WEST QUEEN ANNE CONDOMINIUM ASSOCIATION

RESERVE ANALYSIS

FOR

CAPITAL COMPONENT PROPERTY REPLACEMENT

West Queen Anne Condominiums
1401 5th Ave. W, Seattle, WA
(also known as 515 W Galer St.—address used
by various governmental agencies)

BY

ARCHITECTURAL BUILDING INSPECTION, INC.

CONTENTS

WEST QUEEN ANNE CONDOMINIUM ASSOCIATION "TO-DO" LETTER/LIST

The following is an outline of "to-do" items that the Association management and leadership need to evaluate and finalize. These items will impact the results of this evaluation. If, after evaluating them, Association Management decides that significant revisions are necessary, please notify ABI of the changes. We would be more than willing to revise the final report and tables (see points regarding report revisions in Section IV, Explanation of Tables and Alternatives). We also provide some alternatives (Section IV, Alternatives) that, should changes arise, the Association can apply itself. If possible decisions should be reached, revisions made, and ABI notified within the next 1 - 3 months, while this process and information are still "current."

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1. REVIEW BACKGROUND AND ASSUMPTIONS: It is very important that the Association Management carefully review this report and that leadership and management/advisors verify that the basic and important background and assumptions I have made are accurate (see Section III, Background and Assumptions). The report is based on these assumptions and my understanding of the building's situation.

2. ALTERNATIVE STRATEGIES FOR RESERVE FUNDING: Choosing a basic alternative strategy to apply to the reserve will be crucial. Alternatives are discussed briefly below and in more detail in Section IV. While conducting this study, we, in an attempt to eliminate/minimize the need for revision, devoted more time than normal to resolving management decisions. Nevertheless, it is important to re-evaluate and update our findings when new information develops. Basic strategies for deciding how to assess components include:

   A. Replacement Lives: A policy decision designating the frequency of component replacement:

      (1) Replace slightly before component reaches its normal mid-range point to keep ahead of the situation.

      (2) Replace at mid life.

      (3) "Stretch out the lives" to reduce the annual replacement cost. This option carries risks (i.e., stretching too far can create related extra costs).

      Note that this reserve study focuses mainly on mid-range replacement.

   B. Component Line Items: Verify component line items to be included. Ideally, all replacement items will be included, but, depending on your strategy, you may choose to omit some. Omissions may include:

      (1) Line items moved from the replacement reserve to the operating, maintenance, and repair budgets.

(2) Items interpreted as not meeting the requirements for reserve replacement funding (i.e., painting -- see below 4A, and Section III, F.5).

(3) Costly replacement line items that would significantly increase the reserve requirement--to the point that they would be better addressed in a revision of this study (e.g., remodeling of replacement component before it is economically necessary, changes in building use).

(4) Policy-type strategic decisions that are very long term, have a big impact, and need to be thought out carefully. For example, landscaping becomes overgrown and, for visual reasons, normally needs to be almost entirely replaced at some point (typically each 25 years or so). Some Associations decide to simply address the situation when it arises instead of funding ahead for it. Note that for this reserve study the Association's Board decided not to include landscape replacement, but will address it with the periodic replacement of landscape components with funding from the operating budget.

(5) The tables' interest line item. The interest is our assumption, and one on which taking a policy position would be useful. Some cycle interest back into the operating budget but, ideally, it should be retained in the reserve fund to help offset the effect of inflation. (We presumed this would be the decided course of action and, thus, included it in the tables.) Interest rates, in terms of risk relative to payments, depend heavily on the type of account holding the funds.

(6) The 30% tax on the interest. Associations' taxing statuses vary; the included 30% rate was an assumption on my part. Its accuracy needs to be verified. Note also that the fund's balance carries some tax implications.

(7) Components that are not the Association's responsibility. It is important to review and verify for which components the Association is accountable, as they can vary from association to association and type of building. This report attempts to list components that generally/normally are association responsibility. However, we do not review associations' governing regulations to specifically extract "common" components. For example, this condominium's evaluation includes replacing interior finishes at common areas (i.e., public halls, stairs), but it does not include refinishing individual unit interiors.

(8) The miscellaneous line item. Sometimes we include this at 5% in these tables, as a grouping of smaller items (e.g. fire extinguishers). The miscellaneous line item includes components that are not typically accounted for but, rather, are often funded by operating budgets. The Association must decide which strategy is more appropriate. Note that for this reserve study the Association's Board decided not to include miscellaneous funding as a line item.

3. ACCOUNTANT AND ATTORNEY REVIEW: Ideally, the Association Management's accountant and attorney should review this report's general format and assumptions, and tax and

legal implications regarding the definition of "common areas".

4. POLICY AND PROCEDURES: As indicated above, some line items need to be evaluated and verified from a policy standpoint. Examples of some of the more significant ones are:

A. PAINT: Whether or not to include repainting as a reserve replacement or maintenance component. As a basis and for the purposes of this study, the decision was made to include sealing the exterior wall paint in the capital component replacement budget; if it were not, it should be included in the maintenance, repair, and operating budgets. Repainting costs are typically significant and where they are addressed (operating budget or reserve replacement) really has no effect on the numbers themselves. Their placement merely determines how they are budgeted, accounted for, and charged to residents.

B. INSULATED GLASS: Presumably, the retrofit installation of insulated glass at exterior walls is a common property item. As indicated in the technical report, insulating glass is subject to edge seal leakage that incurs fogging between panes. It is very difficult to attempt to predict the extent to which insulated glass will fog. Newer buildings (constructed since the mid 1990s) typically experience very little fogging. Fogging is not technically critical, but more of a visual aspect (fogged windows look dirty). Some Associations develop a policy designating the replacement of fogged insulated glass in units as unit owners' responsibility. We have not included the replacement of insulated glass with edge seal leakage/fogging. It would be best to study and develop a policy on this subject, and adjust the reserve study to reflect it.

C. FIRE DETECTION, ALARM, AND SPRINKLER SYSTEM: The building has a common area fire detection and alarm system, including at the basement garage, lower floor common areas, common stair and corridor areas, and alarms in individual units. It is clear that these components in the common areas are Association responsibility. Also, there is a fire sprinkler system in the basement garage, and some of the fourth floor unit roof framing spaces. However, we have found it is often unclear whether or not the components inside the individual units are Association or unit owner responsibility. While obviously any fire/water damage emanating from the units typically would be the responsibility of the unit owners, for various reasons (e.g., protection of the building and other units) we feel maintenance, repair, and replacement of fire safety system components within the units should be Association responsibility. Keep in mind that the systems do need periodic major rehab, and eventually replacement of major components, both of which are fairly expensive. We have included periodic system rehab as an Association capital component line item. It would be appropriate for the Association to consult with a fire sprinkler service contractor/consultant to evaluate the system in terms of scope, costs, and time for system replacement, as well as periodic system rehab given that it too is relatively costly.

In my opinion, the above examples should be included in the reserve replacement instead of in the operating budget. However, as indicated earlier, they do have associated tax implications (see IRS ruling later), so this decision needs to be coordinated with the Association Management's attorney/accountant.

D. STORM DRAINAGE SYSTEM CLEANING, INCLUDING UNIT PRIVATE BALCONIES/DECKS AND PATIOS: Presumably, cleaning of unit exterior yards, roof gutters,

downspouts, and drainline systems is an Association responsibility. It is often less clear whose responsibility cleaning the unit private balcony/deck and patio drains is—in this case, including cleaning debris that falls down through the walking surface wood pallets. I understand the Association's policy is to assign maintenance responsibilities of the unit private balcony/deck drains to their respective unit owners. It is important to communicate and enforce this policy.

5. RESERVE CATCH UP: As is typical, the results of our reserve analysis indicate that the existing reserve funding assessment and balance are not what they should be. It would be advisable to determine if and how the Association plans to "catch up" and create and implement a change policy.

6. CONTINGENCIES: It is not practical to evaluate and anticipate every expense that will occur. Therefore, we recommend including a contingency reserve line item (percent of total estimated amount). For new construction, the contingency is typically 3%; for conversions of pre-existing buildings to condominiums, 5%; for high-rise buildings, 10%. Normally, we include a 5% contingency, folded into individual line item estimates (which do not show in the schedules or tables), to develop the property's replacement cost estimates. Often, Association Boards opt to have this contingency removed. Note that for this reserve study the Association's Board decided not to include the contingency line item.

7. MAINTENANCE, REPAIR AND REPLACEMENT MASTER PLAN: It would be advisable for management to review this report and use it as a basis for developing a maintenance, repair, improvement, and capital component replacement master plan. It would also be helpful to develop strategies and a checklist for accomplishing the various tasks during this process.

8. UPDATING THIS EVALUATION (INITIALLY AND PERIODICALLY): This reserve study and its results need to be re-evaluated and updated periodically.

   A. Initially, within a year or so, to reflect final decisions, updates, more accurate estimates for interior finishes, and Management Policy.

   B. Annually, per Washington State law, the report should be updated based on system and component performance and any alterations that may have been made.

   C. Every 3 years, per Washington State law, resurvey the property (visual inspection by reserve study professional) and update the report and findings as necessary (point to be addressed further later).

9. SUMMARY FINDINGS AND RESERVE STATUS: The current capital reserve balance is woefully inadequate, about 9% of what it should be (19% with the proposed $100,000 CD deposit in the year 2014). Unfortunately, this is typical for condominium associations of this age. The proposed annual assessment ($80,000 beginning in year 2014) is excellent. This would result in 132% funding over the next 10 years, and 79% funding over the 30-year planning period. However, special assessments would be required about year +19 (2031), at about $18,000 per unit. Another special assessment would be required for the garage waterproof membrane replacement (estimated to be $15,000 per unit). Note: The dollar amounts used in here represent 2013 dollar values.

The intent of the Capital Component Reserve process is that they are reasonably well planned out and special assessments should not be needed. It is important to review the report, develop a strategy and make adjustments to avoid a negative reserve balance and the need for special assessments.

10. Our assessments and estimates assume that components will be properly installed and maintained. Some components are currently not properly installed; they need to be pursued and corrected to restore appropriate serviceability. We have adjusted the study to reflect the serviceable lives of inferior component installations and those that need corrective work due to defects and premature deterioration. Examples of the technical defects that need immediate evaluation and corrective work include:

» Fourth floor unit private balcony/deck membranes (e.g., adhesion at drains). We have included addressing with correcting membrane adhesion at drains and membrane coating as a component line item.

Again, the purpose of this consultation, inspection, and evaluation is to develop estimates and make projections for the Association's common Capital Component Replacement. We have made no detailed inquiries into or done extensive evaluations of construction inconsistencies and defects. Such a service is available as a follow-up.

[END OF MANAGEMENT "TO-DO" LETTER/LIST]

October 11, 2012

West Queen Anne Condominum Association
1401 5th Ave. W
Seattle, WA 98119

RE: 1401 5th Ave. W
Seattle, WA

Capital Component Replacement Reserve Study
Inspection Dates: July 9 and August 9, 2012

REF:
1. Agreement, dated June 18, 2008; revised April 24 and June 5, 2012
2. 2006/07 Exterior Rehab Project: No report generated, but information provided via Association meeting at the time, and some follow-up information provided for this Reserve Study (email from Building Envelope Technology and Research; site visit notations).
3. West Queen Anne Condominiums, Fourth Level Deck Survey Report, dated May 30th, 2006, by Building Envelope Technology and Research.

INTRODUCTION

The following is a Level I Reserve Study (full reserve study funding analysis and plan).

The purpose of this consultation, inspection, and evaluation is to develop estimates and make projections for the Association's common Capital Component Replacement. The scope of the consultation does not include a detailed evaluation of the complex's construction or defects requiring correction. (If desired, we can include them as an additional, follow-up service.)

The Washington State Condominium Act requires us to state the following: This capital component reserve study is issued in compliance with Article 3 of RCW 64.34. Accordingly, this reserve study should be reviewed carefully. It may not include all common and limited common element components that will require major maintenance, repair, or replacement in future years, and may not include regular contributions to a reserve account for the cost of such maintenance, repair, or replacement. The failure to include a component in a reserve study, or to provide contributions to a reserve account for a component, may, under some circumstances, require you to pay on demand as a special assessment your share of common expenses for the cost of major maintenance, repair, or replacement of a reserve component.

ABI's report for the Association's capital replacement reserve follows. Its written explanations include:

I. Summary
II. General Building Inspection Report
III. Reserve Study Report and Explanation
IV. Explanation of Tables and Alternatives
V. Tables and Schedules (of Values) enclosed:

Table 1:	Capital Replacement Components (summary)
Table 2:	Reserve Work Sheet (at constant dollars, current value)
Table 3:	Reserve Work Sheet (with interest and inflation values)
Graphs:	Graphs of Tables 2 and 3
Schedules:	Building Component Group Listings (8 schedules)

We call the Association Management's attention to:

1. The listing of management decisions regarding policy and strategy (see Management "To-Do" Letter/List).

2. Point #10 in Management "To-Do" Letter/List regarding capital components that are not properly installed and need corrective work. Though we have factored the proper correction of these items into our final reserve estimate, we have not included their corrective costs in the reserve evaluation.

3. According to Article 3 of RCW 64.34:

   - A Level I Reserve Study is a complete, initial analysis of capital components that includes a site visit and evaluation of the property.

   - A Level II Reserve Study is a comprehensive update of the initial Reserve Study that re-evaluates and updates schedule line items and values. It includes a site visit re-inspection by a reserve study professional and should occur every 3 years.

   - A Level III Reserve Study is an annual brief, basic revision and update to the component replacement schedules done by the Association.

[END OF INTRODUCTION]

SECTION I. SUMMARY

In conducting the General Building Inspection for the capital component replacement reserve study, we found that the building generally was qualitatively excellent to very good and in excellent condition. It has significantly fewer than a normal number of technical defects, and the property has some very simple components, which is excellent in terms of minimizing its corresponding maintenance, repairs, and replacements . Most of our serviceable life estimates for components are typical or better than normal. I have no major concerns about specific item having abnormal and/or adverse effects on component maintenance, repair, or replacement.

Initial capital replacement reserve assessments are, unfortunately, typically set low and do not reflect what is really needed. We have developed a basic illustrative set of tables. Based on our assumptions, evaluations, listings, and items included in the study, we found that the assessment should ideally be approximately $96,780/ year (2013 values). Note: This does not include funding of the garage waterproof membrane replacement, which will probably be needed during the 30-year planning period. The Association Board has decided to address this item with a special assessment when needed. Based on our understanding of the proposed annual assessment, the Association is in an excellent position. The exception is the need for a special assessment that is indicated in the Capital Component Reserve Study at approximately year 19 (2032), as well as the special assessment for the garage waterproof membrane.

The Association management needs to evaluate various aspects and make decisions from strategic, goal and policy standpoints, as these decisions significantly affect the results of the reserve assessment.

All of the values listed in this summary are in 2013 dollar values. The whole purpose of a proper reserve study and monthly assessment is to provide a basis for estimating reserve assessments and to minimize the need for special assessments or funding.

Our evaluation indicates that, in terms of the anticipated required capital component replacement, the Association is in an excellent position as long as (1) maintenance, repair and replacement are similar to what has been done thus far, and (2) the assessment amounts are properly maintained and funded. As of January 1, 2013 the Association's capital component funding amounts are as follows:

CURRENT RESERVE BALANCE: $136,000; proposing depositing a withholding Certificate of Deposit amount of $100,000 in 2014.
CURRENT ANNUAL ASSESSMENT: $30,000; proposing converting supplemental temporary current assessment of $67,000 to $50,000, starting 2014 ($30,000 plus $50,000 = $80,000 total annual assessment). Thus, at year 2013, annual assessment of $30,000, and beginning 2014, $80,000.
CURRENT PERCENT OF FULLY FUNDED RESERVE AMOUNT: 9% (16% at year 2014 with CD).
IDEAL RESERVE BALANCE: $1,511,111.
IDEAL ANNUAL ASSESSMENT: $100,548.

[END OF SECTION I]

SECTION II. GENERAL BUILDING INSPECTION REPORT

The General Building Inspection report for component capital replacement reserve analysis is limited to assessments made during a basic, visual inspection of the building's various components. It is in compliance with Article 3 of RCW 64.34, including new Sections 1 through 6. The scope does not include troubleshooting, evaluating, or further addressing specific items. Some aspects need to be followed up to verify and refine, as they apply not only to the buildings' general management, but also to this reserve study.

CONSULTATION BACKGROUND

SCOPE OF SERVICE: As requested, the property referenced above was inspected for the purpose of forming an opinion of its condition. We did do a brief review of municipal building department information, and construction plans. The report does not contain information on pedestrian safety installations or potential pedestrian safety hazards.

The scope of this inspection included spot checking:

- Unit private balconies/decks/patios, and some common exterior wall/roof aspects at units: 401; 411; 413; 308; 210; 110; 112; and 103.
- Building interior common areas;
- Exterior building envelope components, such as roof and exterior walls;
- Exterior yards.

ABI, in its desire to offer the most professional service available, subscribes to professional standards and the code of ethics of the American Society of Home Inspectors (ASHI). All observations and conclusions are based on our experience and best opinions. Due to the hidden nature of some items, and the fact that we do not conduct destructive testing, we cannot check all items; however, many hidden items manifest themselves on exterior surfaces. We do not imply that an item not mentioned is satisfactory or in working order, nor do we imply the guarantee or warranty of any items. Our conclusions are drawn from what is visible, based on spot checking building items.

All buildings have flaws. The crucial aspect is to determine the significance of the flaws and whether or not they are atypical of a comparable building. We attempt to do this for you in the verbal and written reports. Some of the terms used in this report are technical, but wherever possible, we have used words that are easy to understand, are in everyday use, or can be found in standard dictionaries.

If the property develops defects in the future, or if you have technical or repair questions after you have read this report, call us to discuss them. If other opinions differ from what we have stated, or if repair work is recommended that you feel is not necessary based on information in this report, call us immediately, before any work is started. This is part of ABI's ongoing service to you. Priorities and rough cost estimates for correcting defects are beyond the scope of our building condition inspection. We can do them as an additional service, usually within about two weeks of the inspection. The additional cost normally is about 20% of the building condition inspection fee.

BUILDING CODES: When a building is constructed, altered or upgraded, that work is required to comply with codes in effect in the building's municipal jurisdiction at the time the work is done (i.e., building, electrical, plumbing codes). Our building condition inspection is not intended to be a code-compliance inspection, but we do use code requirements as standard reference points. Current codes represent current standards.

Codes are changed and upgraded frequently (they usually become more stringent). It is not practical for us to ascertain when a particular requirement took effect in a particular jurisdiction and to specifically compare this with buildings. For example, a set of stairs (as constructed) may not comply with current code requirements, but it may have complied with codes in effect when it was constructed. Existing construction that does not conform to current codes technically does not need to be upgraded unless other substantial remodeling is being done to the building (this is referred to as the "Grandfather Clause"). The decision on whether or not to upgrade a particular installation of this type is to be made by you. However, code requires property owners to correct and maintain the building to comply with codes that were in effect when it was constructed. Insurance companies also require this.

REPORT ORGANIZATION: ABI's building condition inspection report is organized into five major sections:

- ***Background and Overview***
- ***Yard/Site and Building Exterior Components***
- ***Building Interior Components and Utilities***
- ***General Comments***
- ***Conclusion***

Headings are assigned to major systems or areas (i.e., roof, rooms), and subheadings are assigned to their components (i.e., gutters, windows). Some information could be placed under more than one heading, so there are cross-references throughout the report.

