 2017. For details, please see the 30 Year Reserve Fund Cash Flow Table for Scenario 2.

	2014	2015	2016	2017
Annual Reserve Contribution*	\$57,660	\$59,966	\$62,365	\$64,860
% Increase	n/a	4.0%	4.0%	4.0%
Average Increase per Unit	n/a	\$17.34	\$18.04	\$18.76
Average Annual Contribution per Unit	\$433.53	\$450.88	\$468.91	\$487.67
Total Other Contributions**	\$0	\$0	\$0	\$75,000
Average Other Contribution per Unit	\$0.00	\$0.00	\$0.00	\$563.91

Scenario 3

This Scenario shows contribution increases of 10% per year, including inflation, for the first 10 years, followed by increases due to inflation only thereafter. Other contributions are included as required. The Reserve Fund Balance remains positive over the next thirty years, with a minimum balance of approximately \$139,401 in fiscal year 2019. For details, please see the 30 Year Reserve Fund Cash Flow Table for Scenario 3.

	2014	2015	2016	2017
Annual Reserve Contribution*	\$57,660	\$63,426	\$69,769	\$76,745
% Increase	n/a	10.0%	10.0%	10.0%
Average Increase per Unit	n/a	\$43.35	\$47.69	\$52.46
Average Annual Contribution per Unit	\$433.53	\$476.89	\$524.58	\$577.03
Total Other Contributions**	\$0	\$0	\$0	\$55,000
Average Other Contribution per Unit	\$0.00	\$0.00	\$0.00	\$413.53

* Annual Reserve Contribution refers to the amount contributed each year to the reserve fund from the monthly common expenses.

** Total Other Contributions refers to other contributed amounts including special assessments or surplus funds transferred from other sources (i.e. operating budget or contingency fund).



APPENDIX E: General Depreciation Report Information

DEPRECIATION REPORT GENERAL INFORMATION

Objectives

The objective of this study is to provide the Strata Council with sufficient information to enable you to:

- a) Set up a schedule for the anticipated repair and replacement of common element items.
- b) Set up a special account for major repair items and replacement of common elements and assets of the Corporation.
- c) To determine the annual contributions necessary to maintain an adequate balance for the 30 year period of this study.
- d) Satisfy the legislation regarding the *Strata Property Act 1999 with Amendments July 1, 2000 and December 13, 2011* that requires a depreciation report be completed.

Limitations and Assumptions

This report is intended for the sole use of Strata Corporation LMS 1902, and must not be distributed or used by others without our knowledge (with the exception of disclosure to potential purchasers of LMS 1902). It is based on the documents and information provided to us and the findings at the time of our on-site investigation.

It is a basic assumption that any correspondence, material, data, evaluations and reports furnished by others are free of latent deficiencies or inaccuracies except for apparent variances discovered during the completion of this report.

Unless specifically noted in this report, no testing, verification of operation of systems, physical review of subsurface conditions or concealed systems and components, review of concealed elements, intrusive openings, opening of system components for internal inspection, detailed analysis or design calculations were conducted, nor were they within the scope of this review.

Some of the findings herein are based on a random sampling visual review of the surface conditions, discussions with the Strata Council and/or their designated representatives, and review of relevant documents. Observations were made only of those areas that were readily accessible during our review. Deficiencies existing but not recorded in this report were not apparent given the level of study undertaken. Components not included have not been reviewed, and if their conditions need to be known, further study will be required.

It is possible that unexpected conditions may be encountered at the building/facility that have not been explored within the scope of this report. Should such an event occur, MH should be notified in order that we may determine if modifications to our conclusions are necessary.

In issuing this report, MH does not assume any of the duties or liabilities of the designers, builders or owners of the subject property. Owners, prospective purchasers, tenants or others who use or rely on the contents of this report do so with the understanding as to the limitations of the documents reviewed and the general visual inspection undertaken, and

understand that MH cannot be held liable for damages they may suffer in respect to the purchase, ownership, or use of the subject property.

Professional judgment was exercised in gathering and analyzing the information obtained and in the formulation of the conclusions. Like all professional persons rendering advice, we do not act as insurers of the conclusions we reach, but we commit ourselves to care and competence in reaching those conclusions. No other warranties, either expressed or implied, are made.

Report Format

A description of the table contents and our approach to assigning ratings is described below:

COLUMN	DESCRIPTION
Component ID	The component number, as per the ASTM Unifomat II Classification for Building Elements (E1557-09)
Location / Type	Where appropriate, we have provided a location or other modifier as needed to assist in identifying the specific component is provided. This may refer to an elevation, floor number, room, or material type.
Description & History	A brief description of the component, deficiencies observed by MH (if any), and problems or previous repairs reported by site staff.
Condition Rating	We have also provided an overall condition rating for each component, as follows: Excellent Functioning as intended; as new condition. Good Functioning as intended; limited (if any) deterioration observed. Fair Function and operation exhibiting wear or minor deterioration, normal maintenance frequency. Poor Function and operation failing; significant deterioration and distress observed; increased maintenance attention has been required. NR Not Reviewed –applicable to concealed systems, such as buried services, or where access was not provided to MH to review a component NA Not Applicable – applicable to Studies/Reports/Surveys.

