BUILDING EVALUATION AND RESERVE FUND STUDY

BAY SQUARE CONDOMINIUMS
950 MASSACHUSETTS AVENUE
CAMBRIDGE, MASSACHUSETTS

Prepared for:

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1.0 INTRODUCTION

The Bay Square Condominium Trust authorized Criterium-Mooney Engineers to conduct a Building Evaluation and Reserve Fund Study of Bay Square Condominiums, located at 950 Massachusetts Avenue, Cambridge, Massachusetts. Studies of this nature are important to ensure the Association has sufficient funds for long-term, periodic capital expenditure requirements.

Typically, an Association has two broad cash requirements:

1. The general operating funds and
2. The capital repair and replacement reserves.

In this report, we will focus on those items falling under the capital repair and replacement reserve criteria. We have projected a capital repair and replacement reserve for twenty years. The Reserve Fund Analysis is included in Appendix C.

This report is structured to analyze components of the complex for which the Association is responsible and to assess an expected useful life and remaining useful life to those components. The anticipated expense for the scheduled repair or replacement of the component is then analyzed in conjunction with the Association's current capital reserve funding program. Funding recommendations are made with the objective of limiting substantial cash excesses while minimizing financial burdens that can result from significant cash inadequacies.

2.0 PURPOSE & SCOPE

2.1 Purpose

This report is intended as a tool to determine reserve fund allocation requirements, manage future obligations and inform the Association of future financial needs in general.

This report forecasts obligations for the Association twenty years into the future. It should be noted that events might occur that could have an effect on the useful life assumptions used in this study. Likewise, market fluctuations can have an impact on component or system replacement and repair costs. Therefore, a study such as this should be updated from time to time, usually on a three to five-year cycle, in order to reflect the association's most accurate needs and obligations.

2.2 Scope

This study has been performed according to the scope as generally defined by Bay Square Condominiums and Criterium-Mooney Engineers. The findings and recommendations are based on interviews with management personnel and residents, a review of available documents and an investigation of the buildings and site. The investigation involved, in particular, the foundation (to the extent visible), roofs, exterior walls, paved areas, utilities (to the extent visible), common mechanical equipment, common areas (such as lobbies and hallways) and common amenities (such as the health club

and pool area).

While this study focuses only on the components for which the Association is responsible, information gained by reviewing unit interiors was relevant to the evaluation of common area elements. We inspected the interiors of four units.

The report contains the following:

- A description of the overall condition of building components and systems that are the Association's responsibility and conditions that may limit the expected useful life of the building and its components.

- Information about significant deficiencies, deferred maintenance items and material code violations based on a visual survey of the building and grounds and conversations with people who have knowledge about the facility.

- A reserve fund analysis including a component inventory, anticipated remaining component useful life, anticipated component repair or replacement costs, and forecasted fund levels as a result of those anticipated costs. (Appendix C)

The statements in this report are opinions about the present condition of the condominium. They are based on visual evidence available during a diligent investigation of all reasonably accessible areas falling under the responsibility of the Association. No surface materials were removed, no destructive testing was performed and no furnishings were moved or relocated. This study is not an exhaustive technical evaluation. Such an evaluation would entail a significantly larger scope. For additional Limitations, see Section 14.0.

2.3 Sources of Information

The inspection of the complex was conducted on August 9, 2006. The Criterium-Mooney Engineers team included Ralph J. Manglass Jr., P.E. and James P. Stump, P.E.

The following people provided important information during the course of our study:

- Joe Andrade, Building Superintendent
- Derik Opdyke, Thayer Associates

At the time of the site visit, we reviewed the following documents provided to us by Joe Andrade:

- Design drawings, including:

As Built Drawings – Sprinkler, E.M. Duggan, Inc., dated 4-26-89.
Unihab Design, Inc., dated 2-20-87.

Floor Plans – Lower Level Garage through Seventh Floor, stamped March 20, 1989.

- Maintenance and Reserve Fund report, Criterium-Mooney Engineers, March 1993.
- Building Condition Survey and Reserve Study, Noblin & Associates, LLC, January 2001.
- Exterior Envelope Repairs at Bay Square Condominium, CBI Consulting, Inc., October 30, 2002, with drawings, A-1 through A-7, dated 11/22/02.
- Patio Deck Waterproofing Repairs, CBI, Inc., July 15, 2005.

An owner survey was conducted in conjunction with this study. A copy of the survey and a tabulation of results are attached in Appendix A. Survey results have provided a guide in developing the study recommendations.

2.4 Standards of Reference

The following definitions are used throughout the report**:**

Excellent: Component or system is in "as new" condition, requiring no rehabilitation and should perform in accordance with expected performance.

Good: Component or system is sound and performing its function, although it may show signs of normal wear and tear. Some minor rehabilitation work may be required.

Fair: Component or system falls into one or more of the following categories: a) Evidence of previous repairs not in compliance with commonly accepted practice, b) Workmanship not in compliance with commonly accepted standards, c) Component or system is obsolete, d) Component or system approaching end of expected performance. Repair or replacement is required to prevent further deterioration or to prolong expected life.

Poor: Component or system has either failed or cannot be relied upon to continue performing its original function as a result of having exceeded its expected performance, excessive deferred maintenance or state of disrepair. Present condition could contribute to or cause the deterioration of other adjoining elements or systems. Repair or replacement is required.

Adequate: A component or system is of a capacity that is defined as enough for what is required, sufficient, suitable and/or conforms to standard construction practices.

All ratings are determined by comparison to other buildings of similar age and construction type. Further, some details of workmanship and materials will be examined more closely in higher quality buildings

where such details typically become more relevant.

