



10-YEAR STRUCTURAL WARRANTY REVIEW

Located at:
Grand Central One – 2978 Glen Drive, Coquitlam, BC



Prepared for:
Strata Plan BCS3495
Strata Agent First Service Residential

Attention
Mr. Mikhail Ratchowski, Strata Manager
Via E-mail: Mikhail.ratchkovski@fsresidential.com

July 15th, 2019

Prepared by:

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File number: FSR-005-19-D
July 15th, 2019

Strata Agent First Service Residential

200 Grandville Street, Suite 700
Vancouver, BC, V6C 1S4

Dear Mr. Mikhail Ratchowski

Re:

“Grand Central One”, 2978 Glen Drive, Coquitlam, BC
- 10-Year Structural Warranty Review

i3 Building Science & Consulting Inc. was authorized by the Owners of the Strata Corporation under Strata Plan BCS3495 - “Grand Central One”, Strata Agent First Service Residential, to carry out an Update Condition Assessment of its related complex located at 2978 Glen Drive, Coquitlam, BC as per our proposal dated June 5th, 2019 (FSR-005-19-D). The purpose of this Condition Assessment Report is to provide the strata with a better understanding of the present structural condition of the building and to describe our observations, conclusions and recommendations (in regard to upkeep and to satisfy the requirements of the third-party warranty provider) at the above-listed complex. Our report contains photos and photo annotations (corresponding to our observations and recommendations). This Condition Assessment was limited to an evaluation of the building structure only and was executed to identify any possible defects that may be covered by the Ten-Year Warranty term that expires in July 2019.

The visual building review was performed over several site visits taking place between June 18th and July 09th, 2019 as well as previous information documented while some repairs were conducted within the current service life of the complex. The following work, described briefly below, was performed as part of this Structural Condition Assessment:

1. A visual review of the exposed structure, balconies/decks, exterior walls, concrete slabs from the exterior ground and bosun chair drops were selected in a way to provide solely a general consensus of the overall condition of the building, considering our limited access and that to review and/or fully cover every single location and related components of the building would be unrealistic for retained visual-only review mandate.
2. A visual review of the surface of exposed concrete parking slabs, ramps, columns, slab bands, beams, foundations and any retaining walls etc.

3. A visual review of the exterior and interior stairwells, common hallways and or corridors, floors, a sampling of units, as well as exterior balconies, podiums, roof decks and roofs.
4. **Note:** for the above, it pertains to areas as noted within this report where readily accessible and/or we had been authorized and provided access to for a visual-only review.

Based on the findings of our “Ten-Year Structural Warranty Review”, our overall conclusions are:

1. The “Grand Central One” building and its related Commercial Units are performing with some significant structural issues or concerns.
2. Some significant structural defects were observed during our review. Evidence of some structural failures was noted and documented in the commercial parking area, slab and walls. Other minor but important deficiencies, since they may lead to major repairs on the balcony concrete deck in the coming years.
3. The envelope of the building with special attention on the exterior paint, cracking repairs and a waterproof membrane for the most of the concrete elements require significant maintenance in our opinion, and a list of items in need of periodic maintenance was identified and noted in this report.

This report is prepared exclusively for the use and benefit of the client identified on the first page of this report and is not for the use and benefit of, nor may it be relied upon by, any other person or entity. The contents of this report may not be quoted in whole or in part or distributed to any person or entity without the permission of the client.

If you have any questions arising from this report, please do not hesitate to contact the writer.

Yours truly,
i3 Building Science and Consulting.,

Observer:



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1.0 INTRODUCTION

.1 i3 Building Science and Consulting Inc. was retained by the Owners of the Strata Plan BCS3495 - "Grand Central One" located at 2978 Glen Drive, Coquitlam, BC to carry out an Update Condition Assessment of the complex for the strata plan and address mentioned above. These visual building review visits were performed over several site visits taking place between June 18th and July 09th, 2019. Our reviews were conducted via a walk-around review of the exteriors from the ground and where access was provided of common interior areas, such as stairs, rooms, parkades, podiums roofs etc. as well as a sampling of the suites and related balconies. In addition, an additional visual review of the exterior of the tower was completed via bosun chair.