BACKGROUND AND OVERVIEW

We understand that the building was originally constructed in 1895, with subsequent additions at the north end circa 1900-05, at the south circa 1916, and south of the east entry (approximately 13 x 33 feet, corresponding to the first floor passageway ["tunnel"] to the east garage and floor above. The building had a major renovation and change of use from an elementary school to a multi-family residential building in 1984. I understand that Val Thomas was the Architect/Developer for the 1984 rehab. Fundamentally and effectively, all of the interior utilities and restructuring were redone and, for the most part, the building components are about 29 years old. The quality of the original construction was excellent and, in general, the mid 1980s alterations were excellent to very good. In general, the property condition is excellent. [RANGE: Excellent, Very Good, Good, Average, Fair, Poor]

GENERAL BUILDING DESCRIPTION: The property consists of one large city block (according to the King County Assessor, 73,520 square feet). The building consists of 4 stories, plus top mezzanine/lofts for the 4th floor units. Construction plans indicate the building having 53,401 square feet (not including east underground garage, which we found was approximately 16,460 square feet). The building has 49 condominium units. Note: The King County Assessor's listing for the property includes the Seattle School District as an owner. This is because the Seattle School District owns the land, with a 99-year lease beginning in 1984. The lease is renewable for a second 99-year term.

The property's site improvements include:

- At the east center area, a vehicle drive connecting into a circular drive with center fountain, in turn abutting the main east exterior stairs leading to the building's front entry at the second floor.
- At the property's southeast corner, a relatively large lawn.
- At the south side, east end, a vehicle drive leading to a vehicle garage door, and a large underground parking garage (16,460 square feet, constructed 1984).
- At the south end of the building, unit private patios/decks.
- At the southwest corner, a yard area with pedestrian walkways and steps connecting to the public sidewalk southwest corner.
- At the west side, south end, an exterior porch leading to the building interior southwest stairwell, and just to the north, an exterior ramp leading down to the building west common entry at the bottom first floor level.
- At the building north section, west side, unit private patios at the lower first floor level.
- At the west center area, vehicle parking.
- At the northwest, a lawn and vegetation area.
- At the building north end, exterior stairs and a walkway connecting to the building north entry.
- At the northeast corner, a lawn and vegetation area, plus an exterior open stair leading from the yard down to the basement garage north end.

The building interior floors are similar, having relatively long north-south corridors from the north stairway down to an east-west corridor at the south building addition, which connects to the southwest interior stairwell. The elevator is at the north-south corridor west side, at the second floor, opposite the east entry. The garbage chute rooms at each floor are at the intersection of the north-south and east-west corridors, except at the first floor, where the chute discharges into rolling dumpsters, and has an adjacent storage room for another dumpster. At each floor, there are units in the south addition at the south side of

the east-west corridor, as well as the west and east sides of the north-south corridor. The exception is at the first floor, at the east side of the north-south corridor northeast corridor and building center area, where there are common rooms.

At the lower level first floor, common area room spaces include: north end utility room; storage rooms containing unit storage cubicles at the northeast corner and east center area; elevator equipment room at the corridor north end adjacent to the storage room; east center passageway ("tunnel") to the east garage; janitor's closet, as well as an Association board room storage space, adjacent to the east center storage room; and an electrical panel and meter room at the intersection between the north-south and east-west corridors. The east garage is fundamentally one large, long space with an electrical transformer vault room at its northwest corner.

The second floor has: an east exterior entry; mailboxes; and a west facing small exterior balcony at the intersection of the north-south and east-west corridors.

The third floor has a typical layout in terms of common areas, except at the north stairwell between the third and fourth floors, where there is a room over the stairwell currently being used as an exercise room.

The fourth floor also has a typical layout in terms of common areas, except at the north-south corridors, where there are some roof skylights. The fourth floor units have interior stairways leading up to overlying lofts.

Previously, ABI inspected unit #401, and accessible common areas (April 2007). At that time, work was in progress (and, in some cases, just completed) regarding foundation waterproofing; exterior brick remortaring; window rehab; landscaping and yard irrigation sprinkler system. This is referred to as the 2006/2007 exterior repair project.

Also, the municipal building department information indicated:

1. Construction plans were approved in December 1983 (governing code Uniform Building Code 1979 version).
2. Construction plans/permits were done in July 2004 for additional storage/loft space in some units, as well as some interior unit alterations.

Following is a review of defects and points of information I observed. In terms of magnitude, I found a typical number of deficiencies, relative to similar properties.

I am very impressed with the overall quality of construction. It is clear that the owners, builders, and crew were very conscientious and have built a fine product.

This building is what we would consider to be an architectural design "classic" (i.e., in the sense of a 1955 Thunderbird automobile or a Frank Lloyd Wright building design). The design and various aspects are excellent, and the building represents an optimization of design and construction for its era (it is representative of its era, but it is not "dated" in terms of design features that people tire of). It typically is advisable to retain the classic features and aesthetic aspects so the building can be marketed as a classic building.

CONDOMINIUMS: The maintenance of condominium unit interiors and interior fixtures is usually the responsibility of individual owners; the exterior, common areas, building utility lines, and structure are the responsibility of the homeowners' association. The main potential problems with these responsibilities are: 1) inheriting major repair requirements that lead to headaches later on, and 2) trying to get the homeowners' association to agree to performing high-quality maintenance and repair on the joint-responsibility items.

We often find numerous defects and deficiencies, and a few code violations, in condominium buildings. With newer buildings (i.e., buildings constructed as condominiums, not conversions of older apartment buildings), we often find installation defects, use of materials that are not very durable, and problems with construction technique, all of which will make the building prone to maintenance problems in the near future. Relative to other condominiums we have checked, I found this building to be very much above average quality.

Maintenance of unit interior aspects that can have a significant, adverse effect on adjacent building components should really be under the control of the homeowners' association. This includes aspects such as caulking/grouting tub/shower surrounds; verifying that toilets are properly secured to the floor (to prevent leakage and rot); ventilation/ducting systems; and checking for plumbing appliance leakage that develops near the end of components' serviceable lives (e.g. water heaters, clothes washers, dishwashers).

Given the situation with the building, it is extremely important to have very good insurance with regard to earthquake and liability. Keep in mind that, because of various restrictions (deductions, exclusions, improper maintenance), there often are deductibles and non-coverage of certain aspects (see points elsewhere regarding obligation to properly maintain property with regard to liability and insurance coverage).

Condominium capital reserve funds for correcting and replacing capital improvement items (i.e., roof cover, exterior siding, etc.) are very important to successful management and ownership of condominium units. It is important that a very good "reserve analysis" be done on condominium buildings to match the quality and situation with the building to reserve funds. We quite often find that the reserves planned for and set aside are not sufficient, so "surprise" and special assessments are necessary.

OWNERS' ASSOCIATION: It is obvious that the Association has taken pride in the property and has done an excellent job of maintaining and repairing it, irrespective of the capital component reserve aspects.

ORIENTATION: I shall refer to the street (address) side as east.

[CONTINUED ON NEXT PAGE]

SITE/YARD AND EXTERIOR BUILDING COMPONENTS

SITE/YARD

SITE DRAINAGE: Property terrain and drainage provisions generally appear to be adequate to preclude serious drainage problems, presuming that the property is properly maintained. (See roof drainage and grade slope discussions.)

Proper surface drainage is very important. To put this in perspective, this surface area (1 large city block) sheds up to 70,000 to 100,000 gallons of water in one day's heavy rain. If this water is not properly channeled away from the building, there is a high risk that water and moisture will soak back into the foundation and into the building.

During certain times of the year (typically October), the ground is relatively dry and, hence, not very absorbent (similar to a dry sponge). Consequently, when the ground is exposed to large quantities of water, instead of soaking through, the bulk of the water accumulates and eventually drains off the surface. Conversely, the soil is very absorbent at other times of the year, and the ground does absorb large quantities of water. Once the water source (e.g., rain) stops, the water continues to drain out of the soil for a long time. Note also that, during certain periods (typically from January on), soil can become so saturated that it loses its ability to absorb storm water altogether.

It is important to keep storm catch basin drains clear and clean to avoid clogged and overflowing drainlines. Catch basin drains may have sump pits (space below discharge drainline inlet) for the accumulation of debris and sludge. It is important to keep these sumps clean to prevent debris from getting into the drainline. I did observe some debris in catch basins, and they need cleaning.

At the north exterior entry, the paving drainage does not discharge into an appropriate catch basin. There are two openings where surface water discharges down the side of the paving retaining wall and the water then drains into surface stones (see points below). To put this in perspective, something in the order of 500 to 1,000 gallons of water discharge from this paving in one day’s heavy rain (not including overlying roof gutters clogging and overflowing). It would be advisable to route the paving storm water discharge into an appropriate drain connecting into a proper storm drainline system.

Rock has been installed around the building (i.e., north at exterior entry corners), most likely as a free-draining system that allows water to drain through it and, preferably into underlying interceptor drainlines. We often find that these systems are not properly installed, which can be very detrimental (i.e., can expose foundations and structural systems to water). The most appropriate approach would be to provide and maintain proper storm drains, drainlines, and positive grade slope (see related points elsewhere). I observed clear indications that, as an interceptor system, the rocks were not properly installed and are probably causing more harm than good. It would be advisable to eliminate the need for this system by providing positive grade slope away from the building.

The quality of the drainage installed for the east vehicle turnaround (plus storm water discharge off east entry stairs) is somewhat marginal. The small drains are very vulnerable to becoming clogged (see point below regarding drain inlets without catch basins) and the discharge pipe that runs through the underlying garage, discharging out at the garage southeast corner floor drain, is not ideal in terms of configuration, the discharge within the garage space, and risk of freezing, clogging, and damage. Further, as discussed elsewhere, it is clear that the connections of the drains into the garage subsurface concrete was not ideal because there are indications of slight leakage at these connection points (see related points in Garage section later).

Also verify where the water would overflow if the circular drive drainage system were to clog.

Various storm drain inlets do not have a catch basin-type sump to accumulate debris, but normally do have a form of strainer. Because strainers clog relatively easily with small amounts of debris, it is very important to develop and follow a maintenance schedule for checking and cleaning them.

The construction plans indicate an on-site storm drainage retention system (very long culverts with manhole accesses at the property southeast [45 feet long] and west center [150 feet long]). The construction plans also indicate that the southeast system has a drainline connecting into the street drainlines at the east side, and the west system drains into the street drainline system at the west. The construction plans also indicate that the west system drains the vehicle parking area, and the east is for the catch basins at the bottom of the east vehicle drive (and I suspect that the original intent was for them to drain the circular drive also). The system is meant to act as a reservoir during heavy storms and, afterwards, slowly release the water into the municipal system. They do need to be periodically checked and cleaned (at the manhole access). Note: Other plans/diagrams indicate a third east-west subsurface retention culvert south of the basement garage, and east of the vehicle door, extending to the east, which in turn connects to a drainline extending to the municipal southeast street corner sewer line. I understand the city inspected the retention system (August 2011), and the Association replaced some orifice plates, and cleaned catch basins, plus that there is an obligatory drainage control plan in compliance.

I was not able to evaluate the private unit exterior recessed patio areas for drainage. It is important that these areas have a positive slope into storm drains.

The first floor west unit exterior private patio areas are recessed below the adjacent exterior grade. I was not able to determine what type of storm drainage system was provided for them. The construction plans indicate a dashed line adjacent to the west foundation, which is typically reflective of foundation footing drainlines. Very conceivably, footing drainlines are installed with the intent of draining the patio areas. However, these types of drainlines are very vulnerable clogging, and are not fully effective at intercepting storm water, and preventing it from soaking back into the perimeter foundation and underfloor slab areas. If this is the system intended to drain these recessed areas, it would be appropriate to consider upgrading the drainage system. Also, I did not locate a cleanout for the subsurface system (dashed line on plans), and it would be appropriate to verify if there is one. If not, one should be installed to facilitate cleaning and fiber optic video inspections. To put this situation in perspective, the recessed patio areas are exposed to 6,000 to 9,000 gallons of water in one day's heavy rain (not including clogged and overflowing adjacent roof drainage, which accounts for another 5,000 to 10,000 gallons). I understand

that the west patio drainage has not been an apparent problem to this point. However, it still carries significant risk, and ideally should be proactively pursued.

It would be appropriate to trace/verify the routing of all storm water drainlines, in terms of their configuration and quality, to ensure that they connect into the sewer/storm system.

At the east yards (over underlying basement garage) there are surface catch basins that have drainlines. It would be appropriate to trace and inspect their drainlines (and those of all the property's catch basins) with a fiber optic video, also to verify the configuration, condition, and quality.

GARAGE DRIVEWAY: The vehicle garage driveway strip drain needs to be cleaned periodically. To the east exterior side of the vehicle door, there is a round heavy metal lid. We were not able to lift the lid to check what is underneath. I would anticipate that it is a drainage sump that needs to be cleaned periodically, but it is important to have someone lift the lid, and verify the situation.

SITE SOIL STABILITY: I did not observe indications of general original site soil stability problems.

Earth that is placed back ("backfilled") along foundation sidewalls and over which paving is installed is often not well compacted; if it is not, some post-installation settlement normally occurs. This normally does not adversely affect the main building foundation. The backfill consolidation process usually completes itself within 5 - 10 years of construction; however, further settlement could occur if the soil is exposed to large amounts of water (i.e., defective drainlines), so it is very important to properly maintain drainage systems. Surfacing, including paving, may settle as a result of the underlying base soil settlement. Soil voiding, as well as continued soil erosion from defective drainlines, can cause recurring/latent further surface settlement.

PAVING: The cracking is normal and typical for paving of this age.

At the east center circular drive, concrete paving was clearly installed over an underlying soil bed, in turn over a waterproof membrane installed on top of the underlying basement garage ceiling (roof) slab. Water draining down under the circular drive paving would tend to erode the base soil, causing soil voiding and subsequent displacement of the paving. Further, I would anticipate the configuration of related aspects, as well as the manner in which the base soil was installed, were average to fair quality. This leaves the paving over the basement garage vulnerable to settlement. In addition to the repaired paving section discussed above, there is other settlement and cracking of the paving. As much as practical, the paving should be repaired and kept well maintained to minimize water draining down through it. Eventually, the circular drive paving deterioration will become such that replacement will be necessary; at that point, a more appropriate installation should be pursued.

The municipal approved construction plans (1983) direct that there be a posting of load limits at the east circular drive (over the underlying garage). This has not been done, other than a sign directing deliveries to the building southwest corner. The current sign is not an effective warning to preclude heavy trucks from inadvertently driving on the circular drive. Further, heavy trucks contribute to the circular drive's paving deterioration. The construction plans also indicate the soil thickness over the garage ceiling (roof) structural slab to be 12 inches, wherein I understand it is more in the order of 18 inches. It would be appropriate to review this aspect to verify its accuracy, but if 18 inches of soil are indeed installed, it

further emphasizes the importance of avoiding heavy truck weight on the area. Typically, there are significant factors of safety built into structural calculations, but the situation is still potentially risky.

Fungus (moss) will likely grow on the yard's concrete paving; if it does, it will create a potential slipping hazard. The fungus can be cleaned off with a fungicide or bleach solution to reduce the risk. Keeping the concrete paving sealed with a clear sealer will minimize moisture infiltration and significantly reduce fungus growth.

Excessive paving fungus is symptomatic of inappropriate surface drainage and less than ideal paving base construction quality (less than ideal gravel/stone isolation base material). Also, shading from trees and for the paving at the north side of the building, shading of the building itself, plus tree debris contribute to fungus growth and accumulation.

Asphalt paving needs to be sealed periodically. This should be done every 5 to 15 years (preventative maintenance) to minimize moisture infiltration and long-term deterioration. The west parking area asphalt paving sealer and striping are in average condition.

The paving's surface slope is somewhat inconsistent and has created some low spots in the surface itself (e.g., west asphalt paving at drainage catch basins). Low spots allow water to accumulate (pool). Pools of water are not ideal because they increase the risk that affected areas will freeze and become slick, and increase required maintenance. Reshaping the paving surface will correct the discrepancies, but, if this is done, it is critical that a very qualified and experienced person perform the work, as inappropriate paving surface alterations can end up causing more harm than good.

LANDSCAPE: Vegetation branches that are close to the building need to be pruned to provide a couple of feet of clearance for air circulation. This helps to keep the building exterior dried out.

Beauty bark has been used as a ground cover adjacent to the building. Carpenter ants (wood-boring insects) are attracted to beauty bark; however, if the building is properly maintained, they should not infest the building itself (see wood-boring insect discussion in General Comments section).

There are vines in the yard area. It is important to keep vines off of the building exterior, trees, and fences because they can cause damage. It also is very important to keep ivy vines away from areas with known drainlines (i.e., sanitary waste lines, below-grade lines for roof downspouts, etc.). Ivy roots tend to seek out water in drainlines, and can clog or break them.

The property has a large yard and extensive landscaping. Both future corrective costs (for trees, shrubs, other improvements) and subsequent maintenance will be very expensive (multiple thousands of dollars), so it is a priority to have a landscape architect review the property to develop a scope, estimates, and priorities for future work.

YARD IRRIGATION SPRINKLER SYSTEM: We do not test sprinkler systems. Their quality, age deterioration, and/or freeze damage often makes them defective. The system is very extensive. If not done already, review the system and its condition with a qualified and experienced irrigation sprinkler system contractor, and develop a scope, costs, and priorities for future work.

Normally, yard irrigation systems are drained for the winter, with piping components blown out with a compressor, to minimize the risk of freezing and damage.

FENCING: It is important to keep wood fencing (west and south unit private patio areas) properly maintained to minimize deterioration and prolong its serviceability (e.g., keep the components painted, provide proper clearance between the earth and the bottom of fence components between the posts).

DECORATIVE POOL: We do not check decorative pools or related installations.

ROOF

ROOF COVER

ROOF COVER: The upper main roof is asphalt shingles.

At the upper floor east center unit (#413) there is a small section with roof membrane cap sheet roofing.

There are also private unit balconies/decks (e.g., fourth floor) that are insets in the roof planes and are above overlying finished spaces (see related points in Balconies/Decks section later), which is single-ply membrane. Also, at the upper floor east center, north side (unit #413), there is a deck roof section (approximately 14' x 24'), which is single-ply membrane.. Further, at the south lower level sections, there are roof cover unit private balcony/deck sections; at unit 210, a large balcony/deck with torchdown granular cap sheet, plus a large skylight; and at unit 110, a relatively small (5 feet in north-south direction) balcony/deck that has a field-applied coating membrane (the latter of which I understand is the same as unit 408). At the garage ceiling roof plane, there is also some form of waterproof membrane that serves as a roof cover below the earth. We had access to and spot checked 5 unit private balconies/decks. (See related points in Balconies/Decks section).

Also, at the exterior east entry there are some raised masonry planters that would typically have waterproof membrane. I did observe drainlines coming out of the masonry. (See related points in Building Exterior section).

I spot checked approximately 65% of the asphalt shingle roof by observing it from the ground, plus from upper floor unit private balconies/decks, because of height and steepness.

The asphalt shingle roof slope is excellent (superb) for the type of roof cover installed. At the upper main roof, the various roof sections have a 12 inch slope to the foot and a 15 inch slope to the foot, with the bottom roof overhang extension having a 7 inch slope to the foot. The membrane cap sheet section (unit #413) also has excellent slope. This increases the serviceable life of the roof and reduces the risk of leakage.