Repair/Replacement Reserve: Non-annual/non-recurring maintenance items that will require significant expenditure over the life of the building. Included are items that will reach the end of their estimated useful life during the course of this projection or, will require attention during that time.

3.0 EXECUTIVE SUMMARY

3.1 Introduction

The Bay Square Condominium Board of Directors, through Mr. Derik Opdyke of Thayer Associates, authorized Criterium-Mooney Engineers to conduct a Building Evaluation and Reserve Fund Study of Bay Square Condominiums, located at 950 Massachusetts Avenue in Cambridge, Massachusetts. The primary purpose of this evaluation was to determine the current condition of the various systems of the complex and to develop a plan that identified major capital repair/replacement components needed within the next twenty years to facilitate the Association's immediate and long-term budget planning.

The Criterium-Mooney Engineers project team consisted of Ralph J. Manglass Jr., P.E. and James P. Stump, P.E.

Throughout the course of our investigation, Bay Square Condominiums property management staff including Mr. Joe Andrade, provided a considerable amount of valuable information regarding the building and was instrumental in facilitating our work.

To fully understand all of the information presented, including limitations, the report should be read in its entirety. However, for the reader's convenience, a summary of the condition of the major systems of the complex is included here. A Reserve Fund Analysis is included in Appendix C. See the Table of Contents for the report location of each of the following sections.

3.2 Structure

Building

The structural components of the building, where visible, are generally in good condition. We noted no evidence of structural distress.

Parking Garages

The structural components of the garages are generally in good condition. We did note some cracking and evidence of water intrusion.

Recommendations

- *Reapply steel framing fireproofing – Immediate*
- *Repair garage concrete cracking with epoxy injection - Year 1*
- *Reapply garage floor slab waterproofing – Years 7 & 14*

3.3 Roofing

There are several roof areas on the building, including a main flat roof, sloped mansard roof, and balcony and patio flat roofs.

The EPDM membrane roofing is not visible in most locations due to the stone ballast. Where visible, it is in good condition, but based on its age it will likely need replacement within the next few years.

The synthetic slate roofing on the mansard roof areas is in good condition, where visible.
We noted that in some locations on the mansard roofs the rain runoff overshoots the gutter.

Recommendations

- *Annual roofing inspection/maintenance. Annually*
- *Replace EPDM membrane – Year 4*
- *Reroof Unit 606/607 roof patio – Year 4*
- *Install gutter extensions – Year 3*

3.4 Exterior Façade

The brick façade is generally in good condition. We noted some weathering deterioration typical of an urban brick veneer building. We noted the need for some façade refurbishing, including weep hole maintenance, steel lintel maintenance, cleaning, and sloped surface sealer application. In addition, a 2002 report by CBI, Inc. designed some façade repairs which appear to have at least partially been implemented. We concur with CBI in the need for this work, including flashing and sealant application.

Recommendations

- *Façade refurbishing program – Year 4, five year schedule.*
- *Apply sealer to sloped precast concrete and brick surfaces – Year 4.*

3.5 Balconies

The European balconies are in need of repainting, rail attachment upgrade, and rail baluster closure.

The accessible balconies are in need of repairs to the deck drainage system.

Recommendations

- *Check balcony rail attachment – Immediate*
- *Install balcony rail solid guard – Immediate*
- *Repaint balcony railings – Years 2 and 12.*
- *Repaint balconies – Years 2, 7, 12, and 17*
- *Repair balcony drain systems – Year 2*

3.6 Windows

The windows are generally in good condition, but are older units and will require regular repair and maintenance to perform satisfactorily.

The Association may want to consider a replacement program. We have included in the reserve fund analysis only a selected repair and replacement allowance.

Recommendations

- *Window selected repair and replacement allowance – Years 2, 7, 12, and 17.*

3.7 Doors

The exterior entry systems are in good condition. Some work to the main entry canopy is needed.

The unit access doors are in good condition.

It is our understanding that the unit sliding doors are the responsibility of the unit owners and not a common element of the condominium. However, we recommend that the Association maintain some control over the repair and replacement of these units to ensure consistency so that Common Elements are not adversely affected.

Recommendations

- *Refurbish main entry canopy – Year 4*

3.8 Electrical

The main electrical components are adequate for the building and generally in good condition.

Recommendations

- *Electrical system infrared scan- Year 2 and every 3 years*

3.9 Plumbing

The building is served by municipal water and sewer systems.

The piping, components and fixtures viewed are in good operating condition.

The domestic hot water boilers and tank are in fair condition and replacement should be anticipated within the next few years.

Recommendations

- *Replace hot water boilers and storage tank- Year 8*

3.10 Heating, Ventilation, & Air Conditioning

The HVAC components are generally in good operating order.

Due to age, some component replacement should be necessary within the twenty-year study period, including the boiler and cooling tower.

The unit heat pumps are nearing the end of their expected useful life and replacement will be needed within the study period. It is our understanding that these are Common elements.

Recommendations

- *Cooling tower recoating – Years 4, 11, and 18*
- *Pump motor replacements – Years 6 and 8*
- *Replace cooling tower – Year 20*
- *Boiler replacement – Year 12*

3.11 Vertical Transportation

Based on the age of the elevators some upgrading of the master controls and major mechanical components are expected near the end of the study period.

The elevator interior finishes should be planned for remodeling within the study period.

Recommendations

- *Refurbish elevator interiors – Years 8 & 9*
- *Mechanical/control upgrades Years 19 & 20*

3.12 Common Areas

The Association should anticipate a general paint/carpet refurbishing on an approximate five-year schedule. The cost of interior finish refurbishing is highly dependant on the specific products used. We have provided a placeholder for this work in the reserve fund analysis.