COLUMN	DESCRIPTION												
Year of Acquisition	This is assigned based on available data from drawings or reports, readily accessible nameplate information on equipment, or interviews with site staff. Where the year is not known, MH provides an estimate based on observed condition. Year reflects the fiscal year in which the component was acquired, not necessarily the calendar year.												
Recommendation	Our recommended approach for reserve fund budgeting.												
Type	We have categorized the type of expense as follows: <table border="0"> <tr> <td data-bbox="654 632 769 659">Renewal</td><td data-bbox="846 632 1365 730">Replace like with like (typically at end of service life), allowing for changing contemporary standards.</td></tr> <tr> <td data-bbox="654 741 740 768">Repair</td><td data-bbox="846 741 1390 837">For repairs, typically to extend the life of a component, restore functionality, or for partial replacements of isolated failures.</td></tr> <tr> <td data-bbox="654 848 818 875">Contingency</td><td data-bbox="846 848 1398 978">For repairs likely to be required where the timing and scope cannot be assessed without additional study; or where failure is unpredictable.</td></tr> <tr> <td data-bbox="654 989 732 1016">Study</td><td data-bbox="846 989 1406 1087">Further study is required to assign more accurate repair/replacement costs or timing for a Contingency item.</td></tr> <tr> <td data-bbox="654 1098 769 1125">Upgrade</td><td data-bbox="846 1098 1406 1394"> Replace to a higher standard (more efficient, higher quality, etc). Our report may identify upgrades which we believe are worth exploring. In such cases, we have included 0% responsibility since we understand upgrades may not be funded out of the Reserve Fund, and the costs are not considered within the cash-flow. </td></tr> <tr> <td data-bbox="654 1407 716 1434">New</td><td data-bbox="846 1407 1349 1505">For new components added to the Depreciation Report, typically to reflect changing legislation.</td></tr> </table>	Renewal	Replace like with like (typically at end of service life), allowing for changing contemporary standards.	Repair	For repairs, typically to extend the life of a component, restore functionality, or for partial replacements of isolated failures.	Contingency	For repairs likely to be required where the timing and scope cannot be assessed without additional study; or where failure is unpredictable.	Study	Further study is required to assign more accurate repair/replacement costs or timing for a Contingency item.	Upgrade	Replace to a higher standard (more efficient, higher quality, etc). Our report may identify upgrades which we believe are worth exploring. In such cases, we have included 0% responsibility since we understand upgrades may not be funded out of the Reserve Fund, and the costs are not considered within the cash-flow.	New	For new components added to the Depreciation Report, typically to reflect changing legislation.
Renewal	Replace like with like (typically at end of service life), allowing for changing contemporary standards.												
Repair	For repairs, typically to extend the life of a component, restore functionality, or for partial replacements of isolated failures.												
Contingency	For repairs likely to be required where the timing and scope cannot be assessed without additional study; or where failure is unpredictable.												
Study	Further study is required to assign more accurate repair/replacement costs or timing for a Contingency item.												
Upgrade	Replace to a higher standard (more efficient, higher quality, etc). Our report may identify upgrades which we believe are worth exploring. In such cases, we have included 0% responsibility since we understand upgrades may not be funded out of the Reserve Fund, and the costs are not considered within the cash-flow.												
New	For new components added to the Depreciation Report, typically to reflect changing legislation.												

COLUMN	DESCRIPTION
Priority	A Priority Rating is provided to each Recommendation to assist you with budgeting of expenses, and to assess where deferral of an expense may be appropriate. 1. Immediate: items that require immediate repair or replacement because of either a code deficiency, legislative requirement or a safety concern 2. Restore Functionality: items that currently show signs of failure, requiring repair or replacement to restore functionality in the near future. 3. Future Renewal: items that will require future repair or replacement to maintain functionality (life cycle replacement). Most Reserve Fund Expenses will fall under this category. 4. Discretionary Renewal: items where the timing, scope of work and phasing is at the owner's discretion. This is typically limited to cosmetic issues.
Age in Current Fiscal Year	The age at the time of the assessment. Where the exact age is unknown, MH provides an estimate based on observed condition.
Typical Lifecycle	Standard lifespan, assuming normal maintenance, based on our experience and manufacturer's recommendations. A piece of equipment may have a typical lifespan for complete replacement, as well as a typical lifespan for a recommended repair with a much shorter frequency. A lifecycle of 99 shows a one-time project.
Remaining Life Expectancy	Remaining life of component and/or time to the next major repairs. Based on Age subtracted from Typical Lifespan, but confirmed and adjusted as needed depending on observed condition. A negative value is used to show phased projects already partially complete.
Years Over Which Project is Phased	Normally projects are completed in one year. Larger projects may be phased over several consecutive years.
Percent Responsibility	Our understanding of the Corporation's responsibility for shared facilities. Most common elements are budgeted for at 100%, but any exceptions are noted in this column.

COLUMN	DESCRIPTION
Recommended Budget	This represents our opinion of probable cost, in current fiscal year dollars, including consulting services (design, tendering and construction review) and contingencies where we believe it is appropriate. The cost for these services can vary significantly depending on the size, scope and degree of complexity of the project. Applicable taxes are also included. Opinions of probable cost are provided only as an indication of possible cost of remedial work. The repair or replacement costs are based on published construction cost data, recent bid prices on similar work, information provided by the owner, and our professional judgment. More precise opinions of probable cost would require more detailed investigation to define the scope of work. The costs in this report are typically referred to as Class D estimates ($\pm 50\%$), defined by the Budget Guidelines for Consulting Engineering Services as: "A preliminary estimate which, due to little or no site information, indicates the approximate magnitude of cost of the proposed project, based on the client's broad requirements. This overall cost estimate may be derived from lump sum or unit costs for a similar project. It may be used in developing long term capital plans and for preliminary discussion of proposed capital projects." The opinions of probable cost we have presented can vary due to a number of reasons including changing market conditions, availability of newer materials and systems, and increased or decreased scope of work than we have identified. All opinions of probable cost assume that regular annual maintenance and repairs will be performed to all elements at the facility. We recommend that costs for consulting services, including design, tendering and construction review, be included in the reserve fund plan. The cost for these services can vary significantly depending on the size, scope and degree of complexity of the project. We have included a variable allowance for consulting fees and contingencies where we believe it is appropriate, and the 5 percent GST. All costs in the Condition Assessment and Capital Plan tables are identified in CURRENT FISCAL YEAR Canadian dollars.

COLUMN	DESCRIPTION
Capital Plan	The tables show MH's opinion of the probable cost to carry out the recommendations (in current fiscal year dollars) during the planning horizon. The repairs and replacements we have forecasted do not represent a fixed schedule for replacements; repairs or replacements may be required sooner or later than we have anticipated.

The **Component Condition Assessment** and **Capital Plan Expenditure Forecast Table** in Appendices C and D show MH's opinion of the probable cost to carry out the recommendations (in current fiscal year dollars) during the depreciation planning period. The repairs and replacements we have forecasted do not represent a fixed schedule for replacements; repairs or replacements may be required sooner or later than we have anticipated.

Review of the Tables reveals several contingencies that occur in a single year of the study period. Though these repairs and replacements will not all take place in one year, and may not be required at all, it is prudent to budget for such repairs since failure of some components is unpredictable.

Financial Terms, Assumptions and Calculations

Inflation

The Government of Canada and the Bank of Canada inflation-control policy is aimed at keeping inflations at agreed to target values. At present the target range is 1 to 3 per cent, with the Bank's monetary policy aimed at keeping inflation at the 2 per cent target midpoint. This policy has continued to be renewed since implementation in 1991, and currently extends to December 31, 2016.

The total annual estimated expenditures are shown in the Capital Plan in current fiscal year dollars. The expenditures shown in the Cash Flow Table are inflated annually by the inflation percentage show.

In the startup questionnaire, MH requested confirmation of the inflation rate to be used over the course of the study. This may not be the actual current inflation rate, but is a reasonable estimate to begin the long term planning.

Interest

In the startup questionnaire, MH requested confirmation of the interest rate to be used over the course of the study. This may not be the actual rate of interest on the Corporation's current investments, but is a reasonable estimate to begin the long term planning.