I understand that the asphalt shingles were installed between June and October 2001. The asphalt shingle material quality is generally very good. The roof cover generally appears to be in excellent condition. With normal maintenance and repair, its estimated remaining life is around 20 years.

The serviceable life expectancy of the roof cover could be extended 20% - 30% by improving the roof frame venting (see ventilation discussion). Excellent quality maintenance done by a very experienced and qualified roofer can extend the life another 20% - 30%. A general schedule for this type of work is: as soon as practical after our inspection; each 5 years after that; then, each 1 - 2 years in the last 5 years of the roof cover's serviceable life.

The moss growth is a result of the roof cover condition and, more importantly, the roof system's marginal venting (see ventilation discussion in Roof Framing section later).

There are pros and cons to pressure washing a roof to keep moss cleaned off of it. It is obviously better from a visual standpoint to remove the moss, but the technical benefit of getting rid of the growth is offset by the harshness of the pressure washing (causes premature wear of the roof cover). The best approach would be to provide excellent roof venting and, ideally, clear trees away from the building.

The single-ply membrane roof cover is a modified bitumen membrane that consists of a heavy-duty exposed layer installed over a base felt layer that is fastened to the roof sheathing deck.

ROOF FLASHING: At units 210 and 110, unit private balconies/decks, the parapet wall at the edge of the roof has a marginal cap flashing installation. Its joints were improperly sealed, and the flashing does not have positive slope over the side and back into the roof (deck basin). The existing situation is conducive to slight leakage through overlapping joints. It is especially important to keep these joints well sealed with mastic caulking. It would be advisable to correct the slope to prevent water accumulation on the top (most practical to do at re-roofing). Also, where the parapet wall cap flashing ends abut the adjacent vertical wall planes, there is not sheet metal counterflashing back into the exterior brick, and so caulking is being relied upon to minimize leakage (see related points in Exterior Siding section).

SKYLIGHTS

SKYLIGHTS: There are skylights at upper floor roof sections, as well as a large skylight in unit #210's private balcony/deck, which serves the underlying unit #110. It appears that all of the skylights were installed in conjunction with the 1984 rehab, though we did observe one older skylight at the upper floor west center corridor (wire glass).

The roof glazing installations are metal, and they need periodic service maintenance (seal the joints, flashing adjustments, cleaning interior drainage tracks). The quality of the skylights appears to be excellent.

In spot checking the skylight at unit #210's private balcony/deck, I observed indications that servicing is needed (i.e., recaulking connections).

I did observe (April 2007 and July 2012) indications of some slight leakage at the fourth floor east common area corridor skylight (east center). There was some gypsum wallboard nail head popping and some moisture swelling.

The older upper floor skylight wire glass is cracked. This creates a leakage risk, as well as deteriorates the wire in the glass and, as a result, the glass itself. It would be appropriate to have a qualified and experienced skylight installer review the installation to verify its serviceability.

ROOF OVERHANG

ROOF OVERHANG: The overhang distance is excellent (superb). This reduces exterior wall maintenance requirements and the risk of exterior wall leakage.

However, at some areas, the exterior walls are very exposed due to their height (relative to the roof overhang distance) and their orientation towards prevailing weather. Thus, it is especially important to keep the roof cover, roof drainage system and exterior walls very well maintained to minimize the risk of exterior wall leakage.

At the exterior east entry, there is a fabric awning that extends out about 5 feet, and has a width in the north-south direction of approximately 6 ½ feet.

ROOF DRAINAGE

GUTTERS AND DOWNSPOUTS: The south (addition) section has roof drainage gutters built into the roof plane outer edge (roof cover/membrane lining). At other roof areas, there are conventional metal gutters installed. The quality of the gutters and downspouts is generally good to average.

In my spot checks, I found that the metal gutters and downspouts were generally in good condition. I was not able to evaluate their remaining serviceable life due to access restrictions. The most practical time to replace gutters is normally in conjunction with re-roofing.

Gutters need to be kept clean to minimize deterioration and clogging. When they clog, they overflow, exposing the building/foundation to large amounts of water--especially during storms. This can, ultimately, allow leakage into the building.

I would anticipate that the number and location of trees on this site will necessitate frequent gutter cleanings (more often in the fall and after a windstorm).

Gutters on this building are very high, and will present a significant potential safety hazard during scheduled cleaning and servicing. Given the situation, it would be wise to develop a service contract with a gutter service firm.

In doing a quick, rough calculation regarding roof drainage, I found that the roof gutter and downspout capacity was generally excellent (varied from 1.5 to 3.5 times what is required at various areas).

The building south (addition) upper roof gutters are built into the roof edge and overhang. This is somewhat risky technically because gutter leakage will likely infiltrate the building frame. It is very important to keep the built-in gutters in very good condition to prevent building leakage and deterioration. It is not possible within the scope of a General Building Inspection to assess the extent of past leakage or

deterioration of the underlying frame. There may be some deterioration, but in spot checking, I did not observe indications of serious problems with this.

The upper floor dormer roof sections do not have gutters, and significant quantities of water are discharging off these and overlying areas down into the underlying dormer exterior siding and adjacent roof cover. It would be good to have gutters installed at these areas. Gutters significantly reduce the building exterior's exposure to water, which reduces the need for maintenance and repair to exterior walls and reduces the risk of leakage. To put the situation into perspective, this type of small roof section discharges approximately 200 to 300 gallons of water in one day's heavy rain.

The 1983 construction plans indicate that at the roof planes about the 4th floor unit private balconies/decks, conventional metal gutters were to be installed. The existing installation consists of a formed metal flashing ("L") section that makes a horizontal diverter, and if its size and capacity are sufficient, it is inherently better than a gutter, including discharging the water at each end out onto adjacent roof planes (as opposed to onto the balcony/deck basin). I understand that the size configuration is adequate, and there is not a significant problem with the overlying roof water overflowing down into the deck basin. If it were to overflow, it would increase the risk of deck membrane leakage.

DOWNSPOUT BELOW-GRADE DRAINLINE (BGDL): There is a below-grade drainline (BGDL) system serving downspouts responsible for collecting roof water runoff. I was not able to evaluate the roof drainline system, but it appears to have been installed in conjunction with the 1984 renovation. Given the age and construction quality, I would anticipate that these lines connect into the municipal sewer system. Proper roof drainage is important in preventing foundation water infiltration and general building moisture problems. Check with the municipal engineering department to obtain a copy of the side sewer plan and 1983 construction plans, which may show the location of the drainlines.

Roof downspout drainlines need to be flushed periodically (i.e., once a year) with about 20 minutes of garden hose water per inlet. While doing this, the adjacent foundation inside the building needs to be monitored for leakage. Leakage would indicate that a defect has developed within the system.

Some of the downspout bottoms/drainline tops do not have access for testing and flushing with a hose. It would be good to provide appropriate access.

The earth grade is near the top of drainline inlets. It is important to maintain a 3-inch minimum clearance (preferably 6 inches) so that the inlets can be properly monitored for clogging and overflowing, and to minimize the risk of debris getting into the lines.

The visible downspout below-grade drainline material is a relatively thin-walled plastic. This material is average quality by today's standards; however, it has a tendency to crack and break if not properly installed, which results in leakage. We often find leakage from drainlines of this type.

I observed several indications that the drainlines were not installed with proper positive slope. At the building southwest corner where the drainline is exposed, I found that it had reverse slope. Plumbing codes require a minimum 2% slope for drainage and for a self-flushing/self-cleaning system. In conjunction with other storm drainline system evaluation efforts, it would be appropriate to review the drainline installation with regard to proper slope.

If basement water/moisture infiltration occurs, it is often a result of defective roof drainlines**.** The roof's below-grade drainline system needs to be evaluated and tested in more detail to determine serviceability and the need for, or scope of, corrective repair/rehab. The drainlines should be tested with water to verify that they flow freely and for indications of foundation water infiltration (see flushing procedure above). If the drainlines are clogged, have a service company rout and retest them. For a more conclusive evaluation, have a service firm do a "plug" test. (A plug is inserted in the drainline, and the line is filled with water. A line that holds water is probably tight. One that does not is likely defective and leaking). Routing the lines may temporarily resolve the clogging problem, but could cause additional problems (e.g., leakage at foundation, soil erosion), and the lines could become clogged again.

Another preventative step involves evaluating the drainlines with a video viewing survey (where flexible optical cable is routed through the drainline) to check the quality and condition of the installation.

Proper roof drainage is very important. To put this in perspective, this roof sheds up to 25,000 to 40,000 gallons of water in a day of heavy rain. If this water is not properly channeled away from the building, there is a high risk that water and moisture will soak back into the foundation and into the building.

To properly install below-grade drainlines: (1) use a tight line material (non-perforated); (2) cover the drainline with a minimum of 12 inches of soil (preferably 18 inches) to protect it from damage and freezing; (3) install it on firm soil, with continuous underlying support; (4) provide at least 2% constant positive slope so that it is self-cleaning; and (5) seal the joints. Do not use the flexible coil type drainline material because it is an inferior system that very often leaks, and this causes related problems. The most practical approach would be to install plastic drainlines. PVC plastic can be used, but we have found that it is somewhat brittle and can break. It would be better to use a standard type of interior plumbing plastic drainline (i.e., ABS). Also, if roof and storm drainlines are connected into sanitary sewer systems, water traps must be installed to prevent sewer gases from backing up and seeping out of the lines.

BUILDING EXTERIOR, GENERAL

EXTERIOR DOOR LOCKS: It is always wise to change the keying of unit door locks before a new owner/tenant takes possession of the property.

EXTERIOR UTILITIES

GAS SUPPLY (METER): In spot checking, it appears that the property had no gas utility at the time of the inspection. The following point is included in the event that gas is installed in the future. Gas supply meters have a main shut-off for gas supply to the building, plus there are individual secondary shut-offs at each gas appliance. It is very advisable, with gas installations, to have automatic earthquake shut-off valves installed at the exterior gas meter.

ELECTRIC SERVICE LINE: The electric service line from the street runs underground, which is excellent.

WATER SPIGOTS: I observed a spigot in the yard (north of the building) extends out of the ground, so there is an exposed pipe that is subject to freezing. If there is an interior shutoff valve, it needs to be shut off and drained for the winter. However, this is often not done (forgotten), and the spigot and pipe are left at risk of freeze damage and leakage. It would be a good preventative step to upgrade to a newer, freeze proof water spigot, eliminating the plumbing components' exposure to the exterior. It is possible that the spigot I observed north of the building interconnects into the yard irrigation system, and if the irrigation system is drained for the winter, the exposed spigot pipe would also normally be drained.

CHIMNEY, MASONRY (WEST CENTER—INACTIVE): The chimney is generally in very good condition.

The chimney side flashing that parallels the roof slope was installed at an angular slope, and the chimney masonry appears to have been cut to allow some counterflashing into the masonry. This is an inappropriate technique. The proper technique for sheet metal counterflashing into this kind of masonry involves "stepping up" the masonry coursing so that the flashing's top edge is horizontal and the flashing that extends into the mortar folds back in a loop configuration. With proper installation, the horizontal flashing intercepts and discharges to the exterior water that could otherwise leak through the masonry face and inside the masonry. The sloped configuration does intercept water but, given the nature of the slope, that water commonly leaks into the chimney in concentrated quantities, especially at the bottom edge. As a result, it is necessary to keep the masonry above the flashing in much better condition than is normally required. At this point it is not very practical to correct the discrepancy (the most practical time to do so is typically in conjunction with reroofing).

The mortar joint above the roof counterflashing was sealed with mastic, which is not technically proper. The counterflashing extends back into the masonry, and it is supposed to intercept moisture that drains down through the mortar. The mastic seal is preventing moisture from draining out through the mortar joint and, in turn, routing it back into the chimney interior. It would be good to remove the mastic and properly remortar the joint.

There is efflorescence (white staining) on its exterior surfaces, which indicates active moisture migration through the chimney masonry. I attribute this to the roof flashing aspect (discussed above). After the corrective service work is done, wash the efflorescence off (wait a couple of weeks so that moisture in the chimney can evaporate), then monitor to see if the service work was effective.

BUILDING EXTERIOR WALL PERIMETER BOTTOM

FOUNDATION (FROM EXTERIOR): I did observe indications of foundation waterproofing and a barrier installation (e.g., at what appears to be brick foundation areas involving drainage mats, a waterproofing system, and top edge sheet metal flashing—see related points in Basement section).

GRADING: It is important to maintain a minimum clearance of 6 inches between the earth grade around the building and the top of the concrete foundation (plus sheet metal flashing for the foundation exterior surface waterproofing system). Grade clearance was generally good at the time of the inspection. However, there was some earth contact with wall bottom sheet metal (counterflashing over underlying foundation perimeter waterproofing). The metal is very high quality (stainless steel) and somewhat

resistant to deterioration, but it is still important to maintain proper clearance to reduce the risk and rate of deterioration.

One of the functions of a 6-inch grade clearance is to expose the outside top edge of the foundation to outside air, allowing moisture to evaporate out of it instead of into the overlying components. Very good grade slope away from the building and very good roof drainage also reduce the foundation's and siding's exposure to moisture. Exterior masonry walls continue up from the foundation, and wood floor framing is set into the masonry. This is potentially risky because moisture soaking through the masonry and into the wood can cause wood deterioration (see wood deterioration discussion in General Comments section). With this type of installation, it is extremely important to keep the masonry dry to prevent/minimize the risk of wood deterioration. This includes very good exterior maintenance, especially with regard to roof drainage.

Earth grade lines tend to build up over time (i.e., typically about six inches per 50 years). From a technical standpoint, earth-wood clearance of 6 inches is minimal (i.e., minimum code/"D" quality, 3" absolute minimum clearance presuming very good slope away from building). A more appropriate clearance is advisable (i.e., a minimum clearance of 12 inches equates to excellent quality).

BUILT-IN PLANTERS, EAST SIDE

BUILT-IN PLANTERS, EAST SIDE: Masonry has been installed against exterior brick wall siding surfaces at the exterior east built-in planters. This is technically not ideal because if proper waterproofing is not installed moisture can migrate into the brick masonry and down into the adjacent wood (wood frame installed against exterior brick wall), causing wood deterioration. The adjacent areas covered with finish components, but in spot checking the interior I did not observe deterioration that would indicate significant leakage. The area should be monitored and kept sealed to prevent water from getting into the masonry and wood. As indicated earlier, I did observe a drainline coming out of the built-in planters. There should be some form of waterproof membrane installed within the built-in planter masonry basin; it would be appropriate to verify its quality, condition, and serviceability.

Also at the east exterior built-in planters, the north-south section that abuts the main east exterior wall surface has reverse slope (1/2 foot wide) so water exposed to it drains back into he brick siding face. It is very important to keep this well sealed with caulking, as it was during our most recent inspection. Fortunately, this configuration is at the east side of the building, away from prevailing winds, and there is excellent overlying roof overhang protection.

SIDING

SIDING: Predominantly the exterior siding surface is the outer surface of solid brick masonry exterior bearing walls. At the roof dormer and roof balcony/deck areas, there is altered (circa 1984) wood siding consisting of horizontal clapboard, wood vertical, and wood shingles. It is generally in excellent condition.

Leakage is to be expected, as all exterior siding leaks to some degree. Exterior siding is the building's primary weather barrier. With wood siding (e.g., roof dormers) it is equally important to install

underlayment (i.e., tar paper) as a secondary barrier. The underlayment is not visible, so I was not able to evaluate it. Theoretically, if the underlayment is properly installed, especially around exterior openings, it would intercept any leakage through the exterior siding and prevent it from infiltrating the building. Leakage drains down the outside of underlayment and weeps out its bottom edges. It is critical that underlayment be installed such that it overlaps in a counterflashing manner around the exterior opening edges. If this is not properly done, water and moisture at perimeter edges (e.g. window trim/frames) can leak in behind the underlayment, into exterior wall cavities, and into finished areas.

Based on my observations, I would anticipate that the underlayment installation at wood siding was reasonably good. Minor leakage is not too critical and does not cause significant harm. Significant leakage is usually obvious (staining, finish cracking), but less obvious indications include mold, internal dampness, and symptomatic aspects such as wood-boring insect activity (i.e., carpenter ants).

The siding's caulking is in very good condition. It is very important to keep siding well caulked to minimize water infiltration into the building and to reduce air infiltration/heating costs.

The 1983 construction plans indicate at wood siding (e.g., 4th floor unit private balconies/decks) 1 x 4 wood siding installed over gypsum wallboard, in turn installed over exterior plywood. The gypsum wallboard was clearly installed as a fire barrier, but is vulnerable to deterioration from leaking water. I would anticipate there is currently some deterioration of this gypsum board, and in conjunction with future exterior siding rehab, the gypsum wallboard would need rehabbing as well. The cost of this should be incidental to the cost of rehabbing the siding.

I did observe inconsistencies with the wood exterior siding that was installed during the 1984 construction, primarily at the 4th floor unit private balcony/deck areas.

It would be advisable to have an experienced and qualified siding installer completely check the exterior siding and develop a scope of corrective work, various alternatives, a cost/benefit evaluation, and cost estimates for corrective work. It is important to attempt to improve the exterior siding because resultant leakage will cause premature paint failure and increase the risk of other problems.

MASONRY EXTERIOR: Brick exterior siding is qualitatively excellent in terms of its value and appearance, and its maintenance requirements are relatively low.

At the time of the previous inspection (April 2007), Pioneer Masonry performed an extensive rehab of the exterior brick surface and mortar. The quality of the work they did generally does appear to be excellent. (We generally do feel very positive about Pioneer Masonry's work).

The masonry mortar is generally in excellent condition. It would be good to keep the mortar and cracks sealed to minimize moisture infiltration into the wall. It is important that a qualified and experienced mason handle the sealing (repointing) because doing it improperly can cause harm.

Exterior walls are brick masonry bearing walls. In an installation of this type, interior wall finish is installed over wood furring boards that are fastened to the masonry. It is important to keep the exterior in very good condition to minimize moisture infiltration into the masonry wall because infiltration can affect the wood, especially the floor framing where it attaches to the exterior masonry. I did not observe

indications of significant wood frame deterioration as a result of this situation. Also, excessive masonry dampness migrates into the building, creating unnecessary interior dampness. The insulating value of the masonry wall is roughly equivalent to a normal 4-inch wood frame without insulation in a building of similar age.

Exterior masonry walls are relatively rigid; therefore, building movement (i.e., normal thermal expansion and minor settlement) tends to manifest visually as cracking. Conventional wood frame walls with exterior wood siding are flexible and better equipped to accommodate this type of movement without noticeable cracking.

This type of masonry exterior siding is installed with the intention that the outer face of the masonry will absorb some exterior moisture, but will then allow it to evaporate back out to the exterior. For the system to be successful, it needs to be kept well sealed (keep the masonry mortar in reasonably good condition); related aspects (such as flashing) need to be properly installed, and the masonry should not be exposed to large, concentrated quantities of water (i.e., defective/overflowing roof water). Normally, the exterior faces of masonry are not sealed (i.e. painted or coated with a clear masonry sealer) and if this step is done improperly, many technical problems can ensue.

There is some slight spalling of exterior siding surface brick facing, involving lesser quality brick alterations (e.g., east center area at raised built-in planters). There is also some slight efflorescence staining indicative of moisture/water leakage, which does have a deteriorating effect on the brick face (causes spalling). The extent of spalling is not critical, but it is important to minimize its occurrence.

