

CONSTRUCTION  
DIVISION

Suite 145  
33771 George Ferguson Way  
Abbotsford, BC V2S 6H1

POINTNEXUS  
CONSULTING

# Building Defects Inspection Report

This report was prepared May 7, 2012

Assessing the Maintenance Requirements  
for [ ] Condominium and Townhouses in  
Surrey, BC



Prepared for [ ] Property Management Inc.  
Vancouver, BC

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## About Point Nexus Consulting Inc.

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**Point Nexus Consulting Inc.** is a consulting company in Vancouver and the Fraser Valley with a specialty dealing with water ingress and hydro flow and pressure issues and experience managing assessments, remediation and renovation work for strata's and property management companies. Point Nexus consults with a network of commercial building and renovations companies in Vancouver and with engineering and architectural firms.

Point Nexus was contracted by [ ] Property Managers located at [ ] Street, Vancouver, BC to perform a complete visual assessment of the exterior components of the three buildings that make up the [ ] complex.

## General Description of the Project

Condominium is a 3-building 4-story wood framed condominium and townhouse development located at Surrey, BC. The building complex was completed in 1995 is now 17 years old.



This current assessment report will build upon earlier assessments and previously completed remediation work.

Detailed historical engineering, assessment and work reports from 1999 to 2002 have helped considerably to inform and corroborate with the findings of this current assessment.

**Previous Assessment Reports (1999-2000):** An assessment and report completed over 10 years ago, found problems that required immediate remediation, longer-term remediation as well as building issues that would require regular monitoring and assessment. It recommended 3 levels of priority for remediation work, monitoring and re-assessment over a 10-year strategic time-frame. For first priority concerns it recommended remediation begin immediately and be completed within 2 years (2002). For second priority concerns, the report recommended additional remediation work and further investigation is undertaken within 2 to 6 years. And, a third level of priority, recommended on-going monitoring and assessment of concerns with expectation of required remediation within 10-years (2010).

**Wall systems:** The first level of remediation the 2000 report recommended was the repair of exterior wall systems that were allowing excessive moisture into the walls and the onset of decay, in some cases already significant. The report recommended the removal and re-installation of the original vinyl siding to replace the building paper underneath which had been improperly applied. It recommended a rain-screen methodology be applied to the wall upon replacement of the wall components. These rain-screening recommendations were accepted and extensive repairs to the ground floor level walls, decks, window trims and flashings were completed in 2002.

**Roof Systems:** Two surveys of the roof and roof drainage systems were completed in 1999 and 2000. The early survey Project No. 99-5919 was completed by Emerald Inspections in August 13, 1999. A subsequent survey Project No. 580-1379 dated May 15, 2000 by Inter-coast Consultants was a review of the first report. We make note of the comments and recommendations of the second report which is now 12 years old.

The report states, "...the roof membrane is a single-ply ABB system. This system is comprised of ultra base 67lb. base ply with a GBSP-4 APP cap. This system meets the minimum requirements of the manufacturer, US Intech, as outlined in specification B-SP-4000-N. Although B-SP-4000-N is referred to as a 2-ply in their specifications, it is commonly

referred to as a single-ply in this market.” The report went on to state, “Repairs may be made now, with additional cap sheet added. Future re-roof should be economical as the existing membrane will be primed and another heavy granulated cap sheet torch applied, eliminating the cost of tear off and disposal.”

Although we are in possession of a document with “tender” request information for significant roofing repairs, no actual reports of roof repairs have been furnished. We believe some roof repairs were completed, but we were unable to confirm, other than extensive patching, exactly what has been done to remediate past roof problems.

Therefore, we called on the advisory services of a major national roofing consultant and contractor to view the roof and confirm our interpretation of the observations.

## Defined Scope of Work

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The defined Scope of Work for this assessment was to assess the building envelope for structural integrity by reviewing overall performance of materials, components and assemblies and include an inspection report for Building Maintenance. The Inspection included the following:

1. Below grade - foundation walls, floor slabs, plaza, and tunnels.
2. Exterior wall systems, exterior doors, trim detail, flashing detail, side wall venting
3. Roof: condition of membranes, drainage systems and slopes, and vent and flashing assembly details.

Upon completion of on-site building maintenance review, a detailed report will be compiled including pictorial and narrative documentation of areas investigated, interpretation of observations and any recommendations for further investigation and/or remediation.

## Inspection Disclaimer

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This assessment is initially limited to a visual, nondestructive building review. We will open up wall assembly systems where it is possible to dismantle and reinstall the same components with no adverse affects. All findings are based upon what is discovered during the building assessment review in conjunction with any referenced historical information. Any building deterioration that may occur in the future remains the responsibility of Georgian Garden and not Point Nexus Consulting Inc. or the assessment review team. This review and report is limited to access and building conditions under normal building construction practices.



## General Description of the Property



**The Condominium** consists of three buildings, the larger condominium building at [ ] Ave., consists of 108-unit condominium building contained within a four story wood framed structure built on a concrete parking garage. The building is generally rectangular in shape with two courtyards on the north side of the building. There are two townhouse buildings the first at [ ] Ave consisting of 14-

unit townhouse building three stories in height, generally rectangular in shape. The other townhouse building at [ ] consists of a smaller 12-unit townhouse structure generally rectangular in shape. Construction consists of typical, platform; wood frame construction supported by cast in place reinforced, concrete foundations over a parking structure. Materials, methods and design remain consistent throughout and therefore considered typical and a fair representation of this type of wood frame construction.

It is our understanding that the buildings were constructed in two phases. Construction Phase One started about November of 1993 and involved the condominium building on the east half, (Units 101 to 414) at [ ] Ave and the Townhouses at [ ] Ave. Construction Phase Two started in approximately June of 1995 and involved the West half at [ ] Ave (units 115 to 427) and the townhouse building at [ ] Ave.

**Management:** The complex is currently managed by [ ] Property Managers, Vancouver BC. At the time of the 2000 assessment and reports and the 2002 repairs, it was managed by [ ] Property Managers.

**Foundation:** The basement foundation is also a 2-level concrete parking garage. The foundation footprint of the complex includes buildings as well as the membrane-lined landscape areas between the individual buildings.

**Balconies:** The balconies are wood framed structure with most vinyl clad parapet walls. Some balconies transition between vinyl-clad wall assemblies with stucco-clad wall assemblies. Parapet walls are capped with metal flashing. Deck surfaces are covered in a soft vinyl membrane. Balcony ceilings between floors are wood framed with a fire-break consisting of two sheets of gyproc and finished with metal soffit material. Balcony drainage systems vary between internal floor drains and exterior wall mounted scuppers through the parapet wall.

**Exterior Windows and Doors:** Windows are aluminum framed, double glazed and appear to be the original windows. All window wood trim, flashing and fascia details appear to have been replaced

and appears to have been installed in compliance with rain screen building practice. Doors are steel clad with foam cores. Patio doors are typical metal framed slider doors.