The interest earned on the Reserve Fund for each year is based on a **Mid-Year Interest Calculation** in accordance with generally accepted accounting practice. Over the 30-year period, the calculated interest is lower than calculating Simple Interest, therefore it is a more conservative method for calculating interest.

With the Mid-Year Interest Calculation, the interest earned on the Reserve Fund is calculated at the middle of the fiscal year assuming that half the expenses have been taken out of the Reserve Fund and half the annual contribution has been deposited into the Reserve Fund. Therefore, Interest is calculated as follows:

$$Interest = InterestRate \times (StartingBalance - \frac{Expenses}{2} + \frac{AnnualContribution}{2})$$

Starting Balance

MH requested information regarding the Reserve Fund balance at the start of the current fiscal year in the startup questionnaire. Where appropriate documents are provided, we confirm the opening balance against the financial statements. We assume the Strata Council confirms the starting balance is correct to the best of their knowledge prior to authorizing us to finalize the report.

Contributions

MH requested information regarding the present annual contribution to the Reserve Fund in the startup questionnaire. Where appropriate documents are provided, we confirm the contribution amount against the most recent Notice of Future Funding provided to the Owners. We assume the Strata Council confirms the current annual contribution is correct to the best of their knowledge prior to authorizing us to finalize the report.

Future annual contributions are calculated based on the estimates of life expectancy and opinions of probable cost, Minimum Reserve Fund Balance, and the assumptions for inflation and interest. Sample annual contributions that would result in an adequate Reserve Fund are indicated in the attached Cash Flow Scenarios.

When large expenses are anticipated in the near future and the existing Reserve Fund Balance is relatively low, increases to the annual contribution may not be sufficient. Increasing the annual contribution to an amount that can accommodate the major expenses is typically not considered a suitable funding plan since the Reserve Fund Balance often becomes relatively high for the remainder of the study period. Excess funds in a Reserve Fund cannot be used for any other purpose except for the major repairs and replacements for which they have been budgeted.

In such cases, Other Contributions are considered in the Cash-Flow Plan. These contributions can be in the form of special assessments or surplus funds that the Council has indicated will be available from other sources (i.e. transferred from operating budgets or contingency funds).

Minimum Reserve Fund Balance

MH requests information regarding the desired minimum balance in the startup questionnaire. We assume the Strata Council confirms the minimum balance of the approved scenario is acceptable even if it contradicts original directions provided in the completed questionnaire.

As a guideline, we recommend a minimum balance of 25% of the operating budget, as per Section 6.1 (a)(ii). (See below)

Requirements Under the Act

Contributions

The Annual Reserve Contribution for the first year of this study was provided by the Strata. Future annual contributions are calculated based on the estimates of life expectancy and opinions of probable cost, Minimum Reserve Fund Balance, and the assumptions for inflation and interest.

Contributions may be limited by the Strata Act as provided by Section 6.1, which indicates that the amount of the annual contribution to the contingency reserve fund must be determined as follows:

- (a) if the amount of money in the contingency reserve fund at the end of any fiscal year after the first annual general meeting is less than 25% of the total annual budgeted for the contribution to the operating fund for the fiscal year that has just ended, the annual contribution to the contingency reserve fund for the current fiscal year must be at least the lesser of:
 - i. 10% of the total amount budgeted for the contribution to the operating fund for the current fiscal year; and
 - ii. The amount required to bring the contingency reserve fund to at least 25% of the total amount budgeted for the contribution to the operating fund for the current fiscal year.
- (b) if the amount of money in the contingency reserve fund at the end of any fiscal year after the first annual general meeting is equal to or greater than 25% of the total annual budgeted for the contribution to the operating fund for the fiscal year that has just ended, additional contributions to the contingency reserve fund may be made as part of the annual budget approval process after consideration of the depreciation report, if any, obtained under section 94 of the Act.

Timing of Studies

The Depreciation Report is a dynamic document that will change over time as repairs/replacements are carried out on the common elements and interest/inflation rates change. The repairs and replacements we have forecasted do not represent a fixed schedule for replacements; repairs or replacements may be required sooner or later than we have anticipated. Similarly, the opinions of probable cost we have presented can vary due to a number of reasons including changing market conditions, availability of newer materials and systems, and increased or decreased scope of work than we have identified. As such, regular updates are necessary to re-assess your needs.

The Corporation is required to complete an update with site Inspection within three years of this study.

Glossary of Building Terms

The following is a list of terms and abbreviations which may have been used in the report produced for the noted project. All of the terms and abbreviations used are standard within the industry, but the glossary may be of some aid for those not familiar with construction terms.

Air Barrier:	An assembly of one or more materials, including joints, that prevents the continuous passage of air, and whatever it contains, between different environments under a difference of pressure.
Ampere (A):	The unit of measurement of electric current. The greater the amperage, the larger the size of the conductor required to carry the current.
Annunciator Panel:	A lighted panel that provides information about the location of an activated fire alarm in a building, typically located near the main entrance of a building.
Backflow Preventer:	A device used in plumbing systems to prevent potentially contaminated water from moving back into the clean water supply.
Bitumen:	The term covering numerous mixtures of hydrocarbons such as those found in asphalt and mineral pitch.
Built-Up Roof:	Waterproof membrane constructed of multiple felt layers mopped down with bitumen.
Caulking:	Material with widely different chemical compositions used to make a seam or joint air-tight or watertight.
CCTV:	Closed Circuit Television, a video camera system that transmits video images to specific monitors as opposed to broadcasting the signal over air waves. Typically used in security applications.
CFM	Cubic feet per minute, the common unit of air flow measurement.
Cladding:	Any material that covers an interior or exterior wall.
Control Joint:	Also Movement Joint, a continuous joint in a structure or element, used to regulate the amount of cracking and separation resulting from relative movement.
Condenser:	A device used to remove heat from refrigerating equipment by circulating hot refrigerant gas through coils in the unit and blowing outdoor air across the coils with a fan. Cooling the gas causes it to condense back into a liquid.
Cooling Tower:	A device used to cool condenser water in a chiller by evaporation. Condenser water is sprayed into the top of the cooling tower. The droplets fall through the tower as air is blown upward through the tower, partly evaporating the droplets, which cools the remaining water. Water leaving the cooling tower is typically 10 degrees cooler than when it entered.
Delamination:	A separation along a plane parallel to a surface.
Direct expansion:	A refrigeration method in which an air cooling coil contains refrigerant rather than a secondary coolant glycol or brine.