At brick sloped sills and ledges, a coating layer has been installed on the sloped surfaces. This appears to be a very good solution to minimizing maintenance and repair requirements. These surfaces do tend to deteriorate more than the vertical surfaces, and require periodic maintenance (touchup).

At some of the exterior brick wall bottoms, there is sheet metal flashing installed over underlying components (e.g., stucco parging surface, as well as exterior foundation surface waterproofing layers). The flashing does not set back into the brick masonry very much, so any overlying leakage through the brick siding surface would drain down behind, and underneath this flashing, which is counterproductive. Thus, it is important to keep the brick masonry, as well as the sealant connection at the flashing connection into the brick, very well maintained to minimize the risk of leakage. Equally important is to minimize these areas' exposure to clogged and overflowing roof drainage.

At various locations, modifications (1984 rehab) of sheet metal flashing were installed, but the flashing's top edge was not counterflashed back into the exterior brick siding, and the top connection of the metal to the brick siding face has caulking sealant. It is important to keep the caulking in very good condition to minimize leakage, as well as overlying brick mortar, in that significant water infiltration through the brick could cause leakage back into the building interior at the sheet metal flashing locations.

I understand that the building was seismically upgraded to the then-current standards in 1983. Additionally, during the 2006/07 rehab project, soft mortar replaced the more brittle, hard material installed, and steel rods were installed through the brick courses to mitigate any earthquake shaking.

CEMENT STUCCO SIDING SURFACE: I observed that some retrofitted conventional cement stucco parging was installed over some exterior wall surfaces (i.e., 4 feet high at west building areas). The material is similar to brick in that it does need periodic maintenance and repair to minimize water/moisture infiltration through it.

PAINT

EXTERIOR PAINT: Exterior paint requirements are minimal because of the masonry siding. This is excellent from a maintenance standpoint.

The paint is generally in excellent to very good condition. There is some paint deterioration (e.g., upper floor unit private balconies/decks, where there is inherently more weather exposure due to a lack of roof overhang protection, as well as the nature of the exposed wood components).

WINDOWS, PORCHES, AND STAIRS

WINDOWS: The windows (original and 1984 replacements) generally appear to be excellent quality, and in excellent to very good condition. The older/original windows are inherently simpler, and have better wood material quality than newer windows; as such, they are more durable than the replacement windows.

Most of the building's windows are older, double-hung windows that appear to be qualitatively excellent. There has been a rehab effort for these and, in general, the windows appear to be in very good condition.

At upper floor units and other altered areas, the windows are insulated glass and it appears that they were all installed in conjunction with the 1984 rehab.

At the upper floor corner units (units #401, #407, #413, and #415) there is a pair of windows (1984 replacement) that exposed to weather, and vulnerable to component deterioration. I understand some of these have needed repair.

(See Unit Interior section regarding other exterior window points).

EXTERIOR DOORS: Similar to the exterior windows, some of the exterior doors are older, and some are replacement (1984). I understand that some of the unit private balcony/deck exterior doors have replaced.

Some of the exterior doors (e.g., unit #210) do not have a protective roof, so they will require a more than normal amount of maintenance. These types of door should not have been installed at this location due to their weather exposure. Some of the doors are leaking, and they will deteriorate. Given the situation, it will be very difficult to keep the doors sealed to prevent deterioration of the wood. Storm doors or protective roof could be installed, or the existing doors could be replaced with more durable doors (i.e., metal).

PORCHES: The north entry doors have inset exterior porch masonry paving that appears to have been installed over underlying floor and north foundation walls and wood frame. If so, it is very important to minimize water exposure (i.e., keep adjacent roof drainage provisions in very good condition). Adjacent

areas, including the masonry, need to be kept sealed (use a clear masonry sealer), and joints need to be caulked. I did not have access to the underlying space; therefore, I was not able to evaluate this.

INTERCOM BETWEEN UNITS AND EXTERIOR ENTRY DOORS: The exterior east entry door, as well as the west center ramp entry doors, have adjacent intercom boxes that connect to the individual units.

EXTERIOR BASEMENT STAIRS, ACCESS RAMPS, AND RECESSED AREAS: The drains (northeast exterior stairs to garage, west center access ramp) appeared to be adequate for draining normal direct rainfall. The drain and adjacent gutters need to be kept clean so that they do not become clogged and overflow.

(See related points in Site/Yard, Site Drainage section regarding unit private exterior recessed patio areas).

BALCONIES/DECKS AT UPPER FLOOR UNITS

As indicated earlier, fourth floor units do have inset private balconies/decks. I spot checked 3 of these. The following points apply to these balconies/decks.

- The decks have wood duckboard (pallet) installations. At 2 of the 3 unit private balconies/decks we removed one of the pallets to check the membrane. The membrane is conventional single-ply roofing, and appears to be in generally good condition. However, I did observe indications of the need for preventative maintenance and repair.

- I was not able to conclusively evaluate the deck drainage because of the duckboard panel. Ideally, the duckboard panel should have a small access panel directly over the drain in order to easily check and clean the drain.

- Code stipulates that roofs (including this type of deck) have overflow drains that connect into drainlines that are independent of the primary roof drainage system. Typically, the overflow discharge is to "daylight" (out the exterior wall). In my spot checks of the building, I do not recall seeing daylight discharges for the deck overflow drains. It is a high priority to verify that there is a secondary overflow drain, and if not, keeping the primary drain clear becomes very critical. (Also keep in mind that under certain conditions, the overlying asphalt shingle roof plane could discharge large quantities of water over the sheet metal deflector installed and expose the deck to large quantities of water). I understand that the larger upper floor inset balcony (unit #413) has two drains, but others have only one. At one of these latter units, the single drain clogged, resulting in water backing up and overflowing the waterproof membrane, and then leaking into the adjacent building. Note: The 1983 construction plans indicate secondary overflow.

- The building was constructed with roof (deck) drainpipes in framing cavities. This is risky because it significantly increases the likelihood that the drainlines will freeze and become damaged. If this occurred, it would be advisable to pressure test the drainlines to verify that they are not currently damaged or leaking. The deck floors are semi-heated cavity frames that are not

properly vented. Therefore, the freeze/thaw cycle that occurs under certain conditions every 2 - 3 years will cause the drainline to clog (i.e., the sun does not thaw out the drainline, but it does thaw snow/ice in the area the drainline serves, prompting clogs and overflows). This is technically risky; however, the risk can be minimized with proper venting and/or by having a proper roof overflow scupper installed.

- Venting does not appear to have been installed for the wood frame under the balcony floors. This is technically very marginal. Code (current and codes in effect at the time the building was renovated) requires venting at deck/balcony areas that have no overhead roof protection. Venting should be installed to reduce moisture/rot damage from inevitable leakage. It is conceivable that the deck floor wood framing cavities were vented via the adjacent roof frame, but I was not able to verify this (see related points regarding roof framing venting towards the end of the report). Given the conditions, the most practical time to correct this is when the balcony floor membrane is replaced. The situation is potentially critical in terms of damage caused by leakage, so it is very important to monitor the area for leakage. Note: The 1983 construction plan detail indicates ventilation at the decks, but the quality of the detail is fair, and in spot checking I found the existing as-built construction does not conform to the detail.

- Balconies/decks have a ledge with potted plants. Plants can displace and fall down over the edge of the building during various scenarios. Often, Associations have (or should have) restrictions pertaining to this.

- There are low areas in the deck (roof) membrane where water is ponding. This is not good because very minor leaks in the ponded area will allow water to infiltrate the building; therefore, some periodic leakage should be expected. Some single-ply membrane roof manufacturers (i.e., Owens Corning) state that standing water “does not hurt" a modified bitumen material, but their literature also states that "complete, positive drainage slope is desirable." Although ponding water was not prohibited prior to the mid-1990s code change, it is technically very marginal and significantly more conducive to leakage. Current code stipulates a minimum 2% slope to preclude water ponding. It has been our experience that the same material installed with a positive slope is serviceable for up to 2 - 3 times longer than the same material installed flat. When the building deck membrane is replaced, it would be good to reshape the deck floor sheathing planes to minimize/eliminate ponding.

- Single-ply membranes do require a protective glaze coating. It should be applied just after installation and periodically thereafter to protect the membrane surface from degradation. Lack of protective glazing voids the manufacturer’s warranty. At the deck membranes we spot checked, we found no protective coating. It would be appropriate to install these in conjunction with preventative maintenance and repair, as soon as practical.

- I understand that units #408, #210, and #110’s private decks had their membranes replaced in 2006.

It is very important to keep the deck drain inlets clear of debris, and minimize debris on the deck membrane, to minimize the risk of the deck drain clogging and backing up. Clogging and backing up of the deck drainage system substantially increases the risk of leakage. Typically, this would be unit owner

responsibility. I understand the Association's policy is to assign maintenance responsibilities of the unit private balcony/deck drains to their respective unit owners.

BALCONIES/DECKS, UNIT #S 210 AND 110

As indicated earlier, units #210 and #110 have an inset private balcony/deck. I spot checked these balconies/decks.

I understand that units #210 and #110 had their membrane replaced in 2006.

These balconies/decks also have wood pallet flooring (unit owner responsibility). I was not able to evaluate the deck surface drainage within the scope of this inspection (see points above).

Unit #210's balcony/deck sits over unit #110's. Unit #110's balcony/deck sits over the underlying unit #110 interior. Unit #110's ceiling is the underside of the balcony/deck's exposed concrete slab. Therefore, these two balconies/decks would typically have rigid insulation installed between their slabs and waterproof membrane.

CONCRETE BALCONY, SECOND FLOOR, OVER WEST RAMP ENTRY

CONCRETE BALCONY, SECOND FLOOR, OVER WEST RAMP ENTRY: At the second floor, over the exterior west ramp building entry, there is a small concrete cantilevered balcony (constructed 1984). Since the balcony perimeter has an enclosed parapet wall, it is very important to keep the drainage clear to minimize the risk of water backing up and leakage into the building. It is also important to keep the concrete surfaces well sealed (masonry sealer) to minimize moisture infiltration and fungus (latter slight slipping risk on the balcony floor, as well as a visual factor).

GARAGE / BASEMENT

The underground basement garage is a retrofit installation (1984) Its west edge abuts the original building southeast wing, east wall and the garage extends north under the east yard and east circular drive to the north exterior basement/garage stair.

FLOOR, WALLS, AND CEILING (ROOF): The amount of concrete cracking is typical for the age of the building. The cracking appears to be a result of normal concrete shrinkage and is not serious.

(See related points earlier in Site/Yard, Paving section regarding the loads on the garage/basement ceiling concrete structural slab).

FOUNDATION AND ROOF (CEILING) WATER/MOISTURE INFILTRATION: In spot checking, I did not find indications of significant leakage through the garage ceiling/roof or perimeter walls. There is some slight leakage (visible in the form of efflorescence—see related points in Basement section). The extent of leakage in the garage in relatively minor (see related points regarding east vehicle circular drive drain leakage in Yard section).

The garage ceiling (roof) is obviously a large area. I did not observe indications of drainage systems, but there is obviously some form of subsurface drainage system intercepting storm water that infiltrates down through the above exterior yard surface area. It is important to verify what system was installed. Keep in mind that the garage roof area has 10,000 to 15,000 gallons of water exposure during a day's heavy rain.

In spot checking I observed indications of very slight leakage (in the form of efflorescence—see related points below in Basement Foundation Moisture Infiltration section). All of the leakage observed is occurring at the garage (ceiling) structural slab underside, and most at the peripheral areas. These areas include:

- North center, under the circular drive/fountain, which is clearly a result of the quality and condition of the membrane connection where the plumbing piping protrudes through the concrete slab.

- West side, approximately 40 feet from the garage southwest corner, where the garage abuts the adjacent main building exterior wall plane (adjacent to unit #112). I would anticipate this is a result of water/moisture migrating down through the adjacent overlying exterior wall, in behind waterproof membrane flashing, or inconsistencies with the waterproof membrane connection into the adjacent exterior wall. (See related points in Exterior Wall section regarding water/moisture infiltrating behind wall bottom flashing).

- Garage west doors that lead to the connector ("tunnel") passageway.

- I understand there has been some water infiltration at the west wall (approximately 40 feet south of the north wall). At this location, the garage west wall does not abut directly to the adjacent building east exterior wall, and I would anticipate that the leakage is a result of the quality/condition of the membrane where it extends out over and down the earth side of the garage wall top.

- East wall, southeast of the overlying decorative fountain, which I also attribute to the quality and condition of the waterproof membrane, similar to the point made above.

Technically, none of the leakage I observed appears to be critical, and I would anticipate it is all a result of installation quality, and less a result of deterioration of the waterproof membrane. Based on what is visible, I would assess a moderate priority for evaluating and correcting these aspects.

(See related points below in Foundation Infiltration section).

The 1983 construction plans indicate:

- The basement garage waterproof membrane extends over the concrete structural (roof) slab, out over the outer corners of the garage concrete perimeter foundation walls, and then down and out over the foundation footing ledge to the bottom of the footings. Footing drainlines are at the waterproof membrane's outer surface, adjacent to the footings.

- The basement garage's concrete slab roof was to slope ½ inch per foot from the north-south center line to the east and west sides. The ½ inch slope to the foot is qualitatively excellent, and minimizes the risk of leakage, plus would normally extend the serviceable life of the membrane. The exception to this would be if the roof were sloped in this manner where the garage roof slab connects into the building east foundation wall (garage west area, adjacent to unit #112), which would create a horizontal valley, and risk of leakage--unless a two-way slope were installed in the north and south directions (shimmed sloped referred to as "crickets"). Presuming the slope was installed as indicated in construction plans, the configuration generally has an excellent effect on the serviceable life of the waterproof membrane. One strategy would be to extend replacement of the membrane by evaluating and rehabbing more critical areas (such as where there are indications of leakage, and where the garage west edge connects into the building east foundation wall).

- The garage roof structural slab is 9 inches thick, which is relatively thick, and there was to be 4 inches of gravel installed over the top surface waterproof membrane (as a drainage plane), plus 12 inches of soil over the gravel, for a total of 16 inches of thickness (conflicts with other (structural) plan details indicating 12 inches, and my understanding that an actual total of about 18 inches is currently installed).

I reviewed the garage waterproof membrane situation with a building envelope consultant I admire and respect (Paul Lukes; 206.364.5527). We are, of course, limited in our assessment by virtue of not knowing precisely what was installed, but in venturing an educated guess, he would anticipate that:

- The waterproof membrane type is probably (60% probability) hot rubber, though possibly some form of torch-down material.

- Based on the configuration and slope aspect, the serviceable life (presuming proper installation) would be 40+ years.

The construction plans indicate that the garage roof (ceiling) is conventional reinforced concrete. We discussed that <u>if it was a post-tension structural slab system</u>, there would typically be some differential movement that can cause some separation at the connection of the roof to the foundation wall top, which can damage the waterproof membrane. Since most of the leaks are at the outer ceiling connection, this might indicate damage in this manner (<u>if post-tension slab construction</u>). If the garage roof is a post-tension slab system, then it is more critical to minimize leakage, as there is much more risk of structural damage of leakage into post-tension cables than there is with concrete that has conventional reinforcing rods. It is important to verify whether or not the roof was constructed with a post-tension cable structuring system. At the tunnel connection, the leakage might be symptomatic of normal differential movement, causing damage to the waterproof membrane. He concurred that the prudent approach would be to excavate down at leak points to verify what the situation is. He also concurred that the prudent approach would probably be to rehab the membrane at the leak points, thereby deferring the need for replacement. He mentioned there are risks related to attempting to rehab upper perimeter areas where leakage is occurring, in that the leak can occur at one location, travel laterally, and then leak through at another. It was his recommendation (probable prudent approach, depending on the existing condition) to rehab the whole perimeter top edge. Note: The waterproof membrane at the fountain also needs rehab,

and there is also the need for replacement of the overlying east circular pavement. This would should be coordinated and done at the same time.

I understand there was active water leakage down through the garage ceiling, and to remediate it, the overlying earth cover was removed and the leak source identified and corrected. The earth cover was then replaced. The repair costs were relatively small.

FLOOR: The garage floor slopes and drains to the east and south, with a drain at the southeast corner. This is qualitatively fair. Normally, there is more rapid drainage via spaced catch basins in the garage floor.

Because of the garage floor drainage aspect, the garage floor surface needs periodic sealing (i.e., cleaning, caulking, seal joints and cracks, plus masonry deck floor surface seal). This is typically needed every 5 to 15 years depending on area traffic.

VEHICLE DOOR: The door has an automatic opener. In checking the door, I found that the opener does have the auto reverse safety feature in the form of an electric eye and bottom edge pressure sensors.

The garage operator has been set for relatively rapid closure (security step).

GARAGE VENTILATION/EXHAUST FAN: At the south end of the garage the vehicle door intentionally has an open mesh configuration for ventilation. At the garage north end ceiling, there is a large (5-foot diameter) exhaust fan. Even without the fan operating, the configuration of the garage is such that the prevailing south winds and chimney effect of the large fan provide very good cross-ventilation. Normally, garages have automatic switching involving carbon monoxide sensors, but in spot checking I did not locate any of these. The exhaust fan does have a manual push button (at the adjacent north wall).

ELECTRICAL TRANSFORMER, GARAGE NORTHWEST CORNER: (See Electrical section later).

The construction plans indicate an exhaust fan for the transformer vault (1/9 horsepower, 1,000 cubic feet per minute, which is relatively small). In spot checking we did not locate an exhaust for this vent fan. There are vent grilles between the transformer vault in the adjacent garage, and conceivably these were installed in lieu of an exhaust fan. If an exhaust fan were installed, I would anticipate it would be the responsibility of the municipal electrical company. In checking with a municipal electrical employee, he too thought that would be the case.

FIRE SPRINKLER SYSTEM: The garage has a (dry) fire sprinkler system. (See related points later in Fire Sprinkler section).

[CONTINUED ON NEXT PAGE]

BUILDING INTERIOR COMPONENTS AND UTILITIES

BASEMENT, MAIN BUILDING (NOT INCLUDING GARAGE/BASEMENT)

BASEMENT FOUNDATION WATER/MOISTURE INFILTRATION: I understand the main building foundation has not experienced water infiltration.

In my spot checks, I did not observe indications of past basement moisture/water infiltration (via the building's foundation that would indicate chronic subsurface water infiltration problems). Given the site situation, building construction, and condition, if future basement water infiltration occurs, a defective roof drainage system and improper surface drainage will be its probable sources. Both are usually relatively simple to correct. Overwatering adjacent yard areas can also contribute to basement moisture/water infiltration, especially if the property has reverse grade slope (earth that slants towards the building's perimeter).

I also noted some white efflorescence staining at the north utility room and storage rooms at the northeast and east center areas. It is indicative of active masonry moisture infiltration. As water/moisture seeps through the masonry, it dissolves and carries some of the masonry's lime salt as it migrates through the masonry to the face of the building. The water then evaporates, leaving the salt (efflorescence) behind on the masonry surface. This salt can be washed off, but, if it reappears, it is an indication that active leakage is occurring. Once the related aspects are addressed, it would be advisable to remove the efflorescence and monitor the area for its return. In and of itself, efflorescence is not critical over the short term, but should be avoided because it can eventually deteriorate the masonry components. There are typically very significant safety factors surrounding masonry installation that, up to a certain point, are technically and structurally not critical, but it is important not to allow deterioration to continue for a long period of time.