The lighting is the side bays of the garage should be improved.

Recommendations

- *Repaint interior common areas – Year 5, every 5 years.*
- *Replace carpeting, interior common areas – Year 5, every 10 years.*
- *Install additional lighting in parking garages – Year 5*

3.13 Security

There is a full security camera monitoring system with monitors at the front desk.

No problems with the current level of security were reported.

Recommendations

None at this time.

3.14 Environmental

These buildings were constructed in 1987. The buildings should not contain any asbestos-containing material, lead solder or lead paints.

There is an underground oil storage tank.

We noted no visible adverse environmental conditions.

Recommendations

- *None at this time.*

3.15 Americans with Disabilities Act (ADA)

The building is generally ADA accessible.

Recommendations

- *None at this time.*

3.16 Life and Fire Safety

The life and fire safety systems are in good working order and operational.

We noted that the unit bedrooms have no Arc Fault Circuit Interrupt (AFCI) protection. AFCI protection in bedrooms is currently required by the National Electrical Code and is an important safety feature.

Recommendations

- *Install AFCIs – Year 1*

3.17 Site and Grounds

The brick retaining walls at the Bay Street stairs have some cracking

and efflorescence. Drains at the base of the walls would reduce water migration through them. The walls should be repointed.

The brick walls at the Bay Street balcony are in need of cleaning crack sealing and repointing.

The storm drain system will require general maintenance.

The Association should anticipate repair and resurfacing of the concrete walkways within the study period.

The landscaping is generally in healthy and well maintained. Some work to the fences is necessary.

Recommendations

- *Install retaining wall drains at stairs – Year 3.*
- *Repoint stair brick retaining wall – Year 5*
- *Recaulk base of retaining wall – Years 5, 10, 15, and 20.*
- *Clean, crack seal, repoint Bay Street balcony walls - Years 5, 10, 15, and 20.*
- *Storm drain system maintenance – Years 5, 10, 15, and 20*
- *Concrete walkway repair/replacement – Year 10*
- *Repair and repaint iron fence – Years 5, 10, 15, and 20.*
- *Repair/replace/paint Green Street patio wood fence – Years 5, 10, 15, and 20.*

3.18 Amenities – Pool

The pool deck and pool surface are in good condition. We understand that waterproofing of the pool deck was recently done in the Spring of 2006. Waterproofing of the deck and pool shell surfacing will likely need to be redone on an approximate ten-year schedule.

Recommendations

- *Waterproof pool deck and resurface pool - Year 10*

4.0 DESCRIPTION

Bay Square Condominiums consists of a seven-story building with 109 residential units and four commercial spaces with a two-level parking garage beneath the building, and a three-story "townhouse" addition along Green Street.

The property is identified by the City of Cambridge as 524-1. It is situated between Massachusetts Avenue on the north, Bay Street on the west, Green Street on the south and adjacent property on the east.

The basic construction of the building consists of a concrete and steel frame with cast-in-place concrete floors. The exterior façade is brick veneer. The roofing is a combination of ballasted single-ply membrane and slate mansard roof surfaces.

The complex was constructed in 1987.

Common elements include a reception lobby and floor hallways, a health club with an outdoor pool, Jacuzzi and weight room, laundry facilities on every floor, landscaped courtyard, patio, two elevators, various mechanical/electrical rooms, roof-top mechanical equipment, loading dock, emergency generator, and the two-level parking garage.

Bay Square is served by city water and sewer.

All references to the property are taken from the viewpoint of an observer standing on Massachusetts Avenue and facing the main entrance, unless otherwise noted.

5.0 STRUCTURE

Description

The two-story, below-grade parking structure consists of reinforced cast-in-place concrete foundation walls, footings, beams, columns, and floor slabs. Some walls are concrete masonry units (CMU) commonly referred to as concrete block.

The above-grade structure of the building consists of a steel moment frame at each floor level. The floor slabs are cast-in-place concrete on steel deck pans.

Evaluation

Visibility of the building structure is limited, but where visible is in good condition. We noted no evidence of significant structural movement, including wall distortion or cracking.

We did note that the structural steel is fire protected and at the stair to the roof some reapplication is required. See photos 1 and 2, Appendix B, for examples.

The garage concrete structure is generally in good condition. We noted cracking in the floor slab that has been repaired with epoxy injection.

See photo 3 for example. We noted no recent cracking requiring repair, but the floor slab should be monitored for cracking.

Similarly, we noted cracks in the walls and ceiling of the garages that have had water intrusion. Both prior condition reports discussed this condition. Some of the leakage through the ceiling has been related to the pool deck above. Epoxy injection repair has been done. See photo 4 for example. At some locations, there is efflorescence and staining which are indicators of water leakage. See photo 5 for example. Whether leakage is on-going is unknown. New waterproofing was applied to the pool deck in the spring of this year. Therefore, the leakage may have been addressed.

Some leakage is through the walls and appears likely to be the result of ground water intrusion. Epoxy injection repair has also been at some of these locations. There are locations on the walls where staining and efflorescence indicate on-going water intrusion. See photo 6 for example.

We recommend that the epoxy injection repair work be continued at all cracks.

There is a urethane waterproof deck coating on the upper garage that has recently been applied. The expected useful life (EUL) of this type of coating in high traffic areas is five to seven years. The Association should, therefore, anticipate reapplication of the coating twice within the twenty-year study period.