Drip Edge:	A projection detailed to direct water run-off away from the wall or window face below.
Efflorescence:	Deposits of salt, usually white, due to the migration of salt-laden (in solution) water through concrete or masonry units.
EPDM:	Synthetic rubber membrane usually applied in single-ply applications.
Exhaust Air:	Air mechanically removed from a building to reduce the concentration of moisture, cooking odours and other contaminants from the building.
Fan Coil Unit:	A device consisting of a fan and water coil that can heat an area by circulating hot water through the coil and cool by circulating chilled water through the coil.
Fire Detector:	A fire alarm system component which senses the presence of a possible fire through the presence of smoke particles or heat (i.e. smoke detector, heat detector).
Flashing:	A thin waterproof sheet material, flexible or rigid, used to direct water out of, or away from, the structure.
Glazing:	A generic term for the transparent, or sometimes translucent, material in a window or door. Often, but not always, glass.
Glazing Bead:	A molding or stop around the inside of a frame to hold the glass in place.
Glazing Unit:	That part of a window which includes more than one glazing layer sealed around the outside edge to prevent air or moisture from entering the airspace and eliminating dirt and condensation between glazings.
Heat Exchanger:	A device used to heat a fluid or gas with another fluid or gas without the two streams coming in direct contact with each other and mixing. For example a radiator heats air using hot water. The air and water circulate through the heat exchanger (the radiator) but do are prevented from coming in contact with each other by the radiator.
Heat Pump:	A mechanical device designed to provide both winter heating and summer cooling.
HID:	High Intensity Discharge, a generic term for mercury, vapour, metal halide and high pressure sodium light fixtures. Light in these fixtures is produces by an electric arc between two electrodes.
House Panelboard:	A panelboard which supplies power to common area loads
Hydronic Heating:	A means of heating a space through the use of hot water circulated through heating coils or a radiator in the space
Initiating Device:	A fire alarm system component which initiates a fire alarm (i.e. pull station).
Inverted Roof:	Where the roof membrane is located below the insulation and ballast (also Protected Membrane Roof).
Joist:	One of several parallel, horizontal and relatively closely spaced concrete, wood or steel members directly supporting a floor or roof slab or deck.
kVA:	Kilo-Volt-Ampere, the unit used to measure apparent power. This is what is charged by the utility.

kW:	Kilowatt, the unit used to measure real power. This is power that is actually used by the customer.
Lintel:	A horizontal structural support above an opening in a wall.
Makeup Air:	Fresh, outdoor air that is mechanically introduced to a building to make up for the air removed from buildings by exhaust systems.
Panelboard:	A component of an electrical distribution system which divides an electrical power feed into subsidiary circuits, while providing a protective fuse or circuit breaker for each circuit all contained in a common enclosure.
Refractory:	A ceramic insulating material used in boilers and similar equipment because it can withstand very high temperatures.
Retaining Wall:	A wall constructed to hold back earth, water or other backfill.
Riser:	Pipes or ductwork used to transport water, effluent, air or service cables vertically through a multi-storey building for distribution of services.
Roof Structural Deck:	An elevated platform consisting of a variety of materials such as wood planks or metal pans, often supported by structural joists, beams and columns made of steel or wood, all structurally designed to support loads such as a roofing system.
Scaling:	A degradation of the surface of a concrete element, consisting of local flaking or peeling away of the near-to-surface sand and cement portion of hardened concrete or mortar.
Sealant:	A flexible material used on the inside (or outside) of a building to seal gaps in the building envelope in order to prevent uncontrolled air infiltration and exfiltration.
Sealed Units:	Two pieces (lites) of glass sealed around the perimeter, increasing the thermal resistance of the window.
Shear Wall:	A wall that resists horizontal forces applied in the plane of the wall, usually due to wind or seismic effects (also Flexural Wall).
Signaling Device:	A fire alarm system component which visually or audibly alarms (i.e. bell, strobe).
Slab-on-Grade:	A concrete floor slab placed directly on compacted fill and deriving its support from this fill (also Slab-on-Ground).
Spall:	A fragment of concrete or masonry detached from a larger mass by a blow, weather action, internal pressure, or efflorescence within the mass (sub flourescence).
Stucco:	A finish consisting of cement plaster, used for coating exterior building surfaces.
Switchboard:	A board or panel equipped with apparatus for controlling the operation of a system of electric circuits.
Terminal Board:	An insulating base on which terminals for wires or cables have been mounted
Thermographic Scanning:	Also known as infra-red scanning. A photograph that detects hot spots of electrical equipment or temperature differences at building surfaces.

Tuckpointing:	Also Repointing, the process of removing deteriorated mortar from the joints of masonry and replacing it with new mortar.
Uninterruptible Power Supply:	A power electronic device primarily used as a back-up power source for computers and computer networks to ensure on-going operation in the event of a power failure. Sophisticated units also have power conditioning and power monitoring features.
Vapour Barrier:	A material or combination of materials having a high resistance to water vapour diffusion, used to separate a high water vapour pressure environment from a low water vapour pressure environment.
Vent:	An opening placed in a facing wall or window assembly to promote circulation of air within a cavity behind the facing, usually to encourage drying of the cavity and/or to moderate the pressure across the facing.
Volt (V):	A unit of potential energy equal to the potential difference between two points on a conductor carrying a current of 1 ampere.
VRLA	Valve Regulated Lead-Acid, low maintenance batteries which use much less battery acid than traditional lead-acid batteries typically used in UPS applications.
Weather-strip	A strip of material placed around an operating window or door to reduce air leaks.
Weephole:	An opening placed in a wall or window assembly to permit the escape of liquid water from within the assembly. Weepholes can also act as vents.
Weeping Tiles:	Drainage pipes placed at the base of foundation walls.
Window:	A manufactured assembly of a frame, sash, glazing and necessary hardware, made to fit an opening in a wall. • <i>Window sill</i>: horizontal member at the base of a window opening • <i>Window head</i>: horizontal member at the top of a window opening • <i>Window jamb</i>: either of the vertical members at the sides of a window opening • <i>Mullion</i>: vertical member between glazed units • <i>Rail</i>: horizontal member between glazed units • <i>Glazing</i>: The glass portion of the window • <i>IGU</i>: Insulated glazing unit. Double or triple panes of glass sealed together to provide insulation value. The still gas between the panes acts as the insulation. • <i>Condensation track</i>: a channel at the interior sill level of the window intended to intercept small amounts of water condensing on the interior surface of the glass.

APPENDIX F: Elevators

V109442.docx
October 31, 2013

Morrison Hershfield Limited
Suite 310, 4321 Still Creek Drive
Burnaby, BC
V5C 6S7

Attention: **Jacquelyn White**

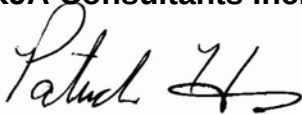
Reference: **Robinson Tower (488 Helmcken Street), Vancouver, BC**
Depreciation Study
Our File: 218410

Dear Jacquelyn:

On October 4th and 16th, 2013, we performed a Depreciation Study of the elevating equipment located at Robinson Tower (488 Helmcken Street) in Vancouver, BC.