This type of foundation (older brick and conceivably altered concrete at south additions) was not intended to have basement interior finishes; however, finishing would be possible if corrective steps are taken and if the building is properly maintained. This would include proper installation and maintenance of positive grade slope and roof drainage provisions, and proper installation of a sheet plastic vapor barrier on the inside of the foundation vertical wall and on the floor.

"Basement waterproofing" companies provide drainage by excavating basement floors and installing interceptor drainlines. We rarely find that these steps are needed, and they can cause significant long-term harm (i.e., continued water infiltration can erode bearing soil and cause subsequent foundation settlement). Also, these "solutions" do not solve the real problem (i.e., foundation water exposure). Providing proper roof drainage and grade slope away from the building will almost surely correct this property's water infiltration problems. In addition, properly correcting these aspects will address the source of the water, and prove to be significantly less expensive than most "basement waterproofing" techniques.

Some contend that foundation water infiltration is a result of a "high subsurface water table." True subsurface water tables occur at the natural subsurface level of soil saturation, and are usually situated very deep beneath the ground surface. It is extremely doubtful that this property has a "water table" problem. Foundation water infiltration is most often a result of defective drainlines at the perimeter of the

foundation; they expose the foundation to large amounts of concentrated water, and, in turn, cause basement foundation water infiltration. Another common cause is surface water that has drained back into the foundation--usually a result of clogged and overflowing roof drainage systems and/or improper grade slope away from the building. It is also possible for defective underground plumbing supply systems to cause foundation water infiltration, but, if they are the source, it is usually fairly obvious (i.e. there is leakage where the underground water pipe comes in through the foundation or directly adjacent to it, or leakage after using older, defective underground sprinkler systems).

Building foundations of this type are designed with the expectation that they will not be exposed to large amounts of outside water. As a result, positive grade slope and proper roof drainage are very important. If they are properly provided and maintained, the foundation will not be exposed to large amounts of water, and, in turn, will avoid water infiltration.

When large amounts of water drain towards the foundation (as a result of reverse grade slope, defective roof drainage, inappropriate use of spigots, garden hoses and/or sprinkler systems directly adjacent to the building--the latter three usually in conjunction with reverse grade slope), foundation water infiltration usually does occur. Water that drains into the outside surface of the foundation is eventually able to penetrate the foundation and seep into the building. It is virtually impossible, and not economically practical, to seal the foundation perimeter to prevent water from leaking through. "Basement waterproofing" companies sometimes install interceptor drains (i.e., rocks and drainlines), but this does not solve the real problem or properly address the situation. When the outside perimeter is exposed to large amounts of water, the water typically drains down the outside face of the foundation, hits the outside footing ledge, travels in laterally through normal cracks in the concrete foundation perimeter, and moves up through the floor slab. Foundation cracks and voids are normal, and it is neither practical nor the proper approach to attempt to seal them.

Exterior perimeter "footing" drainlines are also occasionally installed, but they are usually ineffective and impractical to purchase with the expectation that they will prevent water infiltration. Because footing drainlines constructed for standard residential properties are typically installed at the bottom edge of the footing, the water that runs down the outside face of the building's foundation hits the footing ledge and drains in through normal foundation cracks before reaching the footing drainline. Furthermore, footing drainlines are typically set in stone, so water can flow and pool beneath the lines, then leak laterally into the building. In short, interceptor rocks and drainlines can be installed, but they are not economically realistic or appropriate solutions for most situations. As both a preventative step and a remedy for water infiltration, the building should simply be maintained properly with regard to positive grade slope and roof drainage.

The 1983 construction plans indicate a new (1984 construction) 6-inch perforated pipe extending along the west side of the north entry and north stairwell, then turning west along the north side of the building to the northwest corner, where it returns south along the first floor west units, connecting into a drainline at the southwest corner of the north section (north of the west entry walkway). Perforated drainline material is normally intended to serve as a foundation footing drainline to intercept water seeping through the soil. A 6-inch diameter pipe is qualitatively excellent. (See related points elsewhere regarding surface drainage at these areas, including reverse grade slope, as well as drainage for the first floor west unit private patio areas).

Older brick foundations are not as dense as concrete foundations, so moisture vapor tends to migrate through brickwork, increasing the potential for water infiltration and dampness. Areas adjacent to such brick foundations were not normally intended to be used as finished spaces. (Basements were commonly earth and stone when this building was constructed, and they were very damp. A relatively dry foundation of this type would have been considered a luxury). In addition, buildings were not originally as "tight" as they are today (i.e., asphalt shingle roofing, attic insulation, energy conservation emphasis, etc.), so moisture migrating in through their foundations was able to evaporate back out more easily. It is extremely important to keep the roof drainage system well maintained so that the area adjacent to the foundation will not be exposed to roof water. The ground slope adjacent to the foundation needs to be very good so that surface water drains away from the building completely. Excellent quality roof venting should be installed/maintained, and other venting provisions made (e.g. for bathrooms, clothes dryers, etc.).

Some areas of the basement areas are exposed to dampness. Thus, they require high quality heating and mechanical ventilation systems. There are currently various forms of heating and ventilation in the basement, but they do not properly serve all areas. Ideally, heating and ventilation aspects should be evaluated and upgraded as appropriate.

Since the unit storage areas (e.g., basement northeast corner and east center) are exposed to some dampness, they require heating and/or ventilation. The situation should be monitored and if moisture occurs, install more venting and/or heating. Chain link individual unit partitioning is excellent in terms of optimizing air circulation/vent flow; to maintain the passageways, minimize blocking of the chain mesh. The individual unit storage cubicles have plywood partitions and doors with chicken wire mesh set on top. Plywood partitions are not ideal in terms of ventilation, but somewhat beneficial in terms of visual security. Given the configuration of the building, it is clear that these unit storage spaces were originally intended for items that would not be damaged by moisture.

There are operating dehumidifier units at the basement north center, plus storage rooms at the northeast and east center areas. As indicated earlier, there was efflorescence staining on the surface of the brick foundation perimeters. This is symptomatic of a combination of: inadequate heating and ventilation, plus most probably, unnecessary exterior water and moisture exposure to adjacent areas (roof and reverse grade slope aspects).

(See related points Garage/Basement section regarding foundation water infiltration at the garage).

FOUNDATION WALL STRUCTURE: In getting limited glimpses of the visible foundation, the building appears to have brick foundation walls at the original center and north additions, and concrete at the south addition, as well as the east subsurface garage (1984) addition. Based on spot checking limited areas, I did not observe serious problems or serious cracking. The cracking I did observe appears to be normal and typical for a foundation of this age, and I anticipate that the foundation can adequately support the existing building and normal loads.

FLOOR: The concrete cracking is typical for a floor of this age. It appears to be a result of normal concrete shrinkage and is not serious. Basement floors are usually installed with a general slope for drainage.

Construction plans indicate (and we observed at 2 units spot checked) that at the first floor south and west units, wood framed floor sections were constructed (1984) about 1 ½ feet above the pre-existing concrete slab. The plans indicate these enclosed spaces were to be "vented where required by code". Venting is normally not required with wood frame constructed over (dry) concrete slabs. In spot checking I observed no indication of venting for these spaces. The spaces are vulnerable to water/moisture infiltration, in terms of deterioration of wood and other components. This vulnerability is increased due to risk of foundation moisture infiltration, especially at the brick foundation areas, and where there is reverse grade slope into the building (see related points in Basement section). I understand there have been no known problems in this regard, other than at unit #112, where there was wood deterioration at the floor framing due to exterior wall (door/window) leakage.

DRAINAGE: I do not recall seeing basement floor drains, plus we had limited access. Presumably there are floor drains, but this needs to be evaluated.

Also, I was not able to spot check sufficient amounts of the basement floor area to determine if the floors have positive slope into floor drains. Ideally, slab on grade floors should be installed with a general slope for drainage so that when the floor is exposed to large amounts of water, it will drain before it accumulates and causes associated damage to contents or building components. There should also be a drain at plumbing utility areas. Slab on grade floors like this one are commonly installed level, with no drain; instead, exterior doors serve as their drainage points. If the floors do not slope or have adequate floor drains, and when (sooner or later) basement flooding occurs (plumbing leakage, foundation water infiltration) water on the floor surface (from lack of slope/drains) soaks up into components, causing damage. If this occurs, it is very important to quickly dry out the components and spaces to minimize the risk of fungus (typically starts to develop 48 hours after water exposure).

The basement floor drain needs to be tested (periodically) to verify that it is not clogged (test by running water into the drain for a few minutes).

<u>All basements are eventually exposed to large amounts of water, so it is a good practice not to store items on the floor</u>.

I did not determine if there are basement floor sump pumps, and I understand there are none.

CEILING FINISHES: There is a code requirement that each floor plane be sealed to minimize the risk and rate of fire and smoke migrating from one floor up to the next. In spot checking I did observe some openings in these finishes (e.g., basement north utility room).

In spot checking, I observed (e.g., basement north center utility room) that the ceiling and wall finish is an older wood lath and plaster system. Systems of this type/age have typically reached the point that they are very brittle and prone to looseness and cracking. It is usually not practical to attempt to rehab them. The existing system would usually be replaced with a new gypsum wallboard installation.

MAIN BUILDING SYSTEMS AND COMPONENTS

MECHANICAL SYSTEM, BUILDING

It would be appropriate to have a mechanical contractor review the mechanical system layouts and label all mechanical components, valves, controls, and switches, provide a maintenance-and-operating SOP, and, as appropriate, provide layout diagrams for future reference.

Normally with a building of this size and configuration, there would be fire pressure fans (e.g., stairwells). These apparently were not installed, and I would anticipate the requirement was waived to accommodate the rehab of a historic building.

There are not much in the way of vent fans to exhaust moisture, dampness, or odors at various common spaces, and at various locations the venting and/or heating is marginal—in some instances, nonexistent. Normally, it is important to have ventilation, especially in older buildings that are vulnerable to moisture infiltration (e.g., brick foundation systems) and/or to compensate with very good installation, plus maintenance and repair of related aspects (e.g., exterior reverse grade slope back into the building).

FIRE DETECTION, ALARM, SPRINKLER AND HOSE SYSTEM, BUILDING

FIRE DETECTION, ALARM, SPRINKLER AND HOSE SYSTEM: The building does have a commercial fire detection and alarm system, plus a partial fire sprinkler system. We do not evaluate or test these systems. They do require fairly stringent construction design and municipal approvals. They also require periodic servicing and municipal inspections. It is important to review the original approvals and periodic inspections/approvals with the municipal building/fire department. Note also that owners usually contract a fire sprinkler service company to service the system. It would be advisable to review the status of the fire sprinkler system and develop a scope, costs, and priorities for future work.

The fire sprinkler mechanical equipment is in the basement north utility room.

The garage has a fire sprinkler system, and I understand some of the roof framing spaces do as well (upper floor north 3 units, #401, 402, and 415). I understand and observed there is no fire sprinkler system at other common areas, or in the units themselves.

At the basement north center utility room, there is a pressure pump for a fire sprinkler and hose piping system, as well as an air compressor for (dry) fire sprinkler system supply piping.

There are fire hose standpipes in the two stairwells, as well as cabinets with fire hoses in corridors.

I understand within the units the smoke detectors and their alarms are not connected into the building common alarm system, but the building common fire detection system is connected to an alarm in each of the units. Therefore, a fire in the building common areas would activate alarms in the units. However, a fire in the units themselves would not activate the common alarms, or alarms in other units (until the fire had spread into adjacent common areas).

ELEVATOR

ELEVATOR: The elevator is hydraulic and manufactured by Dover. The elevator equipment is located in the mechanical closet adjacent to the lower floor northeast storage room. The elevator cab label rating is: 16 passengers; and 2,500-pound capacity. The cab is 4+ feet x 6+ feet.

Elevators normally require annual municipal permits and inspections. It is important to verify that these have been obtained; if not, this needs to be done.

ELECTRICAL SYSTEM, BUILDING

The (1983) construction plans indicate the electrical power supply entering at the property's north side, into the garage northwest corner electrical vault, and from there extending to the first floor south center electrical panel and meter room. From there, the electrical supply is distributed to the respective, floors, units, and common areas.

Most of the electrical wiring was covered, plus I had limited access to it, but in getting a glimpse of the building, I would clearly anticipate that the building electrical system was totally replaced (1984); this is important to verify.

TRANSFORMER VAULT ACCESS: The electrical transformer vault door was locked and we did not have access to it (electrical utility companies typically retain the keys to such areas and do not give them to building owners, despite the area being within the building).

VOLTAGE: The building's electrical service is provided by a four-wire system, which typically has a three phase voltage configuration of 480/240/120 (120 volts for conventional lighting and appliances; 240 volts for heavy-duty appliances such as oven/range, water heater, clothes dryer, and combinations of 208, 277 and 408-volt three pole configurations for extra-heavy-duty installations such as elevators and, where installed, commercial heating, ventilation, and air-conditioning systems).

PANELS AND WIRING: In spot checking the lower first floor electrical meter and panel room, I do recall seeing what appeared to be a current transformer box. At the meter panel room west side, there are distribution panels that supply unit meters and the main electrical shutoffs for the units (9 at the north and 40 at the south, for a total of 49 units). There is also a large "house" electrical panel serving common area electrical components.

The larger electrical panels have fuses. Fuses are typically functionally better than circuit breakers for larger main electrical panels, though for smaller panels and circuits, circuit breakers are considered to be safer. Though both can fail, fuse panels have a lower probability of doing so due to their over-current protection mechanisms. In addition, the claim that fuses are an antiquated technology is a misnomer. They are, in fact, almost always used in large commercial installations. A circuit breaker's main advantage is that it is safer and more convenient to reset a circuit breaker lever than to install a new fuse

when a circuit overloads and trips. If systems are properly installed and maintained, however, the over-current devices should not trip off.

Circuit breakers are mechanical devices that need to be intentionally tripped periodically to keep them functioning properly. Once a month would be ideal, but once a year is probably more realistic (most circuit breakers never receive this type of preventive maintenance).

Because the main shutoff for the unit distribution panels is at the building's electric utility meter room, it is fully accessible to anyone with access to this area. This poses a security risk (i.e., someone could maliciously shut off the power), but the configuration is common for a multi-unit building such as this.

Electrical codes typically stipulate that unit owners and occupants have access to main electrical panel shutoffs. I understand that the Condominium Association Board has decided to limit access to the main electrical panel rooms. Since the main shutoffs for the units are typically in this room.

GROUND FAULT INTERRUPTERS (GFI): A GFI is an electronic safety device that is intended to shut off very quickly should problems develop (i.e., a plugged-in hair dryer dropped into a water-filled bathtub). Current code generally requires GFI outlets at wet locations in residential buildings, such as at the exteriors next to the site grade (outlets installed after 1971); bathrooms (outlets installed after 1975); garages (outlets installed after 1978); kitchens, within 6 feet of the sink (outlets installed after 1986); swimming pools and waterfront areas. Keep in mind that it typically takes 1 - 7 years for codes to be implemented and take effect in local jurisdictions; therefore, the effective governing dates are usually later than those stated here. I spot checked for GFI outlets. Like circuit breakers, GFI outlet mechanical components need to be tripped periodically (manufacturers recommend once each month).

It was beyond the scope of this inspection/consultation to test GFI outlets.

The GFI outlets are older devices and it would be an appropriate preventative step to replace them.

WIRING: At my previous inspection (April 2007) I found copper branch wire, with aluminum wire for larger service lines during my spot check of the unit service subpanel. I would anticipate similar wiring for the building. An installation of this type is common and normally does not cause any problems. I found that the building's electrical wiring (conductors) system consists of metal conduit tubing, where wiring has been pulled through tubing, which is a qualitatively excellent wiring method in terms of protection and other factors (for example, replacement wires can be pulled through the tubing).

WIRING DEFECTS: At my previous inspection (April 2007) I spot checked some of the unit-based electrical system and observed defects/code violations, which unfortunately is common, and mainly due to alterations done by unit owners.

I would anticipate there are electrical defects with common areas as well. It would be appropriate to have a qualified, experienced, and licensed electrical contractor check the complete system, and correct defects that may be observed. In addition to evaluating the common area electrical systems, ideally individual unit systems will be reviewed as well. Electrical defects are obviously potential safety hazards, and correcting them is essential.

PLUMBING SYSTEM, BUILDING

Due to limited access to individual units, and the fact that most of the plumbing lines were covered, I was not able to make a conclusive check of the building plumbing supply and drainline systems. I would anticipate that the plumbing system within the building was replaced in conjunction with the 1984 rehab.

PLUMBING SUPPLY AND WASTE/VENT LINES: Most of the plumbing lines are covered, but based on my spot checks, I would anticipate that the supply lines are copper, and that the drainline/vent system is cast iron (in part for noise reduction) and plastic. In my spot checks of the system, I did not observe indications of active leakage of the lines.

At the basement north center utility room, I did observe an older sewer pipe that was terminated, and not capped off. The sewer line probably was deactivated. However, as a preventative step, it would be appropriate to cap it off.

As a preventative step, it would also be prudent to have the storm and roof drainlines plus sewer lines surveyed with a remote videoscope camera every 5 to 10 years or if a problem is encountered. I understand the underground side sewer lines are mostly new (1984 construction), and the sewer lines have had a fiber optic videoscope inspection done recently (2011, by Merit Mechanical) and it was found that the side sewer lines were clear.

A reputable, qualified, and experienced sewer firm or a professional licensed plumber who specializes in drainline installation should periodically (typically, every 5 years) clean out (rout and flush) older buildings' sewer lines.

SERVICE LINES AND METERS: In spot checking I found water meter box access as follows:

- North street, 8 feet east of the north stair section. We opened the lid, and observed that the service system has been deactivated, with piping capped off, and the meter removed;
- North street, 8 feet west of the north stair section, a water service (manhole) clearly serving the building fire sprinkler and hose system. We observed large (3-inch diameter?) underground water supply piping;
- West street north end (in street), a 6-inch diameter cast iron cover plate for water shutoff.
- West street sidewalk (due west of unit #104), a water service box. There are two municipal water meters installed adjacent to one another mid-block on the west side, one of which controls the property's irrigation system. I understand water billing is based on the primary meter reading; for sewer billing, the irrigation meter reading is subtracted from the primary meter reading.

The municipal water department indicated that the domestic at west center meter is #0463095, which we verified, and the fire meter at the north is #05022069, which we were not able to verify.

The normal life expectancy of larger underground water service lines, such as that installed, is generally about 50 years. A 40-year life expectancy applies to other underground service lines (e.g., those serving yard sprinkler systems, yard spigots, decorative pools) and to plumbing supply lines that are routed under concrete floor slabs.

I would anticipate the underground plumbing supply lines from the property line to the building were replaced with smooth-wall plumbing supply piping (e.g., copper or plastic) during the 1984 construction. The municipal water department indicated that there is a 2-inch galvanized domestic water supply at their street meter. Galvanized supply piping interiors do deteriorate with rust and corrosion, which increases friction, thereby reducing waterflow. If this is significant, the municipality will sometimes replace these lines.