**Building Envelope Seal:** The walls are typically wood framed structure made up of a three envelop seal system. Walls appear to be covered in OSB sheathing, covered in 1 or 2 layers of building paper with a final cover of either vinyl siding or stucco. Stucco finish is typically wood frame covered in wood sheathing and covered with a combination of Styrofoam (for aesthetic detail) and acrylic stucco. First floor is non-typical with a historical retrofit of wall covering using a rain screen application. Rain screen application adds a ½ inch air space between the external cladding and the inner building paper, as well as bug screening at the top and bottom of the walls.

**Venting:** Suites typically have venting for kitchens/stoves, bathrooms, clothes dryers and gas fireplaces. There are few venting configurations. One is direct venting through exterior vertical walls and are typically for air exchange or gas from the direct vent fireplaces. A second, typically for kitchen or bathroom air exchange or dryer exhaust, is channeled horizontally through the walls and vented through the soffits of outside deck balconies. The third venting configuration is a simple pipe channeled through the roof.

**Drainage:** The building has several systems for drainage depending on the location and drainage requirements. Roof drainage is via drain openings placed at designated low sections of the horizontal roof plain. These drain into either central piping that carries the water through the building and into the garage where it joins the main storm drainage system, or through the short attic sections and then ported to a drain pipe where it joins the balcony drainage systems running down the exterior walls. There are also a few gutters located at the building's gabled roofline eaves that drain into down pipes attached to the building exterior walls or join the balcony drainage systems. These all eventually drain into the main storm drainage system.

**Roof:** The roof is covered with what appears to be a single-ply roll-out, torch-on applied bitumen material. Indications from previous inspection reports have suggested though the roof membrane has been called a 2-ply by the material manufacturer, which was specified by the designer, the BC Building Specifications would consider it a 1-ply product. The building also has a number of sloped roof sections.

**Sloped Roofs** - All sloped roofs are clad with a fiberglass, architectural tab, strip-shingle. The shingle installation on buildings appears to include eaves & valley protection that consists of a single layer underlay of #30 perforated roofing felt. No underlay for field shingles appears to have been provided.

**Flat Roof** - The flat roof appears to consist of a SBS modified bitumen membrane that is applied as a single layer torch welded waterproof roofing system.

**Roof Drainage** - The roof drainage is achieved by several internal roof drains with the scupper drain overflow on the exterior parapet wall for the flat roof areas and internal gutters for the sloped roof area. The gutters and downpipes are typical, industry standard, roll formed aluminum products which present without any major defects or anomalies.

**Roof Flashing** - Roof flashing consists of standard painted finish metal that is installed through roof valleys and at vertical intersections such walls and chimneys commonly referred to as cap, base, apron and step flashing.

**Mechanical and Service Penetrations** - The mechanical and service penetrations are items such as B-vents, goose neck vents, plumbing vent pipes, and roof vents that penetrate through roof coverings for the purposes of air or gas intake or discharge.

**Ventilation** - Roof and attic ventilation cannot be fully accessed without access to the attic. Provisions for exhaust are adequate with an acceptable number of static, roof vents and parapet sidewall vents installed. Provisions for unobstructed, static intake ventilation at the sloped roof soffits could not be verified.

## The Building Inspection Report

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The inspection will provide a report with recommendations for any required course of action(s) determined by what is found. The report should, where possible, provide pictures and commentary on both specific issues as well as general conditions including specific and general recommendations for courses of action.

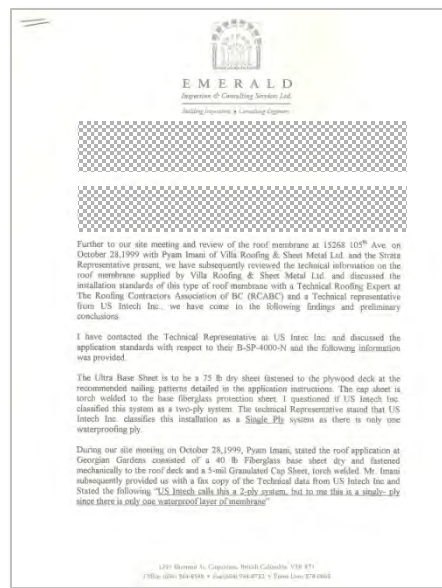


## Inspection Methodology

The requested scope of the inspection was **visual only and non-destructive**. Within the confines of our mandate, this was adequate to assess the condition of the building for most situations. In those situations we determine more information is needed, we recommend further, more intensive investigation.

**Previous Reports** – The assessment included the review of previous inspections and repairs reports including:

- 1999 Inspection Report by Emerald Inspections and Consulting Services Ltd.
- 2000 Building Envelope Review from Aqua-Thermal Consultants Ltd.
- 2000 Roof Survey by Inter-Coast Consultants Ltd.
- 2001 Building Envelope Repairs Report and Maintenance Manual from Aqua-Coast Engineering Ltd.
- 2003 Structure Beams Repairs Report from Aqua-Coast Engineering Ltd.



**Resident Surveys** – Point Nexus reviewed the surveys completed by residents to determine which suites needed to be visited and observed for specific issues. Those specific suites that, in our opinion, described situations and issues sounded beyond typical were visited by assessors for an inspection. In most cases, these were similar problems, simply either a more detailed description of the symptom, or a variation in the degree of severity.

**Equipment:** We use equipment such as Extension Ladders, Platform Lifts, Sky Reaches, Thermal Meters and Moisture Meters, Pipe Cameras, Snake Cameras are just some of the equipment we use to help make and/or measure conditions.

**Experts** – Point Nexus uses their network of technical industry advisors to provide additional advice when a situation warrants it. For example, we sought the input of the experts from Flynn Canada, one of Canada's premier commercial roofing companies, to help us assess the condition of the roof.

**Building Components Observed** – Wall systems, wall covering systems, window and door assemblies and trims, weather flashing details, decks and balcony parapet walls and caps, soffit systems, air venting and exhaust systems including gas, rain drainage systems, roofing membrane and drainage systems, foundation and garage, and landscaping.

## Report Summary & Recommendations

### Overall Condition

As an overall statement, the building appears to be in relatively good condition, with most building components in most areas performing as expected, considering the age of the building. That said, as with any building, the elements take their toll and some maintenance is generally required. The following section will give a summary of the main areas that were found in need of attention and a further section will provide more detail documentation with ancillary images.

### A Note Regarding Past Remedial Work

There has been remediation work done in the past including, but not limited to:

- 1<sup>st</sup> floor exterior walls
- Siding and flashings
- Structural wall components
- Window trim and flashing details

These areas appear to be performing well. We took a few structural moisture readings (drilled into the wood and inserted a moisture meter, and moisture readings in almost all areas of past renovations were normal. It was noted that the work performed by the renovators was good with care given to practice good construction methodology.

### Flat Roof



**The roof appears to be well maintained.** One of the first impressions is how clean and clear of debris the roof is. But, **the roof is aging and close to end of life.** We estimate 15% of the flat-roof has been patched to date, not unexpected on a roof now 17-18 years old.