Recommendations

- *Reapply steel framing fireproofing – Immediate*
- *Repair garage concrete cracking with epoxy injection - Year 1*
- *Reapply garage floor slab waterproofing – Years 7 & 14*

6.0 EXTERIOR SYSTEMS

6.1 Roofing Systems

Description

There are several roof levels at this building. The flat roof areas have EPDM single-ply membrane roofing with stone ballast. See photos 7, 8, and 9 for examples. Based on the manufacturer stamp on the roofing, it is a 0.060 inch membrane manufactured by Firestone in November 1988. This roofing is, therefore, original to the construction of the building.

There are roof patios at the sixth floor level.

The flat roof areas have a perimeter parapet with metal cap flashing.

The sloped roof areas are mansard style with synthetic slate roofing. There are snow guards at the eaves. See photo 10 for typical. This roofing is also original to the construction of the building.

The main flat roof area has skylights. The mansard roof areas have skylights at the penthouse level.

Evaluation

The EPDM roofing on the main roof was visible only in isolated locations where the stone ballast had been cleared. Where visible, it was in good condition. The EUL of this type of roofing is approximately twenty years with good maintenance. Therefore, the Association should anticipate replacing the roofing with an adhered membrane system within the next few years.

The perimeter parapet is covered with the EPDM membrane and capped with a metal cap flashing. See photo 11 for typical. The cap flashing is in good condition. It should be replaced when the roofing is replaced.

There are numerous penetrations in the flat roof areas. Penetrations are often the source of leakage. We noted no apparent flashing deficiency at the penetrations, but they should be inspected on a regular basis to identify need for repair.

There are plastic dome skylights in the flat roof areas. See photo 12 for typical. Skylights are particularly vulnerable to leakage and the flashing should be regularly checked. This is particularly important because some of these skylights are located directly against the parapet which makes it difficult to seal that side of the skylight frame.

The elevator penthouses extend beyond the flat roof surface and there is membrane flashing at the roof/wall intersection. See photo 13. The flashing is in good condition and we are unaware of any reported leakage.

The main flat roof areas have interior roof drains. The layout of the drains should be adequate to provide drainage. The stone ballast prevents full evaluation of the drainage because areas where ponding might be occurring may be concealed. We noted no apparent areas of ponding.

The patio membrane at the southwest end (Unit 606 & 607) has been replaced. See photo 14. The roof deck at the southeast end (Unit 608 & 613) was being worked on at the time of our inspection. See photo 15.

The roof patio areas are more vulnerable to roofing damage. The recently reroofed area should be adequate for the duration of the study period. The other area (Unit 606 & 607) may need similar attention at some point in the near future.

The mansard slate roofing is generally in good condition. The EUL of this type of roofing is at least forty years with good maintenance.

Therefore, the Association need not anticipate reroofing these areas within the twenty year study period.

The mansard skylights, where viewed, are in good condition. See photo 10. Skylights are typically vulnerable to leakage. It is likely that they may leak in some locations under some weather conditions and will require repair that can be part of the regular maintenance program. The steep slope of the mansard roofs will work to reduce the likelihood of leakage.

There are gutters along the eave of the sloped roof areas. The drain for the gutters was not readily visible. It is our understanding that they discharge to the building drain.

At a location on the west side of the building, efflorescence on the side of the building indicates that the roof runoff is overshooting the gutter due to the volume of water at the valley. See photo 16. We recommend that a vertical gutter extension be installed in all such locations to direct the runoff into the gutter.

Recommendations

- *Annual roofing inspection/maintenance. Annually*
- *Replace EPDM membrane – Year 4*
- *Reroof Unit 606/607 roof patio – Year 4*
- *Install gutter extensions – Year 3*

6.2 Exterior Façade

Description

The exterior walls of the building consist of a brick single wythe cavity wall façade over steel stud framing. There are precast concrete elements at the windows and doors. See photo 17 and 18 for typical.

The windows are a combination of fixed and sliding aluminum units with thermopane glazing.

The exterior doors are generally commercial grade metal units, including storefront units at the main entries. See photo 19 of the building main entry.

Each dwelling unit has one or more metal-framed sliding glass doors.

Evaluation

The brick façade was scanned from the ground with binoculars and viewed from the interior from windows. The brick is generally in good condition, but does have evidence of weathering deterioration, such as mortar joint cracks and weathered mortar, which is typical for an urban brick veneer building.

The brick veneer has weep holes to allow moisture drainage out of the wall cavity. The weep holes need to be kept clear. We noted some plugged weep holes. Some of the weep holes are located at or near the grade and particular attention should be paid to ensure that these are

functioning. We also noted some efflorescence in the field of the brick walls indicating water migration through the brick. While some efflorescence is typical for a brick veneer wall and does not necessarily indicate a problem, it does signal a need to ensure that the weep holes are working properly. See photos 20-22.

The brick façade includes steel lintels over the wall openings, such as windows and doors. The lintels require regular painting and sealant application. See photo 20.

We noted some efflorescence below the European balconies and windows. In some locations, this is due to rainwater discharging off the mansard roof above. See photo 16. In some locations, it is the result of rainwater washing over the brick windowsill and precast concrete headers and sills. See photos 23, 24 and 25. This efflorescence is an indicator of water washing calcium out of the brick mortar joints or out of the precast concrete elements.

The rainwater washing and subsequent efflorescence should not significantly affect the brick or concrete, but will require periodic cleaning to maintain the appearance of the building. In addition, a sealer applied to the sloped precast concrete and brick surfaces would repel water and reduce the efflorescence.

In 2002 CBI, Inc. identified façade repair needs and provided the Association with a repair design that was apparently at least partially implemented in 2003. This included work on the concrete, through-wall flashing and façade sealant work. In addition, it provided for full façade sealant application.