Enclosed is our report detailing our findings. Should you have any questions, please do not hesitate to call.

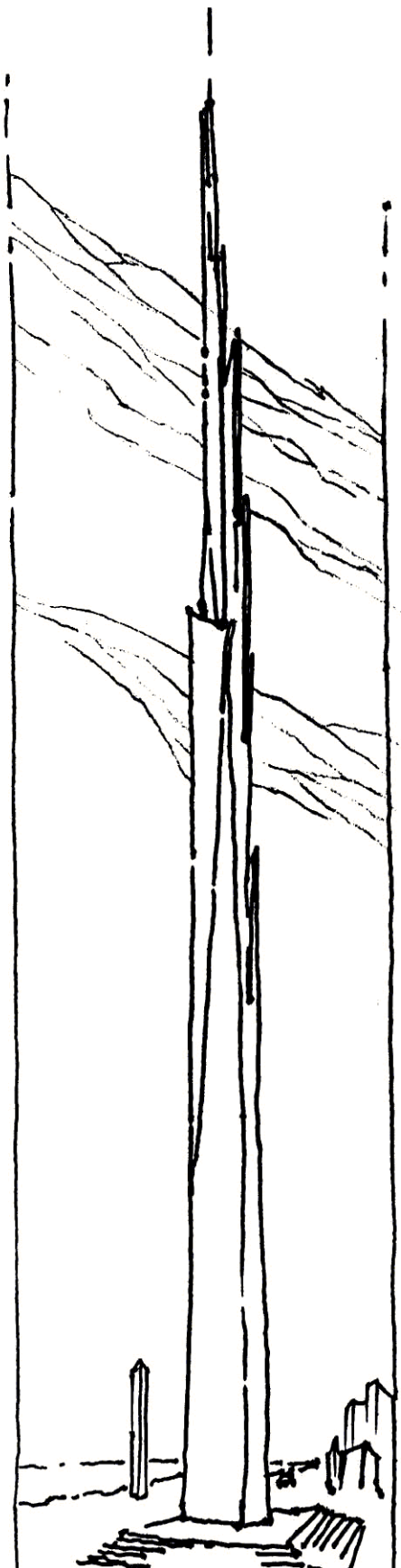
Regards,
KJA Consultants Inc.



Patrick Ho, B.A.Sc.

enclosure

cc: Greg Peden – KJA



**Robinson Tower
488 Helmcken Street
Vancouver, BC**

Depreciation Study

218410 - V109442.docx
Prepared by KJA Consultants Inc.
For Morrison Hershfield Limited
Date of Inspection: October 4th and 16th, 2013

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1. Inspection Summary

On October 4th and 16th, 2013, we performed a Depreciation Study of the vertical transportation equipment located at Robinson Tower (488 Helmcken Street) in Vancouver, BC. The purpose of the inspection was to review the condition of the major components and to provide recommendations for repairs, capital upgrades and potential modernization work. KJA did not inspect or test the safety features of the equipment and did not check the equipment for compliance with requirements of the regulating authorities.

The elevating equipment inspected at Robinson Tower consists of a group of two overhead traction passenger elevators and a single direct acting hydraulic passenger elevator. The elevators were installed circa 1995 by Dover (since acquired by ThyssenKrupp). The elevators are presently being maintained by ThyssenKrupp. All equipment appears to be original with the exception of the door operators which have been upgraded at some point in the last few years. We understand that repairs to the traction passenger elevator controllers were performed by the contractor in the past few years due to water damage.

We assume that the elevators are presently being maintained under the terms of a contractor prepared full service maintenance agreement. A typical contractor prepared agreement covers the replacement of major components in addition to the labour and materials necessary for ongoing repairs, adjustment and preventative maintenance work. Entrances, cab finishes and buried hydraulic components (feed lines, buried cylinders without plastic liners, etc.) are typically excluded. This contract may contain an obsolescence clause, which states that the contractor can forward costs for parts no longer available from usual sources to the Owner. While this wording is quite common (when the agreement is written by the contractor) the costs forwarded to the Owners can be unpredictable. We are assuming that repairs required due to accidents or "Acts of God" (flood, fires, etc) are covered by insurance.

The maintenance logs located in the machine rooms indicate that preventative maintenance visits are being conducted monthly but for the main passenger elevators, approximately 3 months per year do not have time tickets; the contractor is reviewing the hydraulic elevator on a monthly basis. The annual maintenance tasks as required by the B44.2-07 code have not been signed in any of the logs with the exception of task 4.6 (Driving-machine brakes) for the main passenger elevators and tasks 4.8 (Relief valve setting) and 4.10 (Car emergency lighting system) for the hydraulic elevator. All other tasks do not contain any sign offs in the logs which date back to January 2005. These tasks are overdue and should be addressed immediately. We were unable to confirm the dates of the last 5 year maintenance tasks. The dates when these were last performed should be confirmed.

The oil loss monitoring (OLM) logs located in the machine room for the hydraulic elevator are being filled out monthly. The logs do not show any signs of unexplained oil loss.

The rotating mechanical, electrical and hydraulic equipment in the machine rooms appear to be operating reasonably well with no vibrations or unusual noises noted. The overall cleanliness of the machine room is acceptable. The pit is dry, but we noted

absorbent pads surrounding the car buffer for car 1 indicating a possible oil leak from the buffer. This should be checked under the terms of the existing maintenance agreement.

While a complete maintenance inspection was not performed, we noted a number of maintenance related deficiencies that should be corrected by the maintenance providers as follows:

- [1] The left side down directional lantern doesn't illuminate;
- [1] There is no audible alarm during nudging operation;
- [1] While riding the elevator, we noted irregular vertical pulsations during start up and levelling. The motion control should be checked and adjusted to eliminate this.
- [3] There is a minor leak from the hydraulic muffler.

Later in this report we have listed some other upgrades that may be considered or required over the next 30 years. Short of these items, we do not anticipate any immediate major problems that would require capital expenditures.