There is no denying the conditions of numerous components of the roof are compromised. There are **clear signs of aging and significant**

**wear to the overall roof membrane.** Compromises include: little or no cover-gravel remaining, top layer of the membrane cracking, seams gapping, membrane soft-spots, lifting and ridging. There are a number of areas where water is pooling, unable to reach the drains; important because with little or no cover-gravel remaining, and the top-layer of the membrane starting to ridge and crack, it is assured the water-proof barrier is straining and at significant risk of penetration.

In our opinion, the best case for the roof's reliable life expectancy is 3-5 years\*, after which a full re-cover and refurbishment will be necessary. This is in line with the statements made in report

completed in May 2000 Inter-coastal Consultant's report which suggested the expected life-span of the roof at that time to be 10-15 years. In addition, we requested a 2<sup>nd</sup> opinion of the roof's condition from consultants from a national roofing consulting firm who confirmed our assessment.

[\*NOTE: This time-frame could potentially be shorter, if exceptionally heavy weather occurs, or if there are unseen, more significant conditions that we were unable to observe. There should be routine observation every six (6) months with careful spot remediation of problem areas found.]

**Recommendations:**

1. *Roof continue to be closely monitored for non-performing aspects*
2. *Further investigate those areas that appear to be non-performing and, if required, make appropriate repairs.*
3. *Begin planning and contingency funding NOW for an anticipated full re-roof of approximately 45,000-47,000 square feet within 3-5 years (or sooner). Costs will depend on type of membrane, sloping and drainage plain changes required and all related roof-side flashing and finishing details.*

## Sloped Roofs



The sloped roofs of the gable-structures show similar wear. There is moss building up at many locations. A few small zinc strips to prevent moss growth have been installed, but show limited success mostly due to the limited size and locations of the zinc strips. There are a few areas where flashings to protect the fascia boards are not properly installed and water is penetrating the edges of OSB substrate beneath. There were

a couple of spots where the roof membrane was not even covering the substrate. A couple of locations have cavities where birds will be entering and nesting under the roofline, within the gable structure.

**Recommendations:**

4. *Roof continue to be closely monitored for non-performing aspects*
5. *Further investigate those areas that appear to be non-performing and, if required, make appropriate repairs.*
6. *Inspect the roof attics for proper ventilation and envelope performance.*
7. *Begin contingency funding NOW for an anticipated full re-roof within 3-5 years or sooner.*



## First Floor Canopy Roofs



There is evidence of a lot of moisture at the soffit panels, below some of the first floor portico roofs. Most likely this is coming from water entering via a failed roof membrane above.

This is most likely caused by a problem with negative roof sloping on the short portico rooflines. Negative roof slopes are where the roof slopes the opposite direction of the drain locations allowing water to remain pooled. Negative sloping may have occurred due

to un-equal settling and shrinkage of the canopy roof's two sides. The 4-story building's wall-side (right side of the picture) can shrink and settle more than the 1-story outside column-side (left side of the picture). Over time, the proper slope reverses towards the opposite direction. The constantly pooled water is causing wear and permeation issues to the roof membrane. Repair will likely require "re-sloping" the roofs prior to re-covering them.

It is important to further investigate these locations soon and remediate if required.

### **Recommendations:**

1. *Investigate the full extent of the problem.*
2. *Re slope the rooflines so the water drains properly.*
3. *Replace roof membranes as necessary.*
4. *Adjust for any other drain or drainage issues.*
5. *Remediate any damage moisture may have caused to the roof's wood structure.*

## Soffits above the Exterior Living Spaces (Decks)



One of the most troubling findings was heavy mold and mildew growth due to excessive moisture in some of the deck soffits.

We noted a number of soffit covers yellowing at the air holes and found excessive moisture accumulating. We opened up only one soffit location and found the extent of the moisture and mold problem fairly extreme.

And, there may be more than one source of the moisture ingress into the soffit space. Potentially, it could be caused by a **leak in the above decking membrane**. It also may be caused by **moisture from interior air exhaust being vented through the soffit** structure including moist air from bathrooms and moist lint-laden air from clothes dryers. And, to exacerbate matters, the method used to satisfy the exterior living space (deck) fire-block requirements, a double sheet of standard gyproc fixed directly above the soffit metal, **completely blocks vital air-flow through the soffits**, eliminating air circulation and **capturing all the moisture within**.

A review of previous reports indicates this problem was noted and even predicted in those reports. Whether anything was done to address the concerns is not known, but from initial investigations, it would appear little or no remediation was under-taken.

### **Recommendations:**

1. *Investigate all soffit locations to determine the full extent of the problem.*
2. *Investigate different ways/materials to act as fire block.*
3. *Investigate best practices to ventilate the soffit areas.*
4. *Open all soffit locations and clean out all mold, mildew and decayed material*
5. *Repair all locations as per the recommendations of the intensive investigations.*

## Air Vents



Some of the venting systems that exhaust moist air from inside the living spaces are a concern. Lint accumulation and moisture retention were noted in more than one location and in some, the lint buildup is so severe, we question whether there is any lint filtration for the clothes dryer at all. And, to exacerbate the problem, many of those air vents are channeled to exit through the patio deck ceilings, which, as mentioned earlier, are poorly ventilated,

largely due to the existing double-gyproc fire-block system. In these cases, moist air is escaping into the soffit cavity and being captured to affect the building components: gyproc, wood framing and in many cases lint which has accumulated.

The accumulated lint acts like a sponge, soaking up the moisture and providing the perfect living conditions for mold and mildew. This will cause decay of the wood structure and is a potential health risk for those living within. In cases where there is significant buildup, the problem becomes acute and adds a potential risk of fire. We saw mold and mildew growth in a number of locations and believe there is similar potential in all locations. We recommend all soffit areas of the decks be investigated and remediated. We suggest all dryer vent covers be replaced with new covers that have spring loaded doors. Compromised dryer vents need to be cleaned and all owners reminded of the importance of the proper, regular use of kitchen grease filters and dryer lint filters.

### **Recommendations:**

1. *Clean all compromised vents areas of lint accumulation*
2. *Remind all residents to practice proper filtration.*
3. *Replace passive air vent caps with spring loaded caps to help reduce drafts and vermin.*