We recommend that the Association continue this work as a part of a façade rehabilitation program that should be initiated on an approximate five-year schedule. This program should include cleaning the efflorescence, mortar joint repointing, reapplication of sealants, and refurbishing the steel lintels.

Recommendations

- *Façade refurbishing program – Year 4, five year schedule.*
- *Apply sealer to sloped precast concrete and brick surfaces.*

6.3 Balconies

The building has what is referred to as European balconies at many of the units. These balconies are essentially openings through the wall of the unit with no floor area. See photo 26 and 27 for typical. Both prior condition reports discuss the attachment of the guardrail to the building. It appears that the railing is attached with metal clips attached to the masonry. At the limited number of railings we inspected, the railing was solid. However, we recommend that all of these railings be checked to determine that the attachments are adequate.

In addition, the railing has balusters, spaced approximately 5¾" apart. This exceeds the code-required maximum of 4". Because the National Fire Protection Association Life Safety Code, NFPA 101, applies to existing buildings. It is possible that the City of Cambridge would allow continuation of the existing condition based on prior approval. The Association can check with the City in this regard. If this issue is required to be addressed, one option is the installation of a solid guard over the railing. This guard can be clear plexiglass to allow light and visual access through it.

The railings are metal and we noted the need for repainting. See photo 28 for typical. It is our understanding that these are galvanized metal and the Association has experienced some difficulty in keeping paint on them. A trial paint has been applied to some and these should be monitored to determine if the paint holds up. We have included in our reserve fund analysis a placeholder for painting all of the railings on an approximate ten-year schedule.

It is our understanding that leakage below the balconies has been experienced in the past. To address this, a metal flashing has been added at the sill. Where leakage at the European balconies occurs, we recommend that a waterproofing detail be developed.

Some of the units have accessible balconies. At the unit we accessed, we noted that the plywood soffit of the balcony was in need of paint. The Association should anticipate repainting these balconies on an approximate 5-year schedule.

The drainage of the accessible balconies was not visible. At a unit on the north side of the building, we noted evidence of considerable moisture build-up that should be addressed. See photo 29. The extent of repair can only be determined by close inspection of the balcony. It is likely that some repair of the drainage system will be necessary.

Recommendations

- *Check balcony rail attachment – Immediate*
- *Install balcony rail solid guard – Immediate*
- *Repaint balcony railings – Years 2 and 12.*
- *Repaint balconies – Years 2, 7, 12, and 17*
- *Repair balcony drain systems – Year 2*

6.4 Windows

Description

The windows are metal-framed fixed or sliding thermopane windows. See photos 30 and 24.

Evaluation

The windows are generally in good condition where we inspected them. This type of metal window will require regular maintenance and repair to continue to perform satisfactorily. As the windows approach twenty years old, the Association may want to consider initiating a replacement program. We have not included any such program in the

reserve fund analysis, but have included a placeholder for selected repair and replacement. In addition, as is typical for windows of this type, the Association should anticipate occasional replacement of glass panes as part of the regular maintenance budget.

Recommendations

- *Window selected repair and replacement allowance – Years 2, 7, 12, and 17.*

6.5 Doors

Description

The exterior doors in the buildings include the storefront metal-framed doors at the main entries. See photo 19.

In addition, the units have sliding aluminum doors to the balconies. See photo 31 for typical.

The unit access doors are wood.
The parking garages have overhead doors. See photos 32 and 33.

Evaluation

The exterior doors are generally in good condition. While the main storefront entry is in good condition, we did note that the entry canopy ceiling, which is stippled gypsum, is peeling and there is some corrosion of the metal. See photo 34.

The parking garage access doors were not operated, but appear in good condition.

While we are unaware of any current leakage at the unit sliding doors, some may be experiencing leakage. Most are likely original to the construction of the building. The frame-to-panel fit tends to diminish and loosen over time. And the weatherstripping and sliding rollers also wear. Based on information in the prior condition reports and the drawings, the flashing detail at the doors may not be adequate to provide long-term resistance to water penetration. It is my understanding that the sliding doors are an Owner component not a Common Element and we have, therefore, not included any item for them in the reserve fund analysis. However, both prior condition reports note leakage at the sliding doors. We recommend that the Association maintain some control over the repair and replacement of the doors to provide consistency and to ensure that Common Elements are not adversely affected by what an owner may do.

The unit access doors are generally in good condition.

Recommendations

- *Refurbish main entry canopy – Year 4*

7.0 MECHANICAL SYSTEMS

7.1 Electrical Systems

Description

The building has an underground 3-phase, 4-wire, 120/208-volt electrical service with 4000 amperes capacity.

Power is distributed to house services through a 2000-ampere disconnect and to the units through a 2500 ampere disconnect and buss duct. See photo 39. There is an 800-ampere feed for the retail spaces and a 1600-ampere feed for the mechanical MDP. There are electrical closets on each floor with utility meters for each unit and a house panel. Each unit has a 125 or 150 ampere, single-phase service.

There is a 300 kW diesel emergency generator on the penthouse level that is connected to the system with a 400-ampere automatic transfer switch. See photo 35.

Evaluation

Where viewed the wiring, fixtures, switches, etc. are generally in good operating condition. The electrical components, capacities and distribution are adequate for buildings of this size and usage and should remain serviceable well beyond the study period.

Infrared scans of the major electrical panels and connections are recommended every 3 years to facilitate system maintenance.

Recommendations

- *Electrical system infrared scan- Year 2 and every 3 years*

7.2 Plumbing Systems

Description

The building is served by municipal water and sewer systems.

The building has a duplex water booster pump unit.