MAIN WATER SUPPLY SHUTOFF VALVE: There is usually a shutoff valve at the street water meter (it requires a wrench or special tool to operate, which municipal water departments and most plumbers have for emergencies). There typically is a shutoff valve at the basement foundation wall where the main water supply line enters the building (we did not have access to verify the location). At my previous inspection (April 2007), it was mentioned that the Association Board policy is not to allow access to this area; this is somewhat risky in terms of if the whole building's water supply system needs to be turned off in an emergency. Occupants should be aware of the valve's location and know how to operate it in a plumbing emergency. Valves deteriorate with age, so they need to be checked periodically. (Be sure to turn off the water heater's electrical power/fuel supply before shutting off the main water supply and/or valve in front of the water heater).

I understand it was discovered that at unit #104 there was a main domestic water supply shutoff valve.

At the basement north utility room there is a large domestic water supply line coming into the room from the south interior, with a shutoff valve in the room before the supply piping continues into the building. The normal ramification of this is that there is supply piping entering this room from elsewhere in the building (unit #104?). Normally, the interior shutoffs are located at the inside surface of building foundations so that the entire plumbing supply system from within the building can be shut off. Without this, there is some vulnerability to leakage in terms of where it enters the building, and the shutoff valve in the basement north utility room. It would be appropriate to verify the routing and location of domestic water supply shutoff valves.

There typically are domestic water supply shutoffs at the individual units (typically at the water heaters). (See Unit Interior, Plumbing section).

WATER PRESSURE AND FLOW: In testing and spot checking (yard spigot north of building), I found the water pressure was 62 psi static (the normal range is 40 - 80 psi).

After calling the municipal water department, we found that the street domestic water pressure (from the west side of the property, W Galer St.) was 65 psi static (the normal range is 40 - 80 psi).

With the municipal street pressure of 65 psi, there is a static pressure loss of 0.433 psi per vertical foot. So at the 4th floor plumbing fixtures, the resultant static pressure would be about 50 psi, which is within normal ranges.

We contacted the municipal water department, and found they upgraded the water supply system, increasing water pressure in this area (completed 2008). Previously, the domestic west street pressure was 40 to 45 psi (therefore, at the 4th floor, the static pressure would have been 25 to 30 psi, which is low, and typically results in low waterflow without booster pumps.

I would anticipate that waterflow reduction during the use of multiple plumbing fixtures would be negligible, relative to the age of the building. This is excellent and reflects the new (1984 rehab) plumbing lines installed.

The building has a pair of water pressure booster pumps (basement north utility room) because this area of Queen Anne previously had relatively low water pressure. When water pressure booster pumps are installed, there are typically two—one is the primary and the second is an emergency backup. I understand that a couple of years ago, during a malfunctioning of the booster pumps, it was found there was sufficient water pressure, and the booster pumps are no longer being used, with the water supply bypassing them. Having the booster pumps is now somewhat paradoxical. It would be good to have a qualified and experienced mechanical engineer evaluate the need for booster pumps, and may also be appropriate to remove them (sell system components) as opposed to keeping them maintained.

HEATING SYSTEM, BUILDING

ELECTRIC HEAT: Electric resistance type baseboard and wall heaters are installed in various common areas. It is important to keep flammable items clear of the heaters to prevent fire hazards. Electric heaters do need periodic servicing (cleaning of components [make sure power is disconnected before doing so], replacement of component parts, such as heating elements, thermostat controls, and other electrical parts). It is important to keep flammable items clear of the heaters to prevent fire hazards.

Electric wall heaters with small fans that circulate heat into the room have been installed. They are relatively new and have not established a "track record" for an estimated serviceable life, but I suspect that they will probably be serviceable for around 30 to 40 years. It is normally relatively simple to repair/replace these types of systems and components. Electric heaters do need periodic servicing (e.g., cleaning, some component replacement).

In spot checking I observed no heating in the north stairwell (or southwest stairwell?). This is qualitatively fair. While they are not occupied spaces, it is still appropriate to heat them to minimize dampness.

COMMON ROOMS AND OTHER INTERIOR SPACES

FINISHES: Interior finishes generally are in excellent to very good condition.

Some cracking at the walls and ceilings is inevitable and common in a building with this ceiling configuration and type. The ceiling planes run for long spans with no breaks (i.e., header walls above door openings), which basically means that the area has no expansion joint; therefore, normal building

movement (thermal and moisture expansion/ contraction) creates some cracking. Recurring cracking is to be expected. Note also that cracks in light colored finishes, are more visible. Using a professional quality caulk/spackle on the joint can minimize the cracking. Installing an expansion joint track/trim over the cracking will also help. Proper building ventilation (especially roof venting) is very important in minimizing cracking, as well as leakage into the building. I spot checked the framing in the roof ceiling space and found no indication of structural defects.

There will be significant and unnecessary heat buildup in the rooms directly under roof areas during the summer, most of which will be caused by inadequate roof framing venting. Heat buildup can be reduced by improving roof framing venting (see roof framing ventilation discussion).

SKYLIGHTS: The roof skylight wells are exposed to solar heat, resulting in thermal and moisture expansion and contraction, plus inherent differential movement from moisture expansion/contraction of the adjacent roof planes. As a result, the skylight well liner experiences more cracking than other interior gypsum wallboard finishes. In spot checking I did find this to be the case in this building. It is not technically critical, but mainly a visual factor. The cracking can be reduced, in part, with very good roof ventilation. Additionally, more durable finish material can be installed (e.g., painted panel finish other than gypsum wallboard). However, one drawback to these alternative, more durable finish components is that they experience more thermal expansion and contraction noise (snap, crackle, and pop) than does gypsum wallboard.

MAILBOXES: As indicated earlier, there are mailboxes on the second floor, south of the east front entry.

EXERCISE EQUIPMENT: At the north room over the stairs, there are various pieces of exercise equipment, which I understand belong to individual unit owners.

BUILDING FRAMING SPACES

ROOF FRAMING SPACE

We had limited access to two roof framing spaces previously (April 2007), and during my recent inspection, I also had limited access to some roof framing spaces. In observing these and evaluating the roof framing, I found the following.

ROOF STRUCTURE: The visible roof framing is conventional wood rafter framing.

VENTILATION: Roof vents are inadequate and are not in compliance with code requirements. In doing quick, rough, calculations for the whole building, I found that the installed vents provide about 75% overall of what current code requires. Note also that the distribution is poor; that is, the balance of venting between upper and lower roof spaces is not good (based on what I was able to observe, it appears that less than 5% of the venting provided is in the upper peak areas, and ideally it should be 50%). Furthermore, the amount of venting required by code is technically minimal. It is very important to have a vent calculation done and install additional vents to correct this discrepancy. We have found that continuous ridge vents are very effective and are relatively economical to install (usually around a 2-year payback period). Roof framing needs to have good screened vents to dissipate hot air and moisture

buildup. Without proper venting, temperature buildup could reach 130°, radiate into the building, and cause the roof cover to deteriorate prematurely. Normal building moisture could also build up and greatly reduce the thermal effectiveness of the installed insulation, and, as a result, very minor roof leaks could cause some problems.

At the roof areas just above the exterior balconies/decks there are prefabricated metal vent strips. One of the fundamental problems with the roof venting is that the prefabricated metal vent strips installed have a very negligible net venting. Replacing the existing punch sheet metal strips with a ¼" screen would provide the roof with 5 times its current net venting. If all of the vent strips over private unit balconies/decks were upgraded with a full screen mesh, it would increase the total roof venting about 5% to 10% but there would still be the balance issue.

In doing a quick, rough calculation, I found that if complete, continuous ridge vents were installed at all of the roof ridges (including the existing vents), the total roof venting would be about 1.1 times minimum code which would be qualitatively good. However, the balance aspect would then be about 25% at the roof peaks. Also, installation of the ridge vents improves the distribution for more complete through-venting, and this significantly improves the effectiveness of the roof-venting system.

Given that the upper asphalt shingle roof area is so large, a special and extraordinary design and installation was needed and it is obvious that this was not done.

Building code requires that roof venting be improved to comply with codes in effect at the time of re-roofing. This was not done at the most recent re-roofing.

The attic space was extremely hot and humid at the time of our 2007 inspection, which is largely due to the improper roof framing venting (and possibly improper vent fan duct discharge into roof framing space—see related points elsewhere).

The original roof cover installation did not include a liner, and the small gaps between its attached segments suggest the roof and building were probably originally self-ventilating. With newer roofing techniques (i.e., asphalt shingles and asphalt paper underlayment), the roof surface itself does not ventilate. More importantly, there was probably no insulation in the building originally, so air circulation under the roof was often better. Newer building construction tends to be tighter, and people today tend to generate more moisture within the building (increased use of showers and laundry equipment; use of appliances such as dishwashers, etc.). Because of this, ventilation openings for the roof are more important than they were in the past, and they need to be upgraded periodically.

When roofs are not properly vented, a roof ice dam may form during freezing weather. Since air temperature in the roof framing space is not balanced, ice develops along its bottom edges when snow starts to melt. This creates a dam that causes water runoff to back up underneath roof cover joints and leak down into the building. Ice dams can usually be avoided if proper venting provisions are installed in the roof framing space.

Moisture that leaks into the building or is generated within the building (i.e., interior plants, cooking, shower/bathroom, foundation moisture, etc.) migrates up through the ceiling in the form of water vapor. When roof framing spaces are not properly vented, moisture accumulates, hits the cold roof underside and

condenses back to water. This water normally accumulates in the insulation and causes it to deteriorate. Then, after a certain point, the water drips back down through the ceiling and out the roof edge. It is important to improve the building venting to keep interior moisture to a minimum. In spot checking, I observed no indications of significant problems with roof framing deterioration, but it is important that all existing roof layers be removed at re-roofing so the roof framing can be checked. Based on my observations, the cost to correct any roof framing damage that may be found should be incidental to the cost of re-roofing.

Minimum code stipulates a net venting of 1 square foot per 150 square feet of horizontal roof surface. If 50% of this is installed at the upper half and the other 50% at the lower half, the amount of venting can be reduced to 1 square foot per 300 square feet of horizontal roof surface. When asphalt composition shingles are installed, manufacturer's instructions and code normally require a minimum of 1 square foot per 150 square feet of horizontal roof surface. Minimum code is minimal (D) quality, and we have found that the amount of venting required by code plus 50% produces a very good quality system (we advise the upgrade). A roofer/vent installer needs to measure the building, do vent calculations, determine the type of vents to use to comply with minimum code requirements, and install them. If desired, venting can go beyond minimum code requirements (i.e., 1.5 times for very good quality).

There are numerous types of vent piece installations and custom screen type vents. Net ventilation amounts are stamped on standard vent pieces. The net venting of screening typically is 70% of the gross screened vent area. Ridge vents typically provide .125 net square feet per linear foot, and roof jack vents (small box vents that go on roof surfaces) typically provide .4 square feet each. Typically, 2-inch continuous screen venting provides .1 square feet net venting. We feel very positive about ridge vents because they are very easy to install, and they provide very effective venting. It is better to have roof overhang eave screened venting, but this is a little more difficult and costly to do, and it may not be practical (however, it would still be a good idea to obtain an eave screened venting estimate from a contractor). Visually, roof jacks are questionable, so it is best to install them on the back side of the building.

Current code requires a 1” minimum clearance between roof sheathing boards and the insulation layer (for proper through ventilation) and a 1” minimum clearance between roof sheathing boards and the through-vent area, where there may be framing blocking. But given the size of the roof, 1 inch is clearly a minimum and it needs more like 2 inches. It is important to check for adequate clearance during the next re-roofing, when insulation is upgraded and/or the existing roof cover is removed.

Our quick, rough roof vent calculations are based on what is visible, and presume there is proper roof frame cavity through-vent capacity which, unfortunately, is not always present. It would be appropriate, in conjunction with the next reroofing, to evaluate the framing cavity through-vent capacity to make sure it is adequate. If it is not, the discrepancy is often relatively simple to correct during reroofing.

INSULATION: In getting a glimpse of limited areas of the roof framing space, I found that there are approximately 10 inches (about R-30) of Fiberglas insulation, which is more than adequate (excellent). This was typically required by code in new construction from the early to mid 1980s.

VAPOR BARRIER AT INSULATION: In this geographical region it is a standard construction practice not to install vapor barriers (e.g., sheet plastic) in the roof framing (between finish material and

insulation--similar to what is installed in exterior walls). In this inherently damp climate, it is technically better not to install a vapor barrier in the roof framing because the absence of a barrier allows moisture (and leaking water) to dissipate freely out through the interior finish, into the insulation, and up into the roof framing space. In addition, if water were to leak through the insulation, this configuration would allow it to run freely down into the building's finish materials, thus providing a visible, obvious alert to roof framing leakage problems. Conversely, where vapor barriers are installed, leakage at the roof frame can accumulate on top of the vapor barrier and soak into the roof framing, causing relatively rapid wood deterioration. Also, the vapor barrier can direct water down into the wall cavity, which can, in turn, cause deterioration of the wood framing and other components (see points below regarding roof ventilation and points at the end of the report regarding leakage and the wood deterioration process).

UNDER-FLOOR AREA CRAWL SPACE, NONE

No crawl space was located. I would anticipate that there are none, but it is important to verify this because if the building does have underfloor crawl spaces, keep in mind that they are inherently problematic and need to be carefully evaluated and maintained.

As discussed elsewhere, at 1st floor units there are 1 ½ feet high raised wood floors installed over a concrete slab on grade. The spaces in between would typically be inaccessible and so, by code, would not require access.

GENERAL COMMENTS

We do not evaluate buildings with regard to the Americans with Disabilities Act (ADA) due to its lack of specific criteria and surrounding political and legal implications. This act mandates accessibility to commercial and public buildings for people with disabilities. Building codes, laws, and ordinances for buildings are normally very specific and provide factual criteria (e.g., stairs may have to a 3/8-inch deviation). However, the ADA's requirements have not been specifically mandated, and represent a new form of legislation (i.e., the public and the legal system, not than the government wrote it and its enforcement procedures). If you wish to have this evaluation done, we could help coordinate the effort, and review the findings as they relate to the building's construction. There are some legal and liability issues surrounding the ADA, so it is important for you to be aware of the building's status.

I understand 1983 ADA requirements stipulate that one unit per each 25 be configured appropriately to comply with ADA standards. In this building, I also understand units 215 and 315 meet these requirements. Likewise, one parking space per 25 units must also be designated as ADA-accessible. For this property, 3 of 73 spaces comply with this requirement.

The scope of this inspection involved performing random visual spot checks of a representative number of components to develop an assessment of the general condition of the building. Additional defects would probably surface during a comprehensive evaluation of specific systems because it would involve opening up components and checking items that are normally covered with finish materials. However, we feel that what we are able to ascertain during our evaluation process is representative of other

conditions that exist throughout the building, and our findings provide a general indication of what to expect from items we were not able to check directly.

SYSTEMS NOT CHECKED: Practicalities prohibit us from checking or testing: communication and computer systems, and their wiring; intercoms; security/alarm systems; specialty systems, including built-in vacuum and sprinkler systems; appliances; trash compactors; smoke detectors; pools/pool equipment; hot tubs/whirlpool equipment; saunas; steam-generating equipment; elevators; dumbwaiters; heat pumps; furnace heat exchangers; electronic air cleaners; air conditioning systems; gas space heaters; propane gas systems; gas fireplace accessories; solar systems; phone systems; and insulation in walls. We also do not check lighting adequacy. We do not check private water supply or sewage disposal systems, nor do we check to determine whether a property is served by private or municipal systems.

This general inspection does not include environmental testing of building materials that may be potential health hazards or concerns (i.e., asbestos, urea formaldehyde insulation, radon, lead components, contaminated site fill soil, electromagnetic fields, mold, air quality), nor does it include testing drinking water. We also do not check for Underground Storage Tanks (UST's). Some testing firms specialize in these services, and their fees generally run from $75 - $500, depending on the type and number of tests performed.

This general inspection is not a safety inspection. Personal safety aspects may be mentioned in the report, but they are neither exhaustive nor fully detailed.

This general inspection is also not a conventional pest inspection (as performed by a pest inspection/service company). A conventional pest inspection typically addresses wood rot and various pests, including rodents and wood-boring insects. We mention these and similar aspects, but our findings are not comprehensive.

It is not practical for us to check acoustical noise level transmissions between units. Acoustical engineers can test for code-stipulated maximum transmission levels.

STRUCTURE: The structural system above the foundation is masonry exterior bearing wall, as well as some interior masonry bearing walls, and wood frame floors and roof framing. In reviewing the construction plans and observing the installation, I noted indications that the older sections, as well as fourth floor loft alterations, had floors constructed with wood framing, and at the south addition, there are concrete structural slab floors. Deflection and sag appear to be normal and typical for a building of this age and are not serious. Wood does sag with age.

Some of the unevenness in the floor is a result of construction tolerances for the quality of the building and wood shrinkage and framing consolidation that occur immediately following construction. Their effects are common for a building of this age and the unevenness is not structurally critical. Other contributing factors include: wood framing deflection (sagging/stretching of the wood fibers over time); differential framing configuration; differential foundation displacement; and modifications/additions made to the framing since the building's original construction.

Structural framing (steel, wood, and concrete) experiences continual incremental deflection/sag over time as the component materials stretch slightly (i.e., 1/16 inch over 5 - 10 years). This usually is not

detrimental and is simple to address (i.e., resultant finish cracking can be infilled during repainting, doors/windows can be adjusted to improve operation, etc.).

STRUCTURAL LATERAL BRACING AND ANCHORAGE: The (1983) construction plans indicate lateral bracing and anchorage retrofit, and I did observe some limited indications of these aspects.

There is a significant "luck factor" surrounding earthquakes and their effect on buildings (i.e., direction of earthquake relative to the building, force of earthquake, frequency of earthquake waves relative to the configuration of the building's structuring). Even current standards are not intended to prevent damage to buildings that are exposed to large earthquakes, and the state of the art is such that even new buildings subjected to moderate earthquakes will experience some damage. A moderate earthquake typically causes glass breakage and finish cracking (and possible damage to older masonry).

The majority of building failures in the recent California earthquakes (Los Angeles and San Francisco) occurred because the buildings had very little lateral bracing. I read recently that, in dollars, the amount of damage to buildings in the areas affected by the most recent Los Angeles earthquake was relatively small in comparison to the total value of all buildings in these areas. In addition, there have been an estimated 1,000 fatalities in buildings due to earthquakes in the last 100 years. Statistically, this is very low (i.e., 10 per year), especially in light of fatalities caused by other disasters (e.g. fires, etc.).

At unit 401, lower level northwest roof framing space, there are a series of metal angle irons installed between the exterior wall/bottom roof framing and the floor plane. Also, the building exterior has retrofit metal anchor disk plates that are installed in conjunction with retrofit anchorage. It is clear that the building was evaluated and upgraded with regard to lateral bracing and anchorage.

We normally attempt to provide an assessment with regard to the building's lateral bracing and anchorage. However, most of the structural framing, including critical components, are not visible and I had very limited access to interior areas; therefore, I was not able to do this.

Earthquake insurance tends to be relatively expensive and has a relatively high deductible. Hence, while it can be important, it often is not economically ideal. Before incurring the expense (and risk) of earthquake insurance, another form of "insurance" would be to have a very qualified and experienced structural engineer review the original municipal approved construction plans and the existing "as built" construction, evaluate the building's risk, and suggest some appropriate upgrades.