## Gas Vents

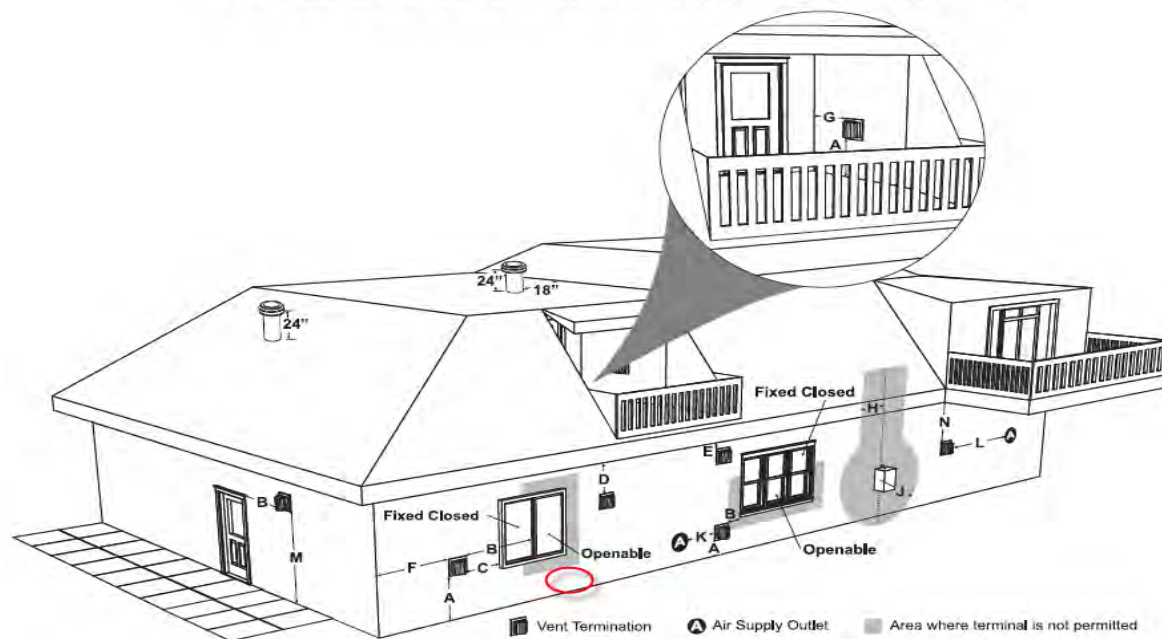


For the most part gas venting looked satisfactory, but there are some locations that exhibit exceptional build-up of exhaust soot on the walls above the vent. Most likely this is an indication of a fireplace requiring service. All fireplaces should be serviced every 2-3 years.

Some gas vents are also situated in very close proximity to windows that open allowing exhaust to easily enter the living space. A cursory review

of BC Building Codes, regarding the amount of space required for exhaust locations for direct vent gas fireplaces suggest that this configuration, even though it is directly below the open window, is according to code. It is strongly recommended a servicing of this (and all) fireplace(s) be performed by a qualified technician to ensure no inappropriate amounts of noxious gases are entering the living space.

### EXTERIOR VENT TERMINATION LOCATIONS



Minimum clearance is 12" (30cm) from a window or door that may be opened. The window in question is approximately 36" (90cm). Grey areas above are the "no installation" zones. (Information provided by Regency P36D-1FireplaceInstallation Manual for Zero Clearance Direct Vent Gas Fireplaces in stated accordance with CSA B149.1, *Natural Gas and Propane Installation Code* and ANSI Z223.1/NFPA 54, *National Fuel Gas Code*, Page 21.)

**Recommendations:**

1. *Clean walls where exhaust soot has accumulated.*
2. *Clean and/or paint trim trim that has been affected.*
3. *Advise residents who have indicators of dirty exhaust to have their fireplaces serviced immediately.*
4. *Advise all residents to have their fireplaces serviced regularly.*

## Moisture Readings



Moisture readings were taken in a number of locations indicated by the site map below. Locations were chosen if they were considered at risk due to either conditional appearance or the potential vulnerability of a specific construction method or component. Another reason was to confirm that past remediation was performing as desired and we re-checked some locations that had been tested in the past. All of the

locations where renovation work had been done were performing as expected. In general, all readings showed dry within acceptable levels with a few areas towards the upper limits, but none high enough to trigger significant concerns.

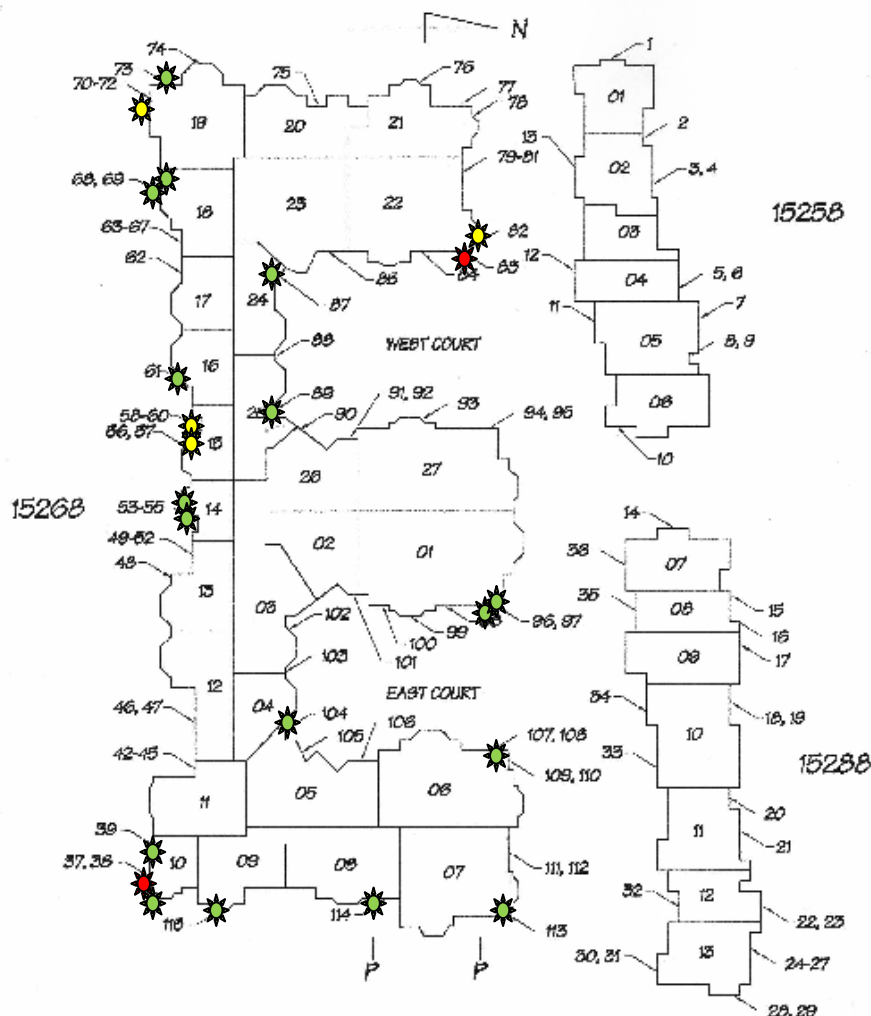
**Green** = Good

**Yellow** = Marginal, monitor bi-annually

**Red** = Poor, Check again in 4 months

### Recommendations:

1. Test as per the above
2. Test regularly in the future to confirm readings remain within recommended limits.





## Decks



Some decks were quite dirty with mold accumulating and jeopardizing the health of the deck floor membrane.

Some deck membranes were breached allowing water onto the sub-surface through seam separations.

Some were separating from the sub-floor.

### **Recommendations:**

1. *All compromised deck coverings should be replaced.*
2. *Remind all residents to keep their decks clear and clean of excessive dirt, mold and mildew*

## Roof Turret



The roof has a decorative turret made up of windows, window trim and siding, with typical flashings and weather trim. The turret did not have the benefit of the window remediation conducted on the rest of the building a decade earlier. This enables us to see the effects of the weathering that the earlier remediation efforts prevented. It should be noted, this was constructed under building practices typical of the 1995 condo building era.