The water supply lines consist of copper.

The sanitary sewer lines consist of cast iron and copper.

Domestic hot water is produced by two Lochnivar gas-fired boilers (see photo 36) along with a 752-gallon storage tank. The system includes a circulation loop.

Evaluation

Where visible, the piping systems are of durable materials and in good condition.

The domestic hot water boilers and tank are original to the building (1988) and in fair condition. Replacement of these components is expected in 6 years.

Recommendations

- *Replace hot water boilers and storage tank- 2013*

7.3 HVAC Systems

Description

Heating and air conditioning in the units are by water source heat

pump units (see photo 37).

The heat pump water loop is conditioned by a H.B. Smith gas-fired boiler (see photo 38), a rooftop cooling tower (see photo 40) and a plate/frame heat exchanger (see photo 41).

There are two 30-hp loop circulation pumps, two 25-hp cooling tower water pumps, and two 5-hp heating water primary pumps.

There is a corridor supply air handler that includes direct expansion cooling.

There are ventilation fans for the parking garages.

Evaluation

The HVAC components are generally in good operating order.

The boiler can be expected to last around 30 years, so replacement is expected in about 10 years.

The cooling tower is in good condition. The tower trays need periodic recoating, which we recommend every 7 years or so. Based on its age, this tower will likely need replacement within the study period.

The cooling tower and heating water pump motors are expected to need replacement in the next 5 to 10 years.

The heat pump units for the residences are nearing the end of their expected useful lives and replacements will be needed over the next five to fifteen years. The Association may want to investigate available replacement units and strategies perhaps as part of the common area heat pump replacements to ease the changeover process for the unit owners.

The parking garage has several ventilation fans that are controlled by air quality monitors. This is a modern system and the components are in good condition.

Recommendations

- *Cooling tower recoating 2009,2016,2023*
- *Pump motor replacements 2011,2013*
- *Replace cooling tower 2026*
- *Boiler replacement 2017*

7.4 Vertical Transportation

Description

The building has two 9-stop DC traction elevators. They are rated at 2500# and 350 feet-per-minute. See photo 42.

Evaluation

The elevators are in good operating condition and serviced regularly as part of a maintenance contract.

The controls include a motor-generator system and solid state

switching.

Based on the age of the units some upgrading of the controls and major mechanical components are expected near the end of the study period.

The elevator interiors should be planned for remodeling within the study period.

Recommendations

- *Refurbish elevator interiors Year 2013, 2014*
- *Mechanical/control upgrades Year 2025,2026*

8.0 COMMON AREAS

8.1 Common Area Finishes

Description

Interior common areas consist of storage and equipment rooms, the laundry rooms, the corridors, the main lobby, the elevator entry spaces, the fitness center, a meeting room, and the stairwells.

In general, ceilings and walls are covered with gypsum drywall. The floor coverings are tile and carpet. The main lobby has a ceramic/marble tile. Some areas have concrete floors.

Evaluation

Common area finishes are often repaired and replaced as part of a condominium's regular maintenance rather than as part of its capital needs. However, some common area finish work (painting and new carpeting) is included in the reserve fund study due to scope and cost. The painting and carpeting are assumed to be done in the same year.

The finishes are in good condition and appear well maintained.

The Association should anticipate a general paint/carpet refurbishing on an approximate five-year schedule. The cost of interior finish refurbishing is highly dependant on the specific products used. We have provided a placeholder for this work in the reserve fund analysis.

The Association may want to upgrade the Fitness Room equipment and should anticipate the need for upgrade of the shower/sauna room. Because of the variable nature of any such replacement, we have not included it in the reserve fund analysis.

There is an exterior Courtyard adjacent to the main lobby. It is our understanding that this area has had waterproof membrane and sealant work done. See Section 5.0 for discussion of water leakage in the parking garage below.

We noted that the lighting at the side bays of the parking garage is minimal. We recommend that additional lighting in these areas be installed to improve safety and convenience.

Recommendations

- *Repaint interior common areas – Year 5, every 5 years.*
- *Replace carpeting, interior common areas – Year 5, every 10 years.*
- *Install additional lighting in parking garages – Year 5*

8.2 Security

Description

There is a full security camera monitoring system with monitors at the front desk.

Evaluation

No problems with the current level of security were reported.

Recommendations

- *None at this time.*

9.0 ENVIRONMENTAL

Description

The Environmental Protection Agency (EPA) has determined that some buildings may be affected by unhealthy indoor air contamination. We do not test for this and cannot provide you with an opinion about the indoor air quality of the buildings on this property as this is beyond the scope of this study. However, there are experts who test for indoor air contamination, and we recommend you enlist the services of such a professional should a concern over indoor air quality arise

While some references to hazardous materials may be made, our report is not a complete investigation for toxic wastes in the building or adjacent soils, hazardous materials, or public records affecting this property. Such an investigation would be much more costly and is beyond the scope of this study.

This building was constructed in 1987.

Evaluation

Based on the age of the building, it is unlikely that any asbestos-containing material, lead solder or lead paints were used in its construction.

There is an underground storage tank that supplies the building. It is located at the exterior on the Green Street side of the building. See photo 43. The Association should ensure that it is properly registered. We noted no evidence of any problem with the tank. We recommend verifying the proper registration of the tank with the state and local authorities.

Our site visit revealed no visual evidence of any adverse environmental conditions on the property.

Recommendations

- *Ensure UST is properly registered.*

10.0 AMERICANS WITH DISABILITIES ACT (ADA)

Description

During the course of our site inspections, we reviewed the complex for ADA issues that might impact the Association's reserve fund.