The 10-Year Warranty for 2978 Glen Drive, Coquitlam, BC (BCS3495- "Grand Central One") expires on the following date according to *Travelers Warranty Policy* provide by the Strata:

- 10 Year Structural Defects Warranty expiring date: **July 24th, 2019**
- .2 It is assumed that the "Grand Central One" Complex was designed and built in accordance with the necessary permits and approvals, in conformance with Codes and By-laws applicable at the time of construction and that all subsequently performed maintenance work was executed in an appropriate manner. No attempt has been made to analyze the design of the building or its components and no detailed zoning or Building Code review has been conducted.
- .3 We understand that the warranty provider for the complex is *Travelers*. In addition, the Owners may have optional coverage that is different from or extends beyond the standard warranty policy. As described in the Homeowner Protection Act (HPA), the following is the minimum coverage for new strata home warranties:
- .4 We understand that the warranty provider for the complex is *Travelers*. In addition, the Owners may have optional coverage that is different from or extends beyond the standard warranty policy. As described in the Homeowner Protection Act (HPA), the following is the minimum coverage for new strata home warranties:
- In the first 15 months, for the common property, common facilities and other assets of a strata corporation coverage for any defect in materials and labour. - **Expired.**
 - In the first 24 months:
 - Coverage for any defect in materials and labour supplied for the electrical, plumbing, heating, ventilation and air conditioning delivery and distribution systems,
 - Coverage for any defect in materials and labour supplied for the exterior cladding, caulking, windows and doors that may lead to detachment or material damage to the Common Property, and,
 - Any Building Code Defect. - **Expired.**

- In the first 5 years:
 - Any Building Envelope Defect in the new home including a defect which permits unintended water penetration such that it causes, or is likely to cause, material damage to the new home. - **Expired.**
 - In the first 10 years, any Structural defects. - **Still in effect.**
- .5 A Questionnaire was provided to the Owners to answer several questions and to list any concerns or deficiencies related to the building structure, especially those which could be observed from inside and/or from their balconies and decks of their units. From a total of 181 units, 23 answered and returned back the questionnaires. From the questionnaires and a visual review of some of the units, there was not any identified structural deficiency.
- .6 Despite our efforts, we cannot guarantee that all the deficiencies have been identified, and as such, we recommend that all issues reported by the Owners such as cold drafts, water ingress and/or excessive moisture content in the units and condensation on the windows must be further investigated.

2.0 PROBLEM CLASSIFICATION

To maintain the clarity and consistency of the format of our our reporting, problems mentioned by owners within received questionnaires or on-site to us and / or observed by personnel of I3 Building Science and Consulting (I3BSC) during any of our site review visits made, are reported generally under ***five (5) main problem / deficiency categories*** for our warranty review report structure and depending on the mandated year and type of warranty review for the specific assignment we are conducting for our review.

For this report for Strata Plan BCS3495 the "Grand Central One", it is a visual-only 10-year structural warranty review prior to its expiration; so this review and report will have its main focus on the last three problems/deficiencies categories as they are more related to this review and reporting mandate.

After the main description problem/deficiency category type, we will also note the level of importance of a problem/deficiency item(s) as either of the following levels:

- Low
- Medium
- High

Finally, for a reported problem/deficiency item(s), we will briefly discuss and or recommend a general action to be taken and or considered for it.

.1 CATEGORY TYPE

As noted, according to the type of the deficiency and as related to our warranty review year and its concentration, they would be classified based on visual observations and the opinion of the I3BSC consultants in 5 main problem/deficiency categories as follows and show below as well. (1) Material and Labour deficiencies, (2) Building Envelope deficiencies, (3) Non-Structural Defect, (4) Structural Defect, and (5) Structural Damage. However, also as noted, for this report, it will focus more on the last three

categories since they are related to the main purpose of this report, the 10-year warranty structural review. At times, depending on our reporting mandate and if a deficiency may have been caused and or further adversely affected by another and or in relation to multiple categories, we may also refer to those other related categories too, as and when applicable or appropriate for our reporting purposes.

C1 MATERIAL AND LABOUR (ML)

Any deficiencies in materials and labour supplied for the electrical, plumbing, heating, ventilation and air condition delivery and distribution systems.

Any deficiencies in materials and labour of the exterior cladding, caulking, windows and doors that may lead to detachment or material damage to the units, common areas, facilities or any other assets of the strata corporation.

Any deficiencies in materials and labour which renders the new home unfit to live in, and for violation of the Building Code.

C2 BUILDING ENVELOPE (BE)

Any deficiencies in the building envelope, including a defect that permits unintended water penetration such that it causes, or is likely to cause, material damage to the units, common areas, facilities or any other assets of the strata corporation.