### **Recommendations:**

1. *Repair the windows, window flashings, siding and a trim detail in a similar fashion to the repairs done to the building's other windows using rain-screen techniques.*

## Siding



For the most part the siding was performing as expected. There are a few locations where the siding has come un-attached, is slipping and needs to be re-attached. Considerable care should be taken to ensure the same pieces of siding can be re-installed. If the old siding needs to be replaced, a close match may be difficult to acquire.

Some of the metal Hurricane straps under the siding have bowed out because the

building has shrunk. These metal straps are exerting pressure on the siding, potentially uncoupling the siding pieces. These should be repaired and the siding reattached.

One issue noted is the unique up-side-down application of J-Moldings to finish-off the bottom row of siding. This finishing use of the J-Mold Strips is not the intended application but does seem to be working well enough – *with one exception*. The strips have no drain holes so will water cannot drain out and is being channeled to the ends of the strips which generally terminate under the siding and/or beyond the water dams at the end of the window flashings. This effectively defeats the purpose of the end dams on the window flashings, potentially allowing water access under the siding. This leaves any protection reliant upon the building paper only. We recommend 1) holes be cut or punched into the bottoms of the J-Moldings allowing the water to escape the channel and, 2) the ends of the J-Moldings be cut back so they terminate earlier and water can exit before reaching the end of the strip, on the outward side of the siding.

### **Recommendations:**

1. *Repair all instances of siding that has come loose and or slipped. NOTE: It may be difficult to match colour and profiles of new siding with the old, so take care when de-attaching old siding that it is not damaged and can be re-installed.*
2. *Loosen and re-set the Hurricane straps so they are snug re-fit all the siding that the straps have popped open.*
3. *Drill holes every 24" in the J-Mold strips to allow water to escape.*
4. *Cut ends of J-Mold strips back so they do end behind the siding. This will allow the water to run off the end of the strips on the outside of the vinyl siding.*

## Stucco



In a number of locations the protective stucco membrane has been broken allowing water to access the internal structural components.

### **Recommendations:**

1. *It is recommended all instances be repaired with an acrylic stucco to match.*



## Foundation & Garage

The garage was generally in good condition and for the most part dry. It appeared a galvanized flashing had been attached to the ceiling along a concrete fracture line and channels it to a different location. There were a couple of areas where similar seam leaks were found.

Concrete fractures are generally caused by expansion and contraction of the concrete over time.

The top sealant layer of the concrete garage floor in a couple of high traffic locations has worn through and the now unprotected concrete is seeing wear.

### **Recommendations:**

1. *Seam leaks be repaired with commercial grade concrete epoxy injection system.*
2. *Worn areas of concrete floor should be re-sealed with a quality commercial concrete sealant.*



## Recommendations

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### Flat & Sloped Roofs

#### Recommendations:

1. *Roof continue to be closely monitored for non-performing aspects*
2. *Further investigate those areas that appear to be non-performing and, if required, make appropriate repairs.*
3. *Inspect the roof attics for proper ventilation and envelope performance.*
4. *Begin planning and contingency funding NOW for an anticipated full re-roof of approximately 33,000 square feet within 3-5 years (or sooner). Allow for costs in today's dollars at approximately \$10-\$12/sq.ft depending on type of membrane, sloping and drainage plain changes required and all related roof-side flashing and finishing details.*

### First Floor Canopy Roofs

#### Recommendations:

1. *Investigate the full extent of the problem.*
2. *Re slope the rooflines so the water drains properly.*
3. *Replace roof membranes as necessary.*
4. *Adjust for any other drain or drainage issues.*
5. *Remediate any damage moisture may have caused to the roof's wood structure.*

### Soffits above the Exterior Living Spaces (Decks)

#### Recommendations:

1. *Investigate all soffit locations to determine the full extent of the problem.*
2. *Investigate different ways/materials to act as fire block.*
3. *Investigate best practices to ventilate the soffit areas.*
4. *Open all soffit locations and clean out all mold, mildew and decayed material*
5. *Repair all locations as per the recommendations of the intensive investigations.*

### Air Vents

#### Recommendations:

1. *Clean all compromised vents areas of lint accumulation*
2. *Remind all residents to practice proper filtration.*
3. *Replace passive air vent caps with spring loaded caps to help reduce drafts and vermin.*

### Gas Vents

#### Recommendations:

1. *Clean walls where exhaust soot has accumulated.*
2. *Clean and/or paint trim trim that has been affected.*
3. *Advise residents who have indicators of dirty exhaust to have their fireplaces serviced immediately.*

4. Advise all residents to have their fireplaces serviced regularly.

## Moisture Readings

### Recommendations:

3. Test as per the section above
4. Test regularly in the future to confirm readings remain within recommended limits.

## Decks

### Recommendations:

1. All compromised deck coverings should be replaced.
2. Remind all residents to keep their decks clear and clean of excessive dirt, mold and mildew

## Roof Turret

### Recommendations:

1. Repair the windows, window flashings, siding and a trim detail in a similar fashion to the repairs done to the building's other windows using rain-screen techniques.

## Siding

### Recommendations:

1. Repair all instances of siding that has come loose and or slipped. NOTE: It may be difficult to match colour and profiles of new siding with the old, so take care when de-attaching old siding that it is not damaged and can be re-installed.
2. Loosen and re-set the Hurricane straps so they are snug re-fit all the siding that the straps have popped open.
3. Drill holes every 24" in the J-Mold strips to allow water to escape.
4. Cut ends of J-Mold strips back so they do end behind the siding. This will allow the water to run off the end of the strips on the outside of the vinyl siding.

## Stucco

### Recommendations:

1. It is recommended all instances be repaired with an acrylic stucco to match.

## Foundation & Garage

### Recommendations:

1. Seam leaks be repaired with commercial grade concrete epoxy injection system.
2. Worn areas of concrete floor should be re-sealed with a quality commercial concrete sealant.

## Maintenance Report Details

### Flat and Sloped Roofs

The roof is relatively clean and free of debris. This indicates a maintenance routine must be in place to keep the roof clean, which has been confirmed by the Property Manager. It is assumed this also includes monitoring the health of the roof.

Sloped roofs are showing signs of wear. They are residential grade strip shingles and now quite worn. Zinc strips have been placed to prevent moss growth, but the strips are limited in number and not applied uniformly or effectively. The results are that they are marginally effective and a significant amount of moss is growing.

Roughly 15% of the flat roof has been patched. The balance of the flat roof surface is showing imminent signs of wear and it is recommended it be fully replaced within 3 to 5 years.

The zinc galvanized coating on the metal chimney flashings has worn through to some extent at almost all locations allowing the metal to begin rusting. These flashings could be cleaned of rust and refinished with commercial strength cleaner and zinc paint. But, if the roof is replaced in the near future, full replacement of the flashings would be a better solution and is highly recommended.