Evaluation

The ADA requires accessibility to all "places of public accommodation" within a private residence such as Bay Square Condominiums. Based on our understanding of the use of the common areas, there are no places of public accommodation at Bay Square Condominiums. However, should the use of common areas such as the pool, fitness center, or meeting rooms ever be open to public use, ADA accessibility would need to be provided.

The building is generally ADA accessible.

Recommendations

- *None at this time*

11.0 LIFE AND FIRE SAFETY

Description

The building has a full Simplex fire alarm system that has direct connection to the City fire department.

The building is protected by a dry fire sprinkler system. See photos 44 and 45. There are fire sprinkler standpipes on the Green Street side of the building. See photo 46.

There is an emergency generator that provides power to life safety components during a power outage.

Evaluation

We did not test any of the fire safety systems as part of this study. The systems appeared to be in good working order.

We only entered three living units; however, in those units we noted no Arc Fault Circuit Interrupt (AFCI) protection. The current National Electrical Code requires such protection in all bedrooms. AFCI protection reduces the likelihood of fire due to arcing within devices. While the City may allow the existing condition, we recommend that AFCI protection be provided.

Recommendations

- *Install AFCI protection for bedrooms – Year 1*

12.0 SITE

12.1 Topography

Description

The site slopes from Massachusetts Avenue to Green Street.

There are brick retaining walls at the front and Bay Street side of the property.

Evaluation

The site slope facilitates storm water run-off.

We noted no constraints associated with the topography of the site.

The brick retaining wall at the front at the Bay Street access stair has some efflorescence and cracking indicating excessive water migration through the wall. See photo 47. The lawn sprinkler above in conjunction with rain and snow direct a considerable amount of water against this wall. There is a drain near the base of the wall that appears to be connected to the surface storm drain above. The wall would benefit from the addition of through-wall drains to relieve the water pressure against the wall.
The efflorescence should be cleaned and the cracks sealed. In addition, some mortar joint repointing will be necessary.

The base of the retaining walls has been sealed with a caulk to prevent rain and snow runoff from penetrating between the sidewalk and the wall. See photo 48. This caulk was in poor condition in some locations. It should be replaced. This will be required on an on-going basis.

There are two landscaped balconies associated with Units 104 and 105 along Bay Street above the lower garage. See photo 33. We noted some efflorescence on the brick wall at this location. See photo 49. We did not access these balconies and, therefore, do not know if or how the landscaped areas are drained. We noted weep holes in the masonry. To reduce the water migration through the wall, the drainage of the landscaped areas should be reviewed, in particular the functioning of the weep holes. As with the front retaining wall, the brick should be cleaned, cracks sealed and the mortar joints repointed.

Recommendations

- *Install retaining wall drains at stairs – Year 3.*
- *Repoint stair brick retaining wall – Year 5*
- *Recaulk base of retaining wall – Years 5, 10, 15, and 20.*
- *Clean, crack seal, repoint Bay Street balcony walls - Years 5, 10, 15, and 20.*

12.2 Storm Drainage

Description

The storm drainage system for this property includes catch basins and associated piping. The system is connected to the City system at the adjacent streets.

Evaluation

We noted no evidence that the storm drain system is not working adequately.

The Association should anticipate periodic cleaning and general

maintenance of the on site drain components. While the Association may want to fund this through the regular operating budget, we have put a placemarker in the reserve fund analysis for work that may arise requiring more extensive repair.

Recommendations

- *Storm drain system maintenance – Years 5, 10, 15, and 20*

12.3 Paving & Curbing

Description

There is no paving or curbing with the exception of the entrance and exit ramps to the parking garages.

Evaluation

The sidewalks are likely to be the responsibility of the City. This should be confirmed.

However, the ramps to the parking garages may be considered the responsibility of the Association. They should be maintained and repaired as necessary as part of the regular operating budget.

Recommendations

- *None at this time.*

12.4 Sidewalks & Walkways

Description

There are concrete sidewalks at the perimeter of the property along the adjacent streets.

There are concrete walkways at the front of the property accessing the entries from Massachusetts Avenue and Bay Street. See photo 50.

Evaluation

As noted above, the responsibility for the maintenance and repair of sidewalks along the streets should be confirmed with the City.

The walkways are generally in good condition. The Association should, however, anticipate major resurfacing and repair work within the twenty year period.

Recommendations

- *Concrete walkway repair/replacement – Year 10*

12.5 Landscaping & Appurtenances

Description

The planted landscaping around the property is varied and includes trees, shrubs, perennials and bulbs. Most of the open areas are grassed. See photos 50 and 51.

The lawn area at the front is sprinklered. The control box is in the lawn. See photo 51. And this area has surface storm drains. See photo 52.

There is a wrought iron fence/gate at the front of the property.

The site lighting is provided by building mounted lights and walkway lights.

There is a wood fence at the rear of the property along Green Street at the unit patios.

Evaluation

The shrubbery and trees are generally healthy and well maintained.

Some of the trees at the front and along Green Street are quite large and may need to be pruned and even removed if they grow larger. This should be done as needed as part of the regular operating system.

The lawn sprinkler system will require regular maintenance and repair. The Association should rely on a maintenance contract for this work. The iron fence at the front of the property is in good condition. It will require periodic repair and painting.

Although we did not view the property at night, the site lighting appears to be adequate.

The wood fence along the patios at Green Street has some decay. See photo 53 for an example. This is likely exacerbated by the trees in that location. The Association should anticipate an on-going repair and replacement program, including painting.