2. Equipment Description

Main Passenger Elevators

Number of elevators.....	2
Building designation.....	1, 2
Installation number.....	15489, 15490
Usage.....	passenger
Manufacturer.....	Dover
Date installed.....	circa 1995
Maintenance contractor.....	ThyssenKrupp
Capacity (lbs).....	2000
Floors served.....	P4 – P1, *M, 2 – 12, 15 – 17
Contract speed (feet per minute).....	350
Governor tripping speed (feet per minute).....	440 (Dover G74PM governor)
Controller model.....	Dover Vecta 450
Machine type.....	Diver GD-1
Motor type.....	Dover 20 hp AC
Drive method.....	geared traction (4 x 5/8" wire rope)
Drive type.....	Dover VVVF
Auxiliary brake.....	Dover type SB sheave brake ¹
Roping ratio.....	1:1 single wrapped
Compensation.....	2x chain compensation
Door type.....	single speed side opening
Door operator.....	TKE HD-LM
Hall door interlock.....	Dover I-68
Door protection.....	infrared multiple beam detector
Door width.....	36"
Door height.....	84"
Cab dimensions (w x d x h).....	Car 1 - 69" x 52" x 108" ²
.....	Car 2 - 69" x 52" x 88.5" ³
Car guide.....	sliding shoes
Counterweight guide.....	sliding shoes
Car operating panels.....	main only
Arrival signal.....	in car lantern
Car / Hall position indicator:.....	digital / digital @ floor M
Communication.....	handset telephone
Firefighters' Emergency Operation.....	Phase I and II provided
Emergency power.....	provided
Security.....	proximity FOB reader provided
Car door restrictor.....	not provided
Hall door safety retainers.....	not provided

¹ This is not a Sheave Jammer device which we normally recommend replacing; rather this is a disc brake in which the caliper clamps around the sides of the drive sheave.

² Height measurement is to the suspended ceiling. Measurement to the car top is 114".

³ Height measurement is to the suspended ceiling. Measurement to the car top is 95".

Hydraulic Elevator

Number of elevators.....	1
Building designation	3
Installation number.....	15385
Usage.....	passenger
Manufacturer	Dover
Date installed	circa 1995
Maintenance contractor.....	ThyssenKrupp
Capacity (lbs)	2100
Floors served	P1, *G
Contract speed (feet per minute)	100
Drive method.....	direct acting hydraulic cylinder
Controller model.....	Dover DMC-1A
Pumping unit type	Dover Rota-Flow EP-60-15 submerged
Motor type	Dover 15 hp AC
Valve type	Dover I-2
Cylinder corrosion protection	provided
Oil cooler	not provided
Downfall protection.....	not provided
Door type.....	single speed side opening
Door operator	Dover HD-73
Hoistway interlock	Dover I-68
Door protection.....	mechanical safety edge with dual light rays
Door width	36"
Door height.....	84"
Cab dimensions (w x d x h).....	69" x 51" x 87.5" ⁴
Car guides.....	sliding shoes
Car operating panels.....	main only
Arrival signal.....	in car lantern (no arrival gongs)
Car / Hall position indicator:	analog / not provided
Communication	handset telephone
Firefighters' Emergency Operation	not provided
Emergency power	not provided
Security	not provided
Car door restrictors	not provided
Hall door safety retainers	provided
Seismic Operation.....	not provided

⁴ Height measurement is to the suspended ceiling. Height measurement to the car top is 93".

3. Recommended or Required Work

The typical elevator “full maintenance” contract covers the replacement of major components in addition to the labour and materials necessary for ongoing repairs, adjustment and preventative maintenance work. Entrances, cab finishes and buried cylinders are normally excluded. As long as full maintenance is purchased the only additional costs to the Owner, during the first twenty to thirty years of use, should be for malicious damage and repairs to the elevator cabs and entrances. We are assuming that repairs required due to accidents or “Acts of God” (flood, fire, etc.) are covered by insurance.

The costs noted are budget figures only, are based on the current market and are in present dollars. The actual costs may vary depending on the time of tendering, the actual detailed scope of work and market conditions. The figures listed below do not include work required by other trades in conjunction with the elevator work.

A summary of potential **required** elevator upgrades and/or repairs outside of the scope of normal maintenance, as well as work that is **recommended** is as follows:

Required Short Term Work (Years 1 - 5):

Upgrade from mechanical safety edges and dual light-rays: Hydraulic Elevator

- The door reopening equipment presently installed consists of a mechanical safety edge and dual light-rays. The dual light-rays do not cover the entire entrance. Since there are only two light-rays at fixed heights whose interruption would reopen the doors without contact, the mechanical safety edge will sometimes be required to initiate door reopening by contact with a person or object. The door equipment can be subjected to significant wear and tear as a result of this. However, reopening of the doors by an infrared multi-beam device can be accomplished by interruption of any one of the multitude of invisible beams, not requiring contact with a person or object. This device thus improves the reliability of the elevator. We have experience with legal cases where the question arises as to whether the owner should have installed the "multi-beam light curtain" so as to minimize risk to the passengers, hence our recommendation to upgrade the door protection. The cost would be in the area of \$2,500 and should be performed within the next twelve months.

Hydraulic cylinder replacement: Hydraulic Elevator - The elevator's hydraulic cylinder is not provided with any form of corrosion protection, such as a cathodic protection system or a PVC liner (now required by code on new hydraulic elevators). The average life expectancy of a buried cylinder is in the range of 25 years but there is a wide variation from one installation to another. We recommend that the cylinder be replaced or the elevator converted to an above-ground design within the next five years.

The cost to replace the cylinder with a PVC lined cylinder would be in the range of \$65,000 - \$75,000 per elevator; this includes \$15,000 - \$25,000 for the provision of a down-fall safety device (called a plunger gripper) developed for this type of hydraulic elevator. The safety device is, in our view, necessary to provide down-fall protection similar to that provided for traction elevators. The plunger gripper will only address a

free fall condition and does not correct the underlying issue (buried cylinder corrosion) and also does not prevent expensive environmental damage. Please note drilling may be required if the existing jack hole is too small for a new cylinder; an additional cost of \$30,000 to \$40,000 would be expected (this is an estimate and will depend on site specific below grade soil conditions). Cleanup costs for environmental damage (if any exists) would also be the Owner's responsibility.

Rather than replacing the cylinder we recommend that consideration be given to the replacement of the elevator with a hole-less (above ground) roped hydraulic elevator. Alternatively the elevator could be replaced with a machine-room-less (MRL) design.

The budget cost for replacement with a hole-less roped hydraulic elevator is in the area of \$175,000 per device. The budget cost for replacement with a MRL traction elevator is between \$175,000 and \$225,000 per elevator. In both cases the budget cost presented does not include related building work. This related work is particularly significant when replacing a hydraulic elevator with the MRL elevator from some suppliers since the building structure at the top of the hoistway is unlikely to be adequate for the overhead forces involved. Should the Owner consider replacing the unit with a different design a detailed audit should be performed to confirm the feasibility of alternative equipment types.

Code changes: All Elevators - Code requirements have become more onerous over the past decade and the interval between code changes has decreased. For that reason, we recommend budgeting funds at five year intervals to address code changes. Without being able to pinpoint these changes, it is reasonable to expect that they would require in the area of \$3,000 per device every five years.

Vandalism: All Elevators - We recommend budgeting funds to repair vandalism - principally damage to exposed finishes and fixtures. No precise figure can be assigned since much depends on the location and environment but we suggest allowing a figure of \$2,000 per unit every five years.