There are **clear signs of wear to the overall area of the roof** including: little or no cover-gravel remaining, top layer of the membrane cracking, seams gapping, membrane lifting and ridging and membrane soft-spots.

A soft spot, with an air pocket beneath and a high risk area for penetration. This should be repaired or monitored routinely.

The majority of the flat roof membrane has no gravel top-layer left. Consequently, the bitumen surface material is drying, hardening and cracking. Ridging is also showing in many locations. This leaves only a single-ply membrane (the last-line-of-defense), as the only real protection left. This could already be breaching in spots, but would need further investigation.

There are a number of places where water is pooling, unable to reach the drains. This is important because with little or no cover-gravel remaining, and the top-layer of the membrane starting to ridge and crack, it is assured the water-proof barrier beneath is straining and at significant risk of penetration.





Seams between the bitumen rolls are dried out and many are brittle enough to begin breaking off making the seams vulnerable to water ingress beneath the membrane.



Ridging of the roof layer is prevalent at many locations, with cracks along the tops of the ridges vulnerable to leakage. Continued expansion and contraction of the roof membrane will increase both the prevalence and the severity of this problem.



In a few spots the flashing on the fascia board at the end of the roof gables did not fully cover the edges of the Oriented Strand Board roof substrate. This is allowing moisture to absorb into the substrate and the shingles to lift and mold and mildew to grow within the substrate.



There were a couple of locations where an open cavity existed between gable building structure and the roof it was built on. These are vulnerable to birds and animals nesting and should be closed off for protection.



We found details at a few locations where the roof membrane was not properly attached or adhered or missing and allowing exposure of the sub-structure to the weather.



There are a number of instances of melted, curled vinyl siding where due care had not been taken with the hot torch when bitumen roof patches were being torched on. Instances varied in severity and in most cases it did not appear repairs to the damage had been attempted. Some instances were compromising the building envelope. As an example, here, wasps have been hiving under the melted and gaping siding.



Many of the crown shingles on the gabled roofs are wearing with both holes and cracks occurring in random locations.





## First Floor Canopy Roofs

The first floor has a number of short canopy roofs, many of which have standing water. In many cases this appears to be because of a "negative drainage slope". This is where the drainage plain slopes back towards the building instead of away from the building towards the drains.

We believe this has probably not always been the case. Originally, it was likely sloped correctly but because of unequal building shrinkage (the building-side shrinking more than the out-side), the plain has shifted to the opposite slope.

High

Low

We recommend this be investigated further and, if found to be as suggested, have the all affected roofs shimmed up on the building side to re-grade the slope to drain properly and then re-covered to correct the problem.

Not all instances displayed negative sloping as shown here where water is pooling at the out-side. But, as in this case, drainage was not occurring properly and it is recommended all areas where pooling is occurring be checked for membrane integrity and possible reconfiguration so the water can achieve proper access to the drains.

This roofline membrane is breached with water.



# Soffits above the Exterior Living Spaces (Decks)

One of the most troubling findings of this inspection was the heavy mold and mildew growth the deck soffits due to excessive moisture caused by lack of ventilation and the introduction of excessive moisture through the clothes dryer vent systems.

Air exhaust vents coupled with a colouring of the soffit covers on many decks indicated a sign of potential moisture problem in the deck soffit systems. Indeed, investigating just a couple of the stained deck soffits provided ample evidence of a potentially systemic problem, that could possibly be affecting most of the deck soffits.

Vent covers were found that had excessive amounts of lint buildup indicating inadequate lint filtration and the likelihood of high amounts of moisture being introduced to the soffit cavity.

Above the soffit covers, is a double sheet of gyproc used as a fire block for the outdoor living space above. Though there is a ½ inch spacer between the soffit cover and the fire block, it does not provide enough ventilation to carry away the moisture in the soffit. With this fire-block system, any moisture introduced to the soffit cavity above the fire-block has no way to escape.

The gyproc fireblock material in more than one location showed an excessive amount of mold growth presenting risks including structural decay, fire and, potentially, personal health.





## Air Vents

Air vents were for the most part performing well. We found instances of anomalies including :

Vent caps off or mis-aligned such as this one on the roof.



A vent indicating another example of poor clothes dryer filtration.



Here it appears a towel has been stuffed into an air vent.



As indicated earlier, extreme buildup in a soffit of lint from a clothes dryer.



## Gas Vents

Gas vents were generally in good condition.

There were a few indications of potential problems from gas fireplaces that could be in need of servicing.

These two pictures indicate soot on the siding and window trim, a sign of excessive particulates being exhausted.

Unlike the original exhaust units that were properly installed into the siding and mounted to the substructure of the wall with flashing protection. This exhaust vent appears to have been retrofitted. We noted there is little protection from water ingress other than a bead of caulking around the perimeter of the exhaust housing and the vinyl siding.



## Moisture Readings

We performed moisture readings at 19 locations including some in locations of previous envelope remediation using a quality commercial grade hydrometer. All readings were within the acceptable range of 11% to 15% moisture content. We suggest this continue to be monitored routinely.

This image is typical of the moisture test drill location holes in the stucco.





## Decks

Keeping the decks clean is important for the health of the deck components and specifically the floor membrane.

There were a number of decks that had significant buildup of dirt, mold and mildew and the two (2) pictures to the right are typical of many of the decks.

Deck drains need to be kept clean. Some drains are no longer managing drainage well because they are elevated too high. This may be another result of building shrinkage, compromising the sloping. Some decks may require re-sloping to remediate.

Additionally, some decks had problems with the vinyl decking material lifting or separating from the sub-floor. These decks should have the deck coverings repaired which will most likely entail removal and replacement.

Deck issues are more problematic on the 4<sup>th</sup> Floor decks.





### Roof Turret

The roof has a decorative turret made up of windows, window trim and siding, with typical flashings and weather trim. The turret did not have the benefit of the window remediation conducted on the rest of the building a decade earlier. It should be noted, this was constructed under building practices typical of the 1995 condo building era.

This enables us to see the effects of the weathering that the earlier remediation efforts prevented.

In the case of the turret, the windows, window flashings, siding and trim details need to be repaired in a similar fashion to the repairs done to the building's other windows.



## Exterior Walls, Siding &amp; Stucco

## BUILDING 15258

**North Side:** In general *the siding on the building is dirty*. In some locations, especially on the North side, significant mold is accumulating, especially where there is backsplash from rain or drain water it is quite severe. **It is recommended the exterior walls of the entire building be cleaned and specifically the severe areas. In where backsplash is occurring, it is recommended the underside of the siding be checked for mold growth.** NOTE: This may require the replacement of siding if it cannot be safely removed and replaced.

There are *a few places where the siding has detached*. **It is recommended these be reattached and, if necessary, re-caulked.**

In general, there is an *inadequate or compromised paint and primer finish on wood trim details* around windows and doors. Many locations show the wood is beginning to be weather worn and in a number of instances, moisture penetration has begun to decay the wood. **It is recommended the trim on the building be resealed repainted to ensure wood is preserved. In cases where decay has set in, the wood trim should be replaced.**



**BUILDING 15258 (continued)**

**SE Side:** Birds have picked out the insect screen from the rain-screen in the wall and also managed to pick holes in the J-Trim. **It is recommended the screen be replaced.** The holes should not present a functional problem.