The Federal Emergency Management Agency (FEMA) has developed a technique for determining a building's risk and probable extent of damage during earthquakes (i.e., damage to the point that it would not be economically prudent to salvage the building, to the point that it would take a year to rehab the building, damage involving only finishes, etc.). This type of evaluation is beyond the scope of our inspection service. From a management standpoint, if it has not already happened, it would be beneficial to have this evaluation done for this commercial type property.

LEAKAGE: Actual leakage is sometimes a result of several contributing factors. A single leak source (i.e., minor leak) often is not technically critical and does not do any harm or leak through finishes. However, several minor leak sources can accumulate and cause significant leakage that would need to be corrected. It is not always necessary to correct all of the leaks; correcting the larger/more important leaks

would solve the problem. When attempting to correct leakage caused by several contributing factors, correcting only one aspect could allow the leakage to continue, and it could appear that the corrective work had no impact. Also, one aspect of a leak could be corrected, but another aspect could be made worse, so they would offset each other. Up to a certain point, minor leakage is normal, is absorbed in building materials, and evaporates out without causing harm. Also, limited moisture leakage into building components is needed to keep them at optimum moisture levels (typically 4% - 8%). If wood frame buildings did not leak at all, the components would become too dry, and they would crack, which could cause damage. Significant leakage (i.e., above 10% - 15% moisture) tends to cause finish damage, and after a certain point (i.e., 20%), the wood deterioration process starts to develop (i.e., rot and wood-boring insect activity).

The following is an illustration of the vulnerability of buildings to leakage. When I cleaned a 5-gallon fishbowl with hot and cold water, the bowl developed a very small heat fracture. I decided this would not cause a problem, but after filling the bowl and leaving it for a while, I found that the water had drained out. Admittedly, this crack was being subjected to hydrostatic pressure, but it illustrates the point that, under many conditions, what appear to be minor cracks (i.e., 1/32-inch wide, 1-inch long) will allow water to leak in and down behind underlying material.

Buildings experience differential pressures, which become more significant when there are high winds. Because of this, vacuum suction situations can develop. (For example, a semi-open horizontal joint would not leak under normal conditions; the water would sit on the joint. However, with a vacuum suction condition, water can be sucked into the wall, accumulate and leak down through it.) This is a risk when buildings are significantly exposed, as this one is; therefore, it is important to keep related aspects (exterior) well maintained to minimize the risk.

In terms of exterior wall leakage, the most vulnerable walls are, first, the south and, second, the west walls, given that in the greater Seattle area the prevailing weather is from the south (southwest). Typically, as a general guide, the weather exposure and risk of leakage plus resultant damage is: 40% at south walls; 30% at west walls; 20% at east walls; and 10% at north walls. There are some exceptions to this, such as the north side not having much in the way of solar exposure and wind, which do have a beneficial effect in terms of drying out exterior components. Also, given the cumulative effect of water draining down an exterior wall, the highest risk factors increase as one goes down the wall, with the highest risk factor being the wall bottoms, where it interfaces down into concrete foundations.

Building materials absorb relatively minor amounts of water/moisture leakage, so it often is not observable in the form of water dripping through the ceiling or walls. However, building materials eventually become saturated, and water will drip through. I observed indications that moisture was being absorbed by building materials. Given the quality of this building's original construction, very high quality wood was probably used in the framing, so it would be more resistant to rot.

ROT: Wood rot is an organic growth caused by excessive dampness and inadequate venting. Active rot develops in wood when the moisture content reaches a certain level (percentage varies depending on type of wood, amount of ventilation and temperature). The rotting process stops when the moisture level is reduced below this threshold, and it will not continue unless the conditions that caused it recur.

WOOD-BORING INSECTS: With limited access to interior space, I was not able to ascertain the extent of leakage or resultant wood deterioration (rot and wood boring insects including termites, carpenter ants, moisture ants, powder post beetles). I observed no indications of significant exterior roof and wall leakage, nor any indication of wood deterioration (rot and wood boring insects). If the building is properly maintained and monitored, the risk would be very low (0.25% probability).

Wood-boring insect activity usually does not occur in the greater Seattle area unless there is a water leakage/rotting condition. Rot occurs when significant amounts of water leak into unventilated wood, and by earth-wood contact. Insect activity is a direct result (symptom) of the rotting conditions. The rotting process damages the wood, not the insects themselves, and because of this, damage usually does not extend much past the actual rot. Correcting the conditions that are conducive to rot and replacing the deteriorated wood will eliminate wood-boring insect activity, presuming that the building is properly maintained thereafter.

Termites are the only insects in this group that actually eat wood; however, they eat very slowly (according to the U. S. Forest Service, an established colony of 60,000 termites eats only one fifth of an ounce of wood per day). Evidence of a termite infestation is usually not visible on the surface. Carpenter ants bore in moist, rotting wood to establish colonies, and evidence of an infestation is fibrous sawdust. Powder post beetles damage seasoned or finished wood products (i.e., flooring, furniture), and they usually are brought into buildings in these products. Their presence is indicated by piles of fine dust or by small holes in the wood.

FIRE SAFETY: A detailed evaluation of fire safety aspects is beyond the scope of this inspection, but in spot checking the building, I have some related concerns (i.e., fire doors that were not self-closing and latching). Some building modifications involved opening the floor planes and walls. These openings were not resealed, which is normally required, especially at floor planes. It would be advisable to review this with a fire safety consultant (usually affiliated with a fire sprinkler company) and the municipal building/fire department. The municipal fire department typically does fire safety surveys, and it would be good to review their survey results with them. These fire safety surveys are typically cursory, covering flagrant violations such as improperly stored flammable liquids, blocked exits, and trash.

UNIT INTERIOR SYSTEMS AND COMPONENTS

HEATING SYSTEM, UNITS

(See related points in Heating System, Building section).

MECHANICAL VENT DUCTING, UNITS

All mechanical vent ducts (clothes dryer, kitchen, bathroom fan, etc.) should be cleaned periodically, and it is advisable to verify discharge points for all ducted systems. I understand that, in 2009, all unit dryer vent ducts were cleaned through to the roof collector boxes, and collector boxes were also mapped to their corresponding dryer ducts.

ELECTRICAL SYSTEM, UNITS

(See related points in Electrical System, Building section).

PLUMBING SYSTEM, UNITS

WATER HEATERS: Typically, water heaters would be electric 50-gallon capacity installations, which should be adequate (basically, 2- to 4-person water heaters). The individual water heaters in units are unit owner responsibility. The normal life expectancy of water heaters is 10 - 15 years.

Code requires new water heater installations to have proper anchorage earthquake anchorage (semi-rigid sheet metal strapping, a wall fastening), and where it is not, proper anchorage should be installed (very simple to do). Securing water heaters prevents displacement during earthquakes, thus minimizing the risk of leakage and electrical fires.

I noted that water heaters have drip pans, which is excellent (should be verified at all units). However, I did not determine if the drip pans connect into drainpipes. If they do not, connections will be somewhat difficult, and probably not worthwhile because initial leakage is usually relatively small and noticeable (water accumulation in the drip pan).

It is important not to set the water heater temperature too high because it creates a potential safety/scalding hazard (especially for small children and the elderly). The tap temperature should be set at 120° F. A 1983 Washington State law requires manufacturers and rental property owners to preset water heater thermostats no higher than 120° F.

SHUTOFF VALVE AT UNIT: Typically, there would be water supply shutoffs for unit water supplies inside the units (typically at domestic hot water heaters). It is important to verify this.

PLUMBING FIXTURES: Plumbing fixtures can clog and cause flow reduction (e.g., sink strainers, deteriorated shutoff washers, older connector lines within a few feet of the water heater, clogging/constriction at valves and critical elbows). Regular maintenance and/or service work (cleaning) usually significantly increases water flow.

Sink faucet strainers often clog and reduce waterflow. They need to be cleaned periodically (Simply unscrew the retainer at the end and rinse the screen).

Plumbing fixture drainline traps (i.e., sinks) need to be cleaned periodically (usually once each year) because debris tends to settle and cling to their sides. Cleaning is usually part of normal homeowner maintenance (turn off the water supply, disconnect the drain pipe, and flush out the trap). Tub and shower traps also need to be cleaned periodically (usually similar to under-sink traps).

BATHROOMS, UNITS

TOILETS: The toilets are "low waterflow" installations that code now requires to conserve energy/water. These models do not flush or clean as well as older toilets.

TUB/SHOWER WALL SURROUNDS: It is important to properly maintain caulking to prevent leakage and deterioration of the surround and adjacent surfaces (including soap dishes, plumbing fitting covers, tub joints, and wall/floor joints adjacent to the tub).

VENTILATION: Given the conditions, it would be good to install humidistats on the vent fans. Humidistats are automatic controls that trigger the fans to turn on at certain humidity levels (similar to thermostats).

ROOMS, UNITS

WINDOWS: It is important to keep window trim/finish joints at tops, sides, and sills well sealed (caulked and painted) to minimize the amount of condensed moisture that soaks down through the wood because it can cause deterioration.

Insulating (double-glazed) glass is designed to have a 10-year serviceable life, but we typically find such installations last 10 - 30 years (10 - 20 years on south and west sides, 20 - 30 years on north and east sides). Eventually, when the edges of the two panes of glass have become defective, fogging will occur between the panes (i.e., moisture vapor pushes between them and condenses). The insulating value of the glass remains very close to what it was originally, so this condition is not technically critical (it mainly affects the glass' appearance). The risk/amount of fogging depends on weather conditions, the quality of the window installation, and thermal/moisture expansion/contraction due to related aspects (e.g., venting, leakage, overhang protection). We are not able to conclusively check insulating glass for edge seal leakage. Newer (1990s) insulated glass technology (presuming proper configuration and installation) has substantially reduced edge defects ("fogging").

The older/original windows are single glazed, which does not conform to current code. However, keep in mind that the actual heat loss experienced with single glazing is not that significant and the cost-benefit of retrofitting insulated glass is not economically worthwhile. Storm windows could be fabricated and installed. However, the cost-benefit of doing this is not really prudent.

UNIT #110 CEILING: Unit #110 has ceilings with exposed concrete slab undersides. Therefore, the overlying balconies/decks would normally have rigid insulation between the slab top and deck waterproof membrane.

At unit #110's exposed ceiling concrete, there is cement voiding (honeycombing) in some of the concrete (aggregate rocks are visible because the concrete was not vibrated completely during construction). This usually is not critical, and in spot checking, I found no indications that it is critical here.

In spot checking unit #110's concrete ceilings, I observed no indications of significant efflorescence that would be indicative of active leakage (see related points in Basement section).

LAUNDRY AREAS, UNITS

DRYER VENT: It is very important to clean the vent duct periodically (every 2 - 4 years). When lint accumulates on the inside of the duct, it increases friction, significantly reduces airflow, and allows moisture to re-enter—and possibly damage--the building (e.g., stains on walls and ceilings). In addition, lint is extremely flammable; when too much of it accumulates, it can catch fire. Clogged ducts also increase energy costs (2 - 3 times higher than those for systems with clean ducts). Note that all mechanical vent ducts (kitchen, bathroom fan, etc.) should be cleaned from time to time; it is also advisable to verify discharge points for all ducted systems.

It is very important to use metal ducting (rigid aluminum or rigid galvanize steel are best) instead of coiled, flexible plastic (which some jurisdictions no longer allow) and flexible Mylar (foil) for all dryer duct connections. The latter two tend to bend and constrict, inhibiting airflow, and, eventually, causing the duct to clog with lint debris. Addition ally, constricted plastic or Mylar ducting can cause the dryer to overheat, leading to premature deterioration of the heating elements and possible lint fires. (There is even a remote possibility that clothes being dried could catch fire). Minimize bends in the ducting by ensuring its proper installation and protection (e.g. block the clothes dryer so it cannot be pushed against the ducting, keep the ducting run as straight and short as possible, make sure that the ducting run is properly supported). Most importantly, always install clothes dryer ducting in accordance with the clothes dryer manufacturer's instructions.

[CONTINUED ON NEXT PAGE]

CONCLUSION

The purpose of our service is to inspect the building and report on its condition, and to provide a consulting service on construction, design and building ownership. The goal of our inspections and reports is to ascertain if the building has major defects, and to provide helpful maintenance information. Our report of defects and points of information can appear to be overwhelming. Since every building has some problems, you must look at this report and relate the scope of the defects to the property as a whole, both objectively (size, economics) and subjectively (how you feel about the property).

This report contains information on items that need corrective work. It also contains recommended maintenance information, but this does not necessarily mean that the maintenance has to be done immediately to prevent damage to the building. If other opinions differ from what we have stated, or if repair work is recommended that you feel is not necessary based on information in this report, call us immediately, before any work is started. Evaluating and discussing the situation with you gives us the opportunity to help you prevent unnecessary repair work and is part of ABI's ongoing service.

It has been a pleasure providing this service to you.

Sincerely,

Stan M. Mitchell, AIA, ASHI
Architect

SM/ec

[END OF SECTION II]

SECTION III. RESERVE STUDY REPORT AND EXPLANATION

A. BACKGROUND/ASSUMPTIONS

CONSTRUCTION INFLATION: Construction inflation for multi-family construction over the last 10 years has averaged a little less than 3%; with some years ranging from 5.5% to 6.5%, and some 0% to -1.0%. The historical average (over 50 years) has been 5.0%. Therefore, we have kept the adjustment for future construction inflation at 5%.

BACKGROUND: The following is background information regarding conditions/situations that I understand have occurred. I am using this information, in part, as a basis for my evaluation. Therefore, if the information is not accurate, it is important that you contact me to give me correct information so that I can reassess my findings as appropriate.

1. RESERVES:

    a. Association capital component reserve balance amount (at January 1, 2013) is approximately $136,000. This is 9% of the amount needed to achieve a fully funded balance at present day (Washington State Law requires that we state this percentage). With adding the proposed $100,000 CD in the year 2014, the percentage of the fully funded balance would be around 16%.

    b. The total association capital component reserve assessment is currently (year 2013) $30,000/year ($2,500/month). The proposed annual assessment for year 2014 is $80,000 ($30,000 + $50,000).

2. CAPITAL COMPONENT REPLACEMENT DONE BY ASSOCIATION: We understand that the following work has been done by the Association in recent years:

    a. 2001: Asphalt shingle and membrane roof cover replacement, including membrane gutter lining; and metal gutters/downspouts(?);

    b. 2006/07 exterior rehab project:
        i. Foundation perimeter waterproofing;
        ii. Exterior brick mortar, major rehab;
        iii. Unit #110, #210, and #408 private deck membrane replacement;
        iv. Yard irrigation sprinkler system.

    c. Exterior circle decorative fountain rehab;

    d. Exterior circle east edge paving replacement (original settled);

    e. I understand underground sewer lines have been evaluated, and it seems they were replaced during the 1983 rehab project.

3. CAPITAL COMPONENT REHAB WORK: We understand that no rehab work is planned at this point.

4. BASIS: We have developed the capital component reserve study based on:

   A. LOWER (FIRST) FLOOR UTILITY AND STORAGE ROOMS: No refinishing included in Reserve Study (e.g., repainting, floor cover, etc.); however, utility component (e.g., electrical) replacement is included in the utility line items. These areas include the first floor north utility room, northeast storage, elevator equipment closet, east center storage room, janitor's closet, and board (storage) room.

B. SCOPE AND PURPOSE OF EVALUATION

We developed the reserve evaluation based on our site inspections of July 9 and August 9, 2012.

The purpose of this evaluation is to provide a reasonable evaluation of capital replacement components and to serve as a basis for reserve assessments for replacing these components.

C. KNOWN SIGNIFICANT TECHNICAL PROBLEMS/CONCERNS

In reviewing the building situation, we understand that the most significant known defects/concerns include:

1. Fourth floor unit private balcony/deck membrane adhesion at drains and water ponding. Note: We have included repairs related to adhesion at drains and membrane coating as a line item. With regard to water ponding, the most practical time to address this is in conjunction with membrane replacement, wherein the underlying base can be reconfigured (as well as venting aspects and, ideally, secondary overflow drain could be addressed). We have include a line item at deck membrane replacement for correcting water ponding, but have not included the cost of installing secondary overflow drains.

TECHNICAL REPORTS REGARDING PROPERTY AND BUILDING CAPITAL COMPONENTS: None other than:

1. 2006/07 exterior rehab project: No report generated, though some information provided (see Ref. listing).

2. Fourth floor balcony/deck survey report, dated May 30, 2006 (see Ref. listing).

Given the situation, it would be appropriate to have the following common component aspects evaluated, and a report provided, to address component rehab/replacement requirements in terms of scope, costs, and priorities for corrective work:

1. Garage waterproof membrane;
2. Elevator;
3. Fire detection, alarm, and sprinkler system;
4. Exterior windows (original);
5. Yard irrigation sprinkler system;
6. Landscape replacement.

The following related to the above items:

1. GARAGE WATERPROOF MEMBRANE: As indicated elsewhere, it appears that the garage waterproof membrane is serviceable at this point, and our opinion is that it will not need replacing in the near future. Normally, we would expect a serviceable life of 40 years (replacement anticipated in year 10, though given the apparent quality it is clear the requirement for replacement would be extended). This is based on observations that there is no significant leakage currently occurring, plus discovering in the construction plans that the surface slope of the membrane is ½ inch to the foot, which is excellent, and extends its serviceable life much beyond what is normal. However, given that the plans indicate the western half of the garage abuts the original building perimeter wall section, this area is potentially problematic since the ½ inch drainage plane slopes down into the wall, which is not ideal. This is somewhat verified by the slight leakage occurring along this connection. We have extended the serviceable life of the membrane, in terms of year for complete replacement, but included another line item for periodic rehab—the net result of which is a lowered annual replacement cost. Ultimately, a more detailed evaluation by a waterproof membrane consultant could verify this. This should be done as soon as practical given the importance and impact of this item (estimated replacement cost around $750,000).

2. ELEVATOR: I understand that the elevator has not had mid-life rehab work. Normally this is done at year 25 (5 years ago). However, it is likely that the building's elevator is used much less than normal, given the building configuration (access to the first floor from garage and west parking), as well as the nature of the building occupants. Because of this, its serviceable life in terms of rehab and replacement would be longer. At this point, my sense is that they might be 50% longer than normal, which would equate to rehab work out 7 years from now, and replacement 35 years from now. The latter would obviously put complete replacement beyond the 30-year planning period. It would be advisable to get an elevator company/consultant to review the installation and provide some quick guidance on serviceable life, rehab, and replacement costs, it would validate this approach.

3. FIRE DETECTION, ALARM, AND SPRINKLER SYSTEM REHAB: Similar to the point above regarding the elevator, I understand, and am little surprised, that the fire sprinkler system has not had rehab, which is normally done around year 25 (5 years ago). This may be due to the limited scope of the sprinkler system itself, sprinkler head location, and that the sprinkler system is not as critical given the situation (i.e., as opposed to a system in a high-rise, fully sprinklered building). At this point, my sense is that we could increase the serviceable life of the fire sprinkler rehab and replacement aspects by 50%, which would put rehab in the next 10 years, and replacement at about year 30 to 35, the latter of which would be at or beyond the 30-year planning period. Similar to the point above, it would be advisable to get a fire sprinkler system company or

consultant to review the installation and provide some quick guidance on serviceable life, rehab, and replacement costs, and validate this approach.