Required Mid Term Work (Years 6 - 15):

None

Required Long Term Work (Years 16 - 30):

None

Recommended Short Term Work (Years 1 - 5):

Barrier-free access upgrades: All Elevators - The elevating equipment does not meet barrier-free access requirements, as listed in the Safety Code for Elevators (B44 Appendix E). It should be noted that it is not currently mandatory to modify existing buildings to comply with barrier-free access requirements, although in some provincial jurisdictions (Ontario, for example) the building codes have incorporated this requirement for new buildings. It is also probable that this requirement will be

enforced for new buildings in other jurisdictions throughout Canada. To conform, the following would need to be provided:

Main Passenger Elevators:

- Dual-stroke gongs to announce elevator direction;
- A voice synthesizer for floor annunciation;
- Tactile plates with floor designation on both jambs of each hall entrance, mounted at barrier-free access heights.

Hydraulic Elevator:

- Infra-red multiple beam door detectors;
- Dual-stroke gongs to announce elevator direction;
- Tactile plates with floor designation on both jambs of each hall entrance, mounted at barrier-free access heights.

The cost of these upgrades would be in the area of \$6,000 per elevator for the main passenger elevators and \$2,000 for the hydraulic elevator and should be performed within the next two to three years. The cost for the hydraulic elevator does not include for infra-red multiple beam door detectors as this is recommended as a stand alone upgrade earlier in this report.

Addition of a car-door restrictor: All Elevators - There is currently no car door restrictor provided. The addition of a car door restrictor would prevent the car door from being manually opened by more than 100 mm, except when the car is within the unlocking zone (extending at least 17 mm above and below the landing floor level, and possibly as much as 450 mm). This safety device reduces the risk of people falling down the hoistway while attempting to exit a stalled elevator.

The Safety Code for Elevators requires a car door restrictor on all new installations. While it is not mandatory on existing installations, we believe it is a desirable safety enhancement. It is also possible that this Code requirement will be made retroactive at some point in the future. We recommend budgeting in the area of \$3,000 per elevator to perform this work within the next one to two years.

Emergency Power Operation: Hydraulic Elevator - We understand that emergency power is not provided for the hydraulic elevator. In the event of a power failure the elevator would stop where it is (possibly between floors). While emergency power operation of the elevator is presently not required by code for this building, it is possible that at some point it may become mandatory. If there is an emergency power available with sufficient capacity to run the elevator, the cost to arrange the equipment to run on emergency power would be minimal - perhaps \$1,000 per elevator (barring complications such as heavier transfer switches). If there is no available source of emergency power, then a battery powered lowering system could be installed. This unit will provide enough power to operate the hydraulic valves, lower the elevator to the terminal floor and open the elevator doors to release trapped passengers. The elevator will then lock off until power is restored. The cost for this would be in the area of \$10,000. We recommend emergency power operation be provided within the next two to three years.

Recommended Mid Term Work (Years 6 - 15):

Equipment guarding: All Elevators - There is a trend across Canada towards providing greater safety for workers on elevator equipment. These statutory requirements are as yet not definitively outlined.

It is expected that the requirements will detail machine guarding methods and list the equipment in the machine room that requires guarding, such as drive sheaves, machine brakes, commutators, selectors and governors and high voltage connections. We would expect that this work would be carried out by qualified, licenced elevator contractors. While we cannot determine the timing or extent future regulations, we estimate the current cost of the likely scope of work to be in the range of \$15,000 per traction elevator, although this figure will decline with increased competition and installation experience. A budget figure of \$12,000 per traction elevator and \$3,000 per hydraulic elevator is recommended.

Car top railings: Passenger Elevators - There has been a drive to provide top of car safety following an accident on a Toronto site. This will likely result in regulations requiring the installation of car top railings. There is no way of predicting when these regulations will be developed and applied but it is prudent to budget for the installation of these railings. A budget figure of \$4,000 per elevator is appropriate. It should be noted that if the ultimate design requirements include provision for ancillary devices such as collapsible railings and electrical interlocks this cost figure could be exceeded.

New cab finishes: All Elevators - The existing cab finishes are in average condition and show little to no signs of wear. The cost to upgrade the cab finishes could range from \$15,000 to \$25,000, depending on the finishes selected. We recommend using a figure of \$20,000 per elevator. We suggest the cab upgrades be performed in the next five years mainly for aesthetic reasons.

Recommended Long Term Work (Years 16 - 30):

Major Control Modernization: Passenger Elevators - The typical elevator "full maintenance" contract covers the replacement of major components in addition to the labour and materials necessary for ongoing repairs, adjustment and preventive maintenance work. Despite this, over time some components will require modernization. Certain elevator components may soon no longer be readily available. This will require that the maintenance contractor make arrangements to purchase parts from an external supplier or have parts manufactured and repaired locally. Although this is not the owner's direct concern, it will result in some delays and difficulties in implementing a proper maintenance program. Additionally, service personnel capable of performing the numerous adjustments necessary to keep the equipment operating will become increasingly difficult to find as newer equipment designs become more predominant.

Given the quality of the equipment and the decreased reliability likely to be provided by the system due to its type and vintage, we estimate that a major modernization will be required within the next 16 to 20 years. The scope of work would include replacement of the present controller with a microprocessor-based controller, replacement of the drive system with a solid state drive (such as a VVVF drive),

fixture replacement and refurbishment or replacement of the geared machine, motor and door operating equipment. The cost for this would be in the area of \$150,000 per elevator.

Major Control Modernization: Hydraulic Elevator - The typical elevator “full maintenance” contract covers the replacement of major components in addition to the labour and materials necessary for ongoing repairs, adjustment and preventive maintenance work. Despite this, however, over time some components will require modernization. Certain elevator components may eventually no longer be readily available. This will require that the maintenance contractor make arrangements to purchase parts from an external supplier or have parts manufactured and repaired locally. Although this is not the owner's direct concern, it will result in some delays and difficulties in implementing a proper maintenance program. Based on the age and current condition of the equipment, a major control modernization could be anticipated within approximately 30 years. The scope of work would include replacement of the present controllers with a newer design of microprocessor-based controller, replacement of the door operator, fixture replacement, possible replacement of the levelling valve and some refurbishing of the hydraulic pump and motor. The cost for this would be in the area of \$60,000.