**SW Side:** A BBQ has melted the siding. In our opinion this may not have damaged the siding as a functional screen from weather or insects, but could be replaced for aesthetic purposes.



**NW Side:** 2<sup>nd</sup> floor bay window soffit is detached and needs to be reattached.



**NW Side:** 2<sup>nd</sup> floor window caulking not performing. Recommended cut out caulking and reseal.





**BUILDING 15258 (continued)**

**NE Side:** *Drain is higher than the water plain.* Water is accumulating and pooling weakening the membrane which is getting soft. **It is recommended a re-configuration of water plain so water will drain effectively and, if required, local replacement of the roof structural and/or membrane material.**

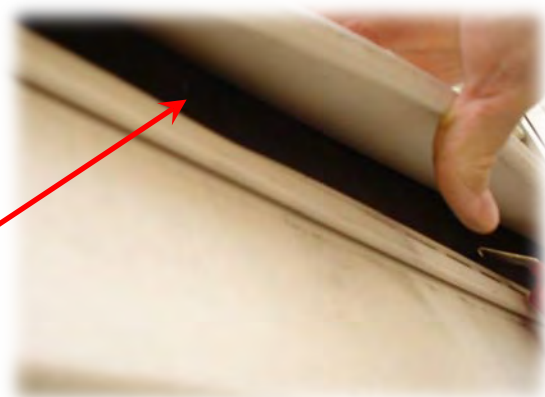
**NE Side:** Another instance of the *decorative crown molding above a 2<sup>nd</sup> floor window deteriorating due to poor paint and primer finish.* **It is recommended this be refinished to protect the wood from the weather and moisture.**



**BUILDING 15288**

**All Buildings:** The building is a 4 story wood structure. The wood within all wood structures shrink over time approximately ¼ inch per story. Over a span of 4 stories this can amount to a full 1" inch of shrinkage. Since the vinyl siding is relatively stable dimensionally, it will not shrink. As the building shrinks, the siding tends to loosen and in some areas will un-couple, leaving bottom edges of the siding open. We saw this occurring in a few places and recommend those locations be reattached. In some locations, it may require a run of siding be completely removed and re-attached to adjust for the shrinkage.

**West Side:** Siding above amenities room has become unattached. Needs re-attachment and tightening.





**BUILDING 15288 (continued)**

**All Buildings:** The vinyl siding was finished off at the bottom using an up-side down J-Molding. This is an improvised, unintended use of the molding. The improvisation works on one level, but presents a problem on another. *The problem is the J-Molding has no drainage holes in the bottom so, water caught in the J-Molding is being channeled to the ends of the molding where it exits behind the vinyl siding and making the building paper the only defense. It is recommended the J-Moldings have drainage holes drilled and/or be cut short, so they terminate before they go behind the vinyl.*

The J-molding terminates behind the vinyl. It should terminate prior to going behind. Drain holes drilled would also help water escape before it reached the end.

**West Side:** *Dryer vent is 50% plugged. Recommend the vent be unplugged and the occupants use proper lint filtration.*

**West Side:** *End Dam flashing is exposing the wood trim detail which will begin to deteriorate if left exposed. Recommend the flashing be modified to cover the wood trim.*



**BUILDING 15288 (continued)**

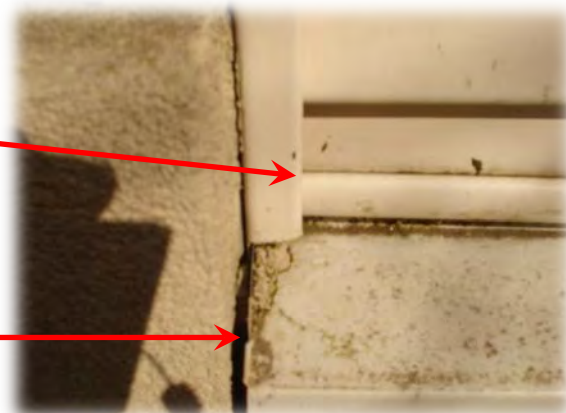
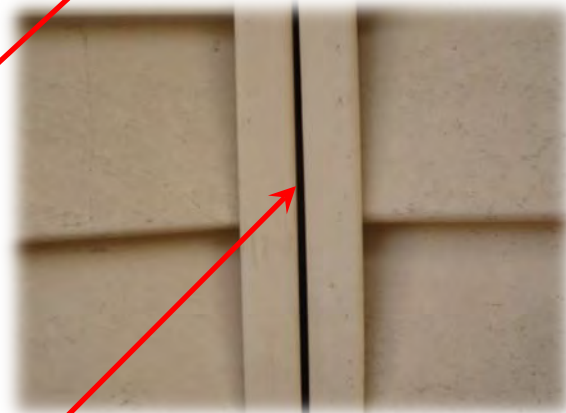
**SW Side:** *Siding and trim details at junction points were inadequate in numerous locations.* In a number of locations on all buildings there are gaps where water can gain access behind the siding leaving only the building paper as the defense against water. **Our recommendation is to send a work team around the building(s) to spot repair siding and trim deficiencies using best-practice siding and J-Mould installation techniques.**

J-mold with no insertion joint to secure the two J-Mold pieces together. This is a simple butt joint, created with a blunt cut.

Caulking has let go from the J-Molding and the stucco.

Another example of the up-side-down J-Molding that terminates behind the siding potentially channeling water inside to the building paper

Caulking has let go between the flashing detail and the stucco.



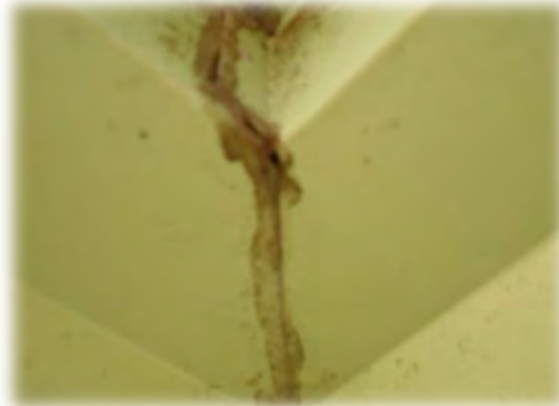
**BUILDING 15288 (continued)**

**SW Side:** *In a number of locations on all buildings, shrinkage of the building has caused the Hurricane ties, which are attached under the siding, to bow putting outward pressure on the siding and pushing it out. This creates "bumps" in the siding and in some cases has caused the siding to detach. Our recommendation is to send a work team around the building(s) to repair hurricane strap deficiencies using best-practice siding installation techniques*

*In numerous locations silicone flashing joints were deteriorating and gapping to allow possible water ingress. Our recommendation is to send a work team around the building(s) to repair these typical flashing deficiencies using best-practice installation techniques*

Another typical example of siding detachment seen in numerous places.

Another example of caulking details that have deteriorated leaving the flashing protection compromised.