Recommendations

- *Repair and repaint iron fence – Years 5, 10, 15, and 20.*
- *Repair/replace/paint Green Street patio wood fence – Years 5, 10, 15, and 20.*

13.0 AMENITIES – POOL

Description

The complex has an exterior concrete pool and spa. See photo 54.

Evaluation

The pool deck is in good condition. It is our understanding that some water leakage had occurred below the pool and the deck was waterproofed in the Spring of this year. It is also our understanding that the pool was resurfaced approximately three years ago. We are unaware of any current leakage in that area.

The deck waterproofing and pool surfacing will likely need to be redone within the next ten to fifteen years.

Recommendations

- *Waterproof pool deck and resurface pool - Year 10*

14.0 LIMITATIONS

The observations described in this study are valid on the date of the

investigation and have been made under the conditions noted in the report. We prepared this study for the exclusive use of Bay Square Condominiums. Criterium-Mooney Engineers does not intend any other individual or party to rely upon this study without our express written consent. If another individual or party relies on this study, they shall indemnify and hold Criterium-Mooney Engineers harmless for any damages, losses, or expenses they may incur as a result of its use.

This study is limited to the visual observations made during our inspection. We did not remove surface materials, conduct any destructive or invasive testing, move furnishings or equipment, or undertake any digging or excavation. Accordingly, we cannot comment on the condition of systems that we could not see, such as buried structures and utilities, nor are we responsible for conditions that could not be seen or were not within the scope of our services at the time of the investigation.
We did not investigate the following areas:

- *The elevator tower roofs.*
- *Commercial space interiors.*
- *Unit interiors with the exception of Units PH-4, 516, and 403, which we entered to better evaluate Common Elements.*

We have not rendered an opinion on uninvestigated portions of the buildings.

We did not perform any computations or other engineering analysis as part of this evaluation, nor did we conduct a comprehensive code compliance investigation. This study is not to be considered a warranty of condition, and no warranty is implied. The appendices are an integral part of this report and must be included in any review.

In our Reserve Fund Analysis, we have provided estimated costs. These costs are based on our general knowledge of building systems and the contracting and construction industry, and input from Bay Square Condominiums management. When appropriate, we have relied on standard sources, such as Means Building Construction Cost Data, to develop estimates. However, for some items for which we have developed costs (e.g. structural repairs), no standard guide for developing such costs exists.

We have performed no design work as part of this study, nor have we obtained competitive quotations or estimates from contractors as this also is beyond the scope of the project. The actual cost of the recommended work may vary significantly from estimates and competitive quotations from contractors.

15.0 CONCLUSION

In summary, we consider Bay Square to be generally in good condition when compared to other complexes of similar age and construction

type. There are some typical age-related component replacements anticipated in the near term and there is some important exterior maintenance recommended to avoid serious deterioration in the next several years.

If you have any questions about this study or the reserve fund analysis, please feel free to contact us. Thank you for the opportunity to be of assistance to you.

Respectfully submitted,

Ralph J. Manglass, Jr. P.E.
Senior Engineer
Criterium – Mooney Engineers

APPENDIX A: SUMMARY OF SURVEY RESPONSES

click in the rectangle above to see the Appendix

APPENDIX B: PHOTOGRAPHS

click in the rectangle above to see the Appendix

APPENDIX C: RESERVE FUND ANALYSIS

click in the rectangle above to see the Appendix

APPENDIX C
INTRODUCTION

The following is a projected reserve fund analysis for non-annual items as discussed in the report. This projection takes into consideration a reasonable return on invested moneys and inflation. At the request of the Association, we have incorporated a 2.0% Rate of Return on invested Reserve Funds and a 3.0% Inflation Rate into our calculations.

The intent of this reserve fund projection is to help the Association develop a reserve fund to provide for anticipated repair or replacements of various system components during the next twenty years.

The capital items listed are those that are typically the responsibility of the Condominium Association. However, Association by-laws vary and, therefore, which components are the responsibility of the owner and which are the responsibility of the Association can vary. The Association should confirm that the items listed should be financed by the Association reserve fund.

This projection provides the following:

- An input sheet that defines all the criteria used for the financial alternatives, including the assumed inflation rate and rate of return on deposited reserve funds.

- A table that lists anticipated replacement and/or repair items complete with estimated remaining life expectancies, projected costs of replacement and/or repair, a frequency in years of when these items require replacement and/or repair, and a projection based on this frequency.

- A table and graph that represent end of year balances versus capital expenditures based on your current funding program and reserve balances. The provided graph illustrates what effect the current funding method will have over the presented twenty-year period versus the anticipated capital expenditures.

- **Note that based on our developed list of capital needs, the current funding is inadequate in the later years of the twenty-year study period.**

- The Association should bear in mind that unanticipated expenditures can always arise and maintenance of a significant reserve fund balance can be viewed as a way to avoid special financial burdens.

We have included three alternatives to adequately fund the reserve fund and recommend that the board adopt an alternative that best reflects the objectives of the Association:

Alternative 1: 2% annual escalation of monthly contributions.

Alternative 2: Special assessments in Years 17, 18 & 19.

Alternative 3: 1% annual escalation of monthly contributions and a special assessment in Year 20.

Please note that the reserve fund study does not include typical annual maintenance items. Our assumption is that you already have an annual operating budget that provides for these typical, repetitive items. This includes miscellaneous repairs, lawn and grounds maintenance, routine minor painting, etc. We have focused on those significant, non-annual items where careful financial planning is important.

Finally, please note that the estimates we have developed are based on 2007 dollars. Our reserve fund study does adjust for an estimated annual inflation and a given return on investment assuming that the indicated fund balances are maintained.

APPENDIX D: PROFESSIONAL QUALIFICATIONS