Summary Table

Description	Car	Years 1 to 5	Years 6 to 15	Years 16 to 30
Required				
Upgrade from mechanical safety edges with dual light rays	3	\$2,500		
Cylinder replacement	3	\$75,000		
Code changes	All	\$9,000	\$18,000	\$27,000
Vandalism	All	\$6,000	\$12,000	\$18,000
Recommended				
Barrier-free access upgrades	All	\$14,000		
Addition of car door restrictor	All	\$6,000		
Emergency power operation	3	\$10,000		
New cab finishes	All		\$60,000	
Equipment Guarding	All		\$28,000	
Car top railings	1,2		\$8,000	
Major control modernization	1,2			\$300,000
Major control modernization	3			\$60,000

4. Photos

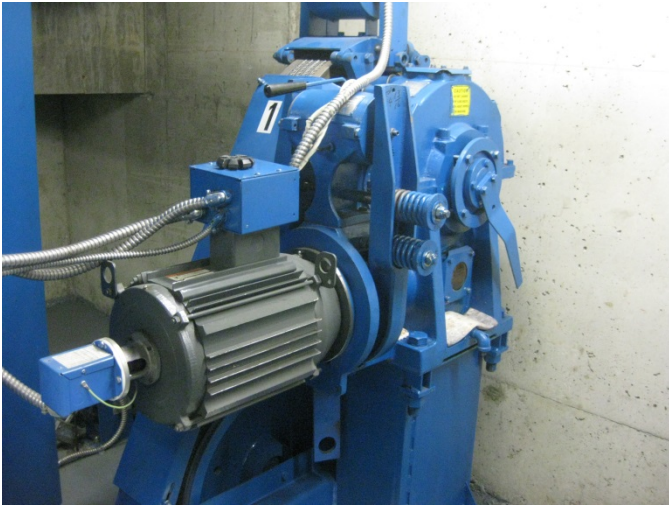


Figure 1 – Hoist Machine

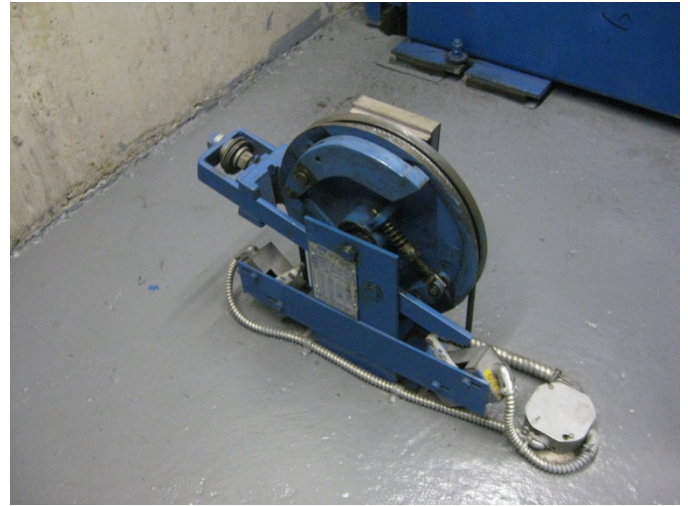


Figure 3 – Safety Governor

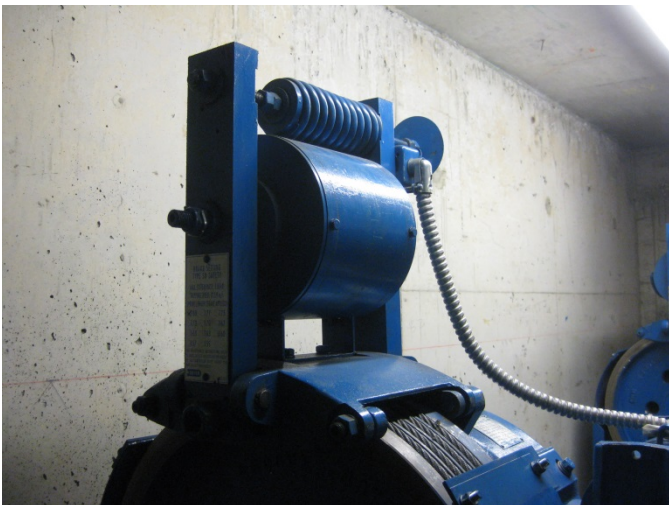


Figure 2 – Auxiliary Brake



Figure 4 – Elevator Controller



Figure 5 – Elevator Pit – Car 2

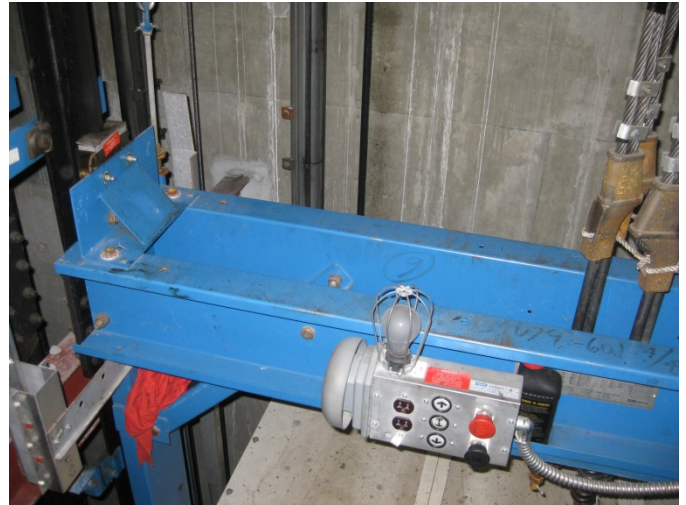


Figure 7 – Elevator Car Top



Figure 6 – Elevator Pit – Car 1 (note absorbent pads)



Figure 8 – Door Operator



Figure 9 – Car Panel



Figure 11 – Interior Finishes and Fixtures



Figure 12 – Hydraulic Valve



Figure 10 – Telephone

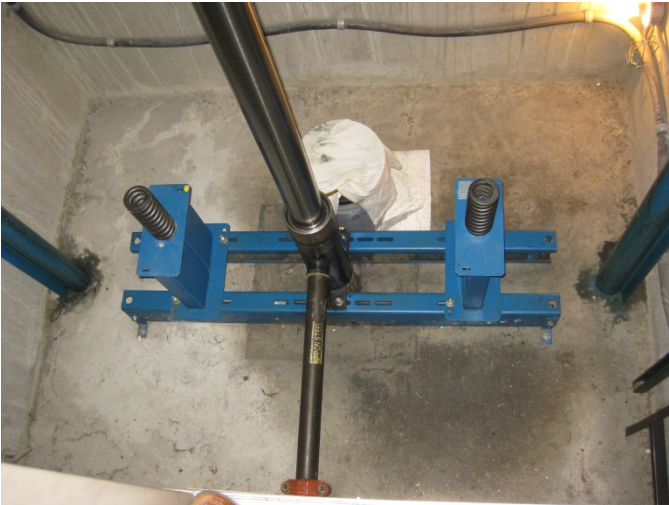


Figure 13 – Elevator Pit – Car 3



Figure 15 – Cab Underside – Car 3



Figure 14 – Car 3 Cylinder