**BUILDING 15288 (continued)**

**NE Side:** *Some serious moisture problems were noted at the NE side of the building at Suite 112-113.*

The soffits show dripping and water staining that indicate a significant amount of water seepage.

Directly above the water is pooling deeply on the deck of the roof portico.

The drain for the water is at a high point away from the pooling water due to a negative slope to the roof deck.

The roof deck substrate is soft indicating the probable reason for the dripping of the soffits is water may be penetrating the roof membrane into the roof's building structure. **It is strongly recommended this be remediated immediately to ensure the damage does not persist and become worse. It is also recommended all similar portico roofs that show similar standing water and negative sloping be further investigation of similar water ingress problems or potential.**





**BUILDING 15288 (continued)**

**NE Side:** A similar problem on the portico roof above the entrance of Suites 110-111. A soft roof substrate indicated a probable break and water wicking through the membrane. The wood beneath is likely deteriorating. This could be caused by an inadequate drain deflection pan. The force of the water exiting the drain could be wearing the roof membrane thin. It is recommended the roof be investigated further to determine the extent of the membrane damage and make any repairs required. A more sturdy drain deflection pan should be incorporated into the repairs.

A lint clogged air vent should also be cleaned and repaired.

A siding piece above is detached.

Siding requires cleaning from a dirty fireplace exhaust.

**It is recommended the siding on all the buildings, and especially the North sides be cleaned.**



**Building 15268 NE Section North Side:**

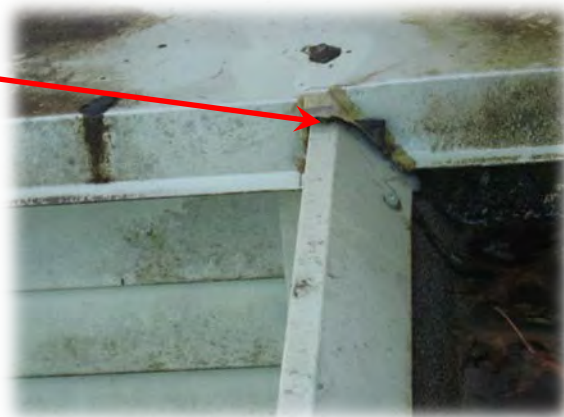
Vinyl decking letting go. Recommend replacing with new vinyl.

Seam separation with water breaching.

A number of locations with cracks in the stucco. Typically the decorative outcrops were the most damage prone locations.

A negative sloped roof causing water to not reach drain and stay pooled.

Caulking is deteriorating on a flashing detail needing repair.



**Building 15268 Center Section North Side:**

Another example of gaps in J-Mold details that allow water behind the siding and rely on the building paper as the last line of defense



Air vent is 50% plugged.



Negative slope on portico roof allowing water to pool.



Hurricane straps are pushing siding out due to building shrinkage.





**Building 15268 Center Section East Side:**

Moisture trapped in soffit.



Dryer vent plugged adding moisture to the soffit structure..



2<sup>nd</sup> floor deck fire blocking drywall under the soffit is water logged and has severe mold growth.



1<sup>st</sup> floor window trim decaying.





**Building 15268 South Side:**

A few instances of holes penetrating the stucco finish.



Metal flashing has a negative slope at the base of the pillar allowing water to pool and water to seep into the pillar structure.



Caulking is missing at the base J-Molding and the cap flashing allowing water potentially behind the wall-envelope barrier.



Siding slipped exposing the building paper.



**Building 15268 South Side:**

Broken drain downspout.



Broken hardi-board panel below lower metal flashing exposing water proof membrane.



Numerous instances of need for repairs to the stucco finish.

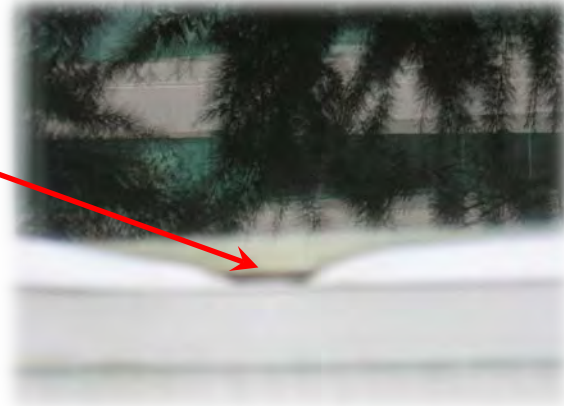


**Building 15268 West Side:**

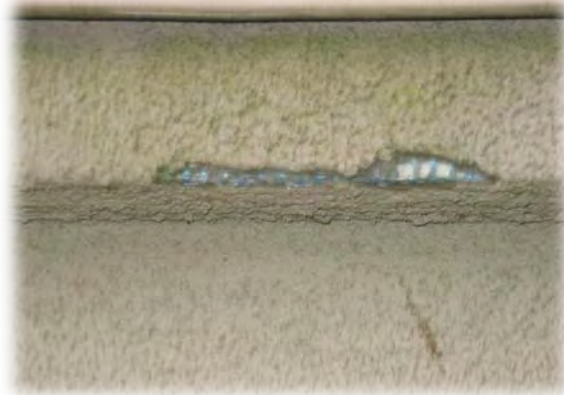
Caulking separating on bay window of 3<sup>rd</sup> floor.



Broken metal trim on 1<sup>st</sup> floor window.



Holes in stucco on 1<sup>st</sup> floor deck.



Roof substrate exposed where it rises above the metal flashing.





## Foundation & Garage

The foundation in general is performing as expected. A few areas need some remediation.

There is an area of water ingress at the junction of the floor and wall. Although it does not seem severe at this point, it is best to try to dam this while it is still manageable. If left too long the problem could become more critical and affect the rebar within the concrete. We suggest an epoxy injection at the site.

A fracture at a seam in the concrete shows signs of water ingress and should be treated with an epoxy injection to attempt to stop it.

At the main entry to the garage, a high traffic area, the top finish has worn through to the concrete

In the East Parkade, South end, the concrete water seal at a drain is worn down to the concrete and needs to be resealed and finished.



## Report Disclaimer

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This report is the result of a non-destructive examination of the building as requested by the client [ ] Property Management Inc. and falls entirely within the agreed scope of work contracted therein. This report indicates visually observable conditions of the building and states opinion(s) regarding those observations accordingly.

It is opinions of the report's authors that performance of the suggested recommendations provides reasonable actions towards maintaining a healthy and comfortable environment for property owners and forms part of a proactive building maintenance program.

It is entirely up to the parties affected to act upon the stated recommendations. Neither warranties nor representations are made in whole or in part for the final outcomes of any actions taken or not taken by the affected parties.

This assessment report is presented for the purpose of enabling [ ] Property Managers in cooperation with the [ ] Strata Council and Property Owners to make informed decisions regarding maintenance and repairs to the building subject to this report.

Duly signed and authorized May 7, 2012 by,



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Richard Shatto  
*Senior Partner*  
Point Nexus Consulting Inc.



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Alvin Epp  
*Senior Partner*  
Point Nexus Consulting Inc.