4. EXTERIOR WINDOWS (ORIGINAL): The original window installation somewhat paradoxical in that they are qualitatively inherently durable, and have a relatively long serviceable life, presuming proper maintenance and repair. However, given that they have already "lasted" 100 years their current remaining serviceable life is questionable. Theoretically, funding this item would require an allotment of $3,000/year ($5.05/month/unit average), and its projected replacement cost ($297,000) would also require a special assessment. The current schedule indicates replacement at year 2040, but in reality, this could swing one way or the other by several decades.

5. YARD IRRIGATION SYSTEM REHAB/REPLACEMENT: I understand that periodic rehab/replacement of individual components has been, and will be addressed with service work operating costs, and extend the serviceable life of the system in terms of when it needs complete replacement.

6. LANDSCAPING REPLACEMENT: Theoretically, properly funding this component requires $4,200 per year ($7.30/month/unit average). Its replacement cost (estimated to be year 2032) would typically require a special assessment because Associations often do not include landscaping replacement in reserve funding, but address it with their operating budget. If the landscape gets to the point of needing complete replacement or overhaul, they issue a special assessment.

D. BASIS OF EVALUATION AND REPORT

We have included the following:

1. Components that are considered capital components and are currently installed (as of July 2012);

2. Components that require periodic replacement;

3. Components we anticipate will need to be replaced within the next 30 years.

Association Management should review the following component listing and strategy assumptions. If they are not in keeping with Association policies, the tables can be modified. The strategies/policies we are basing this evaluation and results on are:

1. Again, components we anticipate will need to be replaced within the next 30 years (see further explanation later).

2. The listing does not include components that typically have a serviceable life of less than 5 years when new. We categorize rehabbing/replacing these items as servicing, so we find it more appropriate to list them in the operating budget. Examples of items not included in the scope of evaluation or capital component replacement reserve table values are:

- Caulking.
- Fire extinguishers.

3. Component life expectancies are based on our inspection and evaluation of this property, its components, and related aspects. The assessment is based on our experience with evaluating thousands of buildings. Estimated replacement costs are based on fair-price execution of component replacement, comparable with the overall quality of existing components.

4. This evaluation does not include facility operating budget costs (i.e., yard maintenance, utilities, management, etc.).

5. Reserve funds are placed in a separate, conservative interest-bearing account, with accumulated interest retained in the reserve account. Assumed interest percentages are indicated on the schedules.

6. Replacement cost inflation rates are based on the past 10 years of local construction history, plus long-term general inflation trends (last 50 years). (This is indicated on the schedules.) Note: Current interests rates are at historical lows, and not realistic for long-term planning. Therefore, we have included interest rates that represent historical averages.

7. Annual brief, basic revisions and updates to schedules should be made (Level III Reserve Study), and a more comprehensive update should be made at each 3-year interval (Level II Reserve Study). This 3-year update would involve a general building re-inspection, and re-evaluation of values and schedules.

8. Replacement costs are based on work executed under very good construction management (i.e., specifications, bidding, construction monitoring, etc.).

9. Our estimates are based on individual components receiving proper operating maintenance/repair work being.

E. ECONOMIC BASIS OF EVALUATION

1. While this reserve study includes life expectancies on a line-item basis, these numbers represent the normal serviceable lives for that particular component category. Some components may need to be replaced sooner (some later), but the serviceable lives will tend to average out. Nevertheless, when premature replacement is necessary, the reserve assessment fund's balance and process will have to fund it. As part of this report's periodic annual reviews and updates, the components' actual status will need to be compared to their projected serviceable lives. Adjustments may be necessary. In time, it will be apparent that some component line items, as a group, are going to need to be replaced sooner than the estimates; others will "live" past their estimated target points.

2. While some component line items' replacement covers a range of time (i.e., the next 10 - 30 years), for simplicity, we have for the most part included mid-range replacements in the tables and

schedules (i.e., 20 years). Note that some identical components in different areas of the building have varying replacement requirements (due to factors such as wear, weather exposure, convenient replacement time).

F. FURTHER COMMENTS REGARDING BASIS OF EVALUATION

1. The evaluation generally does not include or list components that are less than $5,000, approximately 1/10th of 1 percent (0.1%) of the total replacement listed]. There are two reasons for this: (1) At some point, "the line needs to be drawn" so detail items that are relatively minor in relation to the overall situation have been excluded, and (2) We are attempting to keep the results of this evaluation as simple as practical. Items that fall out of this limit are normally included in the general operating budget (see examples, such as fire extinguishers, in the previous section).

2. For the same reasons, components listed in the tables and schedules have been limited to items constituting more than 0.1% of the tables'/schedules' respective totals. There are some exceptions, which were included for control, accountability, consistency, and to minimize confusion.

3. As indicated above, the intent is to provide a reasonable evaluation for component replacement reserve. The basic General Building Inspection, evaluation, and estimates, and estimates for replacement costs and serviceable lives are general and are based on quick, rough measurements, rough estimates, and some "general rule" estimates. We have made some major component line item estimates, the results of which should be reasonably accurate (some will be high and some will be low, but the overall average should even out). The report and estimates will need to be updated periodically in light of how components are weathering, and components' serviceable lives will need to be adjusted according to their "track record". Updating for current costs and trends should be done closer to the time of replacement. We have done some follow-up evaluations with suppliers and contractors of very significant line items to verify estimating, life expectancies, and technical situations.

Our evaluation and estimates are based on the assumption that existing capital components will be replaced with those of like material and workmanship quality, as well as updated to current standards and code requirements when the work is done. For example: copper roof flashing typically lasts much longer than other forms of flashing, mainly because of its quality. Therefore, in this example, the cost estimates to replace the roof flashing would reflect the cost of a similarly high-quality system and installation (though not necessarily the exact same material installed). Many of the capital components in this building have excellent/very good quality materials and installations (workmanship); their existing serviceable life estimates were based on these attributes, and the cost estimates for their replacement were based on components of similar quality. The estimated life of replacement components is also based on this level of quality.

Replacement cost estimates may seem high, but keep in mind that they attempt to include <u>all</u> costs for the replacement (i.e., tax, permits, engineering/design, associated repairs such as refinishing where utility replacement is done, general contractor costs to coordinate if multiple trades are involved, coordination). Also, even though there is a total contingency line item (for the entire estimate sheet), individual line items also include some contingencies for unknowns likely to develop during the course of work. The

estimates are typically 1.5 times what a subcontractor's bid price would be and, as a general rule, they include all related and associated costs.

The "Year Installed" estimate in the Capital Replacement "Schedules and Tables" reflects component updates and modifications and, thus, is based on the average/effective age of the entire line item. (For example: if half of the building's roof flashing was installed 70 years ago, and the other half was installed 10 years ago, the effective age of the flashing would be 40 years). As line items, components are typically assessed in their entirety and listed accordingly.

4. As indicated above, we typically do not include items with estimated remaining lives of over 30 years, though some items that fall a little over may be factored in (e.g., a component with a life expectancy range of 30 - 35 years would be listed with a median life of 30 years, so as to be included in the study). In general, we have found 30 years to be a very reasonable planning horizon. Component replacement items that exceed 30 years can be addressed during subsequent report updates (i.e., replacement life of 35 years when new would be addressed when the report is updated 3 or 6 years from now). Limiting the study to this span provides a reasonable correlation between ownership use and component payments; it is also reflective of market values. Property market values will tend to increase over this time as a result of scarcity/land value and proximity to the city, and we want to ensure that the price/value is reflective of inflation, physical depreciation, and the condition of the building as it ages.

5. I understand that the IRS has deemed that repainting is not a reserve component replacement item. I suspect that the person who interpreted this misunderstood the issue (probably thought that painting was a maintenance item to protect surfaces when, in fact, the paint film wears thin and needs to be replaced like a roof cover). I feel that painting is a component reserve replacement item. In reviewing literature and other reserve studies, I found that painting is typically included as a component replacement reserve item. However, in terms of cost, the name of the budget to which painting is assigned really does not make much difference. It is my understanding that the IRS interpretation applied to situations in which the fund balance would be taxed, but this is not clear. Our replacement schedules do include paint.

Building component maintenance cycles are typically less than a year. For the purposes of this evaluation, a cycle of greater than 5 years constitutes a replacement item. For budgeting and control purposes, it is better to include items with 5+ year cycles in the reserve to minimize confusion and irregularities in the maintenance and operating budget. (When significant line items pop up every 5+ years, they create large expenditure peaks and disrupt the attempt to establish a fairly uniform year-to-year maintenance and operating budget).

6. This study and the specific points that have been emphasized need to be reviewed with the management's accountant and attorney (see Management "To-Do" Letter/List):

a. General format and procedure;

b. Specific strategy policy decisions (i.e., whether to include paint as a reserve or operating budget);

c. Tax:

(1) 30% tax on reserve fund balance interest is assumed for this evaluation and report.

(2) It does not include tax on the fund balance.

7. Other items specific to this property not included in the Capital Component Reserve evaluation:

a. Unit owner responsibility:

(1) Unit interiors: electrical, heating, plumbing, kitchen, bathroom, finishes, etc. (other than utility distribution to units included in association capital components);

(2) Insulated glass at unit (edge seal leakage, fogging -- see General Building Inspection report text);

(3) Unit domestic water heaters;

(4) Unit electric heaters;

(5) Unit fireplace, prefabricated firebox and flues;

(6) Clothes dryer and exhaust fan ducting, and related components, including cleaning, maintenance, and repair (ducting serving only 1 unit);

b. Association responsibility (sometimes designated as unit owner responsibility but for this condominium, designated as Association responsibility):

(1) Private unit balconies, floor waterproof membrane and periodic sealing.

(2) Phone switching equipment (I understand it belongs to phone utility; therefore, it is not included).

c. Presumably association responsibility (sometimes designated as unit owner responsibility but for this evaluation and from a practical standpoint should be designated as Association responsibility):

(1) Private unit balconies, floor waterproof membrane and periodic sealing.

(2) Fire sprinkler components within units. (See Management “To-Do” Letter)

G. ANNUAL PERIODIC PREVENTATIVE SERVICE MAINTENANCE/REPAIR

This evaluation presumes and is based on service work done by qualified and experienced individuals, including "full-service contracts" (versus only "oil and grease" type service).

Roof Cover

Storm Drainage (e.g., drain cleaning, drainline flushing)

Storm Drainage Detention System

Exterior Siding (e.g., caulking)

Fire Sprinkler, Detection, Alarm Systems

General Mechanical (i.e., pumps, fans, filters, lubrication of motors, bearings, pulley belts, re-packing bearing--typically at 2000 hours of operation)

Intercom Systems

Plumbing Drainlines and Fixtures: cleaning traps

Landscaping: periodic maintenance

Common Areas: cleaning: carpets, windows and window coverings, walls, furniture

[END OF SECTION III]

SECTION IV. EXPLANATION OF TABLES AND ALTERNATIVES

In our opinion, the Association will find Table CR-1, "0-30 YEAR REPLACEMENT CYCLES", and the graphs entitled "TABLE CR-2: CONSTANT 2013 DOLLARS" to be the most useful pieces of information included in the study. There is one CR-1 table (its application is universal).

TABLE CR-1: CAPITAL REPLACEMENT COMPONENTS (SUMMARY)

Table CR-1 offers a simple breakdown of Capital Components, their estimated replacement costs, and their life expectancies. Using this information, we determined how much should be set aside each year for each component and, in turn, what the ideal yearly assessment would be if the Association wishes to be able both to fully cover future replacement costs and to maintain a positive, healthy Reserve fund balance.

TABLE CR-2: RESERVE WORK SHEET (AT CONSTANT DOLLAR – CURRENT VALUE)

Table CR-2 is a reserve work sheet for capital component replacement. Dollar amounts are expressed in constant current values (without allowances for inflation and/or interest) to more clearly present the concept. The next table (3) represents the same information, re-calculated for inflation and interest.

The table lists a summary of Replacement Components with Replacement Costs and Cost Per Year expressed in Schedule Of Years, Replacement. It schedules replacements over the next 30-year period.

At the right side of the table, there is a sub table (F. Residuals, Beginning and at Year 30) that tabulates the residual unspent cost for replacement of individual components. Residual figures (listed at the far right of Tables CR-2 and CR-3 and Schedules S-1 through S-6) represent ideal funding for the Association's Capital Components. They are a way to compare where Reserves are and will be at the beginning and end of the 30-year period to where they, in a perfect world, should be at the beginning and end of the period. For the most part, residuals impact the post 30-year period and are there to help prevent a shortfall in later years. It is important to tabulate residuals to minimize the risk of becoming short of funds after the 30-year cycle. If there is a shortfall, the amounts would need to be made up by (1) increasing assessments (usually significantly) and/or (2) special assessments (it would be best to avoid either of these).

Subtotals are listed at the bottom of the table, with the bottom line showing Cumulative Reserve for the respective years.

TABLE CR-3: RESERVE WORK SHEET CAPITAL COMPONENT REPLACEMENT (WITH INTERST AND INFLATION VALUES)

CONSTANT VERSUS INFLATED DOLLAR AMOUNTS: The "Constant Dollars" graphs and tables show calculations and projections made using Capital Component replacement costs that do not change over the next 30 years (no inflation). That is, they function as if it will cost the same amount of money to replace a roof in 2023 that it does in 2013. Obviously, this will not be the case. Thus, we have also

included “Inflation Adjusted Dollar Amount” projections to give you an idea of what the cost realities will be (and how the Association might adjust its assessment to compensate) in the years to come.

Table CR-3 shows replacement costs, adjusted for inflation over the years, and interest on the reserve fund balance. It has the same basic layout as Table 2.

The top of table CR-3 shows the schedule’s base variables (Assessment Increase as a percentage each year; Assessment; Construction Inflation; reserve funds interest rate). They are assumptions we have factored in based on precedent (i.e., inflation) and our experience. Again, they are variables and, within reason, can be adjusted (and the tables revised). However, the purpose is to keep the schedule in balance so that there is no shortfall on a year-to-year basis or at the end of the 30-year cycle. The bottom line shows Cumulative Reserve Balance with interest, with construction inflation factored in.

As we find that constant dollar projections are often easier to digest and use for general discussion, we recommend sticking to them if the volume of information included becomes overwhelming. However, keep in mind that the inflated tables offer more realistic projections and should certainly be used when factoring future replacement costs and assessments.

TABLE 2 AND TABLE 3: GRAPHS (AT CONSTANT DOLLAR – CURRENT VALUE)

Table 2 graphs offer a depiction of the Association’s cash flow over the next 30 years; they plot the Association’s yearly assessment (income) and the year’s Capital Component replacement costs, and reflect how these two factors bear on the “peaks and valleys” of the Association’s Reserve fund balance at the end of each year. Table 2 graphs can be used as quick, visual references for comparing how much the Association will need to spend, and where its Reserves will stand from year to year.

SCHEDULES

Component-specific replacement schedules have been included to further detail replacement costs and yearly expenditures for the major components for which the Association is responsible (e.g., common component roof, exterior, electrical, plumbing, other mechanical, and finishes). Sample table readings (for clarification) have been included in text boxes at the bottoms of the schedules themselves. Schedule totals have been transferred to tables CR-1, CR-2, and CR-3.

ALTERNATIVES

Alternatives and alternative tables could be developed based on several variables. We have developed a list of possible alternatives to illustrate them and show some basic choices. For this property they are:

1. Stretching the replacement points from mid-life to 3/4 life: Our estimates are based on components’ mid-life replacement years. The 3/4 life alternative basically involves extending the targeted replacement to the 3/4 point within the replacement ranges stipulated. As discussed in the text, deferring replacement could increase costs (i.e., some interim component damage). If this occurs, deferring replacement really would not save money.

2. Eliminating some line items: As discussed in the report text, some line items (especially long-term replacement, expensive items) could be eliminated from the funding and addressed via special assessments or some form of alternative financing. For instance, one "school of thought" is that while reserve deferment is not technically proper, it is a little unrealistic to expect owners to set aside money right now for component replacement that will be necessary 30 years from now. Rather, a realistic, more reasonable approach would be to factor in these items later, when it is near time to replace them, and/or with a special assessment or funding at that time, so that owners correlate their spending money with a major improvement.

The possibilities and impacts of these are as follows:

A. Eliminate the "miscellaneous and contingency" line items: As mentioned earlier, the Association Board decided not to include these line items in the Reserve Study, which reduces the annual assessment requirement by approximately $9,678.

B. Eliminating items requiring replacement beyond 30-year point from the listing. There are 3 line items in this category for this property—brick siding total remortaring, plumbing line replacement, and elevator replacement. Their theoretical assessment should be $12,200/year ($21/month/unit average). Of course, not listing them has no impact on the expenditures over the 30-year period, and as such, the negative cash flow over the 30-year period is the same. The long-term implication of not funding them is, of course, a negative impact a few decades out. We like to keep them in to show the reality, but some Associations prefer not to do this. The Association Board decided not to include items requiring replacement beyond the 30-year period.

3. Other points:

(Keep in mind that for simplicity, all figures used above are constant 2013 values. The anticipated inflation factor has been addressed via Table 3, which gives an idea of what incremental changes will be needed to account for inflation.)

These types of adjustments would result in a negligible difference and/or non-realistic projections. Further, decisions regarding component listings that involve specific calculations (site, roof, balconies, exterior wall, mechanical) were made with the intent of minimizing the need to review these calculations and the report.

4. Alternative Annual and Special Assessments: We have developed alternative schedules and graphs for the following alternatives:

a. Alternative #1, Fully Funded, $171/Unit/Month Average; Special Assessments at Year 19

b. Alternative #2, Three Quarters (¾) Funding, $127/Unit/Month Average; Special Assessments at Year 19

c. Alternative #3, Half (½) Funding, $82/Unit/Month Average; Special Assessments at Years 10, 17, 20, and 28

REVISING THE REPORT

As previously indicated, after Association Management has evaluated the ramifications of policies that we listed as a basis for our evaluation, as well as the table schedules—for example, after implementing Reserve policies for two to three years--it might be appropriate to refine and update this evaluation. We are available for follow-up site visits, as well as general report revisions at both times designated by the Condominium Act, as well as times that the Board decides to make significant changes to their Reserves approach.

Remember, these are very long-range projections, and it is very important that they be re-evaluated and updated on an ongoing periodic basis (annually, and then every 3 years). Now that we have set up the basis for the evaluation, it will be relatively simple for us to help Association Management maintain and update the reserve study. Again, Washington State law requires an annual Level III Reserve Study, which constitutes a "maintenance" review (limited review of changes to update schedules and verify accuracy; done by the Association). A Level II Reserve Study is a moderate update/review that is required every 3 years; it involves a brief re-inspection of the property (by a reserve study professional) to verify component condition, re-estimate remaining lives, re-calculate replacement costs, and revise schedules and the report.

The reserve assessment and fund balance will need to be adjusted periodically. If this evaluation is maintained and updated, it (and the process of updating) should be very stable (should minimize surprises and short falls), which is the objective and purpose of this evaluation and consultation.

[END OF SECTION IV]

SECTION V. TABLES, SCHEDULES, AND REPLACEMENT COST SUMMARY

INDEX:

BASE ASSESSMENT AMOUNTS

SCHEDULES (BUILDING COMPONENT GROUP LISTINGS):

Alternative #1, <u>Fully Funded</u>, $171/Unit/Month Average; Special Assessments at Year 19

Alternative #2, <u>Three-Quarters (3/4) Funding</u>, $127/Unit/Month Average; Special Assessments at Year 19

Alternative #3, <u>Half (½) Funding</u>, $82/Unit/Month Average; Special Assessments at Years 10, 17, 20, and 28

Replacement Cost Summary