C3 NON-STRUCTURAL DEFICIENCY (NSD)

Any deficiencies in the building structure that based on visual observation and the opinion of the i3BSC consultants may not result in the failure of any Load Bearing portion, and the Load Bearing function of other elements including but not limited to units, common areas, facilities or any other assets of the strata corporation may not be affected.

C4 STRUCTURAL DEFICIENCY (SDE)

Any deficiencies or damages in the building structure that based on visual observation and the opinion of the i3BSC consultants may result in failure of any Load Bearing portion, and the Load Bearing function of other elements including but not limited to units, common areas, facilities or any other assets of the strata corporation may be affected.

C5 STRUCTURAL DAMAGE (SDA)

Any defects or damage in any element, system or assembly of the building that based on visual observations and personal opinion of the I3BSC consultants, might be resulted from a Structural Deficiency.

.2 IMPORTANCE LEVEL

There are three subcategories for this category. Low, Medium, and High.

LOW

All minor problems that based on visual observations and the opinion of the I3BSC consultants, that will not affect or cause significant damage in any other element, system or assembly of the building and they may not need to be repaired or attended in the upcoming years for structural purposes of the building.

MEDIUM

All standard/common problems based on visual observations and the opinion of the I3BSC consultants, that may affect or cause significant damage in other elements, system or assembly of the building and they might need to be monitored by visual observation, repaired or attended in the upcoming years either or not for structural purposes of the building.


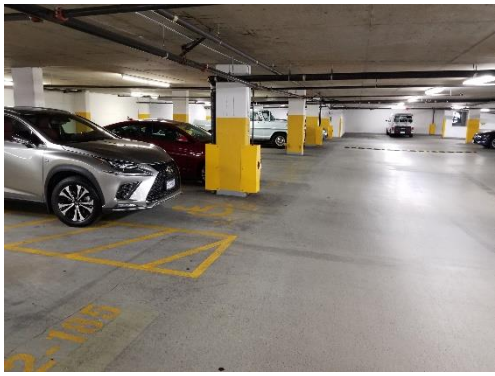
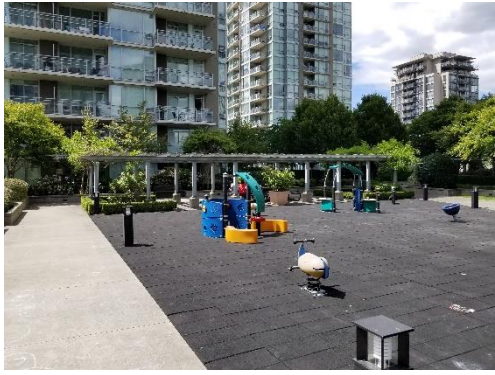
HIGH




All important problems that based on visual observations, the opinion of the I3BSC consultants, and on-site measurements that are or will be affecting or causing significant damage in other elements, system or assembly of the building and/or compromising the structural stability of the building. They need to be monitored by measurements, repaired or attended in a short period of time.

.3 ACTION REQUIRED

Describes the action to be taken in order to address the problem. We will briefly discuss and or considered for the reported problem/deficiency item(s).



3.0 GENERAL DESCRIPTION



Item	Photo	Description
3.1		<p>The “Grand Central One” consists of two buildings. A twenty-eight (28) floors high residential tower and a three (3) floors high commercial building plus one underground level which is part of the parking. The complex is a cast-in-place concrete building with various types of finishings and/or claddings.</p> <p>The tower exposed concrete elements are painted along the 28 floors. The commercial units’ cladding is a combination of different materials such as stone culture, brick veneer and painted concrete.</p>
3.2		<p>This photo shows a general view of one area of the parkade. The parkade consists of four (4) levels. Three (3) of them are built on suspended slabs and one (1) is an on-grade slab. Of the four (4) slabs that are part of the parkade, just the three (3) suspended slabs are coated with a liquid membrane waterproof.</p>
3.3		<p>The following photo is a general view of one area of the podium of the building located on the fifth (5th) floor. This podium is surrounded by the three towers which are part of the Grand Central Complex.</p>



<p>3.4</p>		<p>The windows are thermally-broken and aluminum-framed. Aluminum insulated metal swing doors provide access to balconies. The exterior walls consist, as it was previously mentioned, of the following components and or depending on wall type and location:</p> <ul style="list-style-type: none"> - Brick veneer - Stone veneer - Painted Concrete - Window glazing - Window/Guard glazing - Aluminum window/doors frames - Flashings on different locations
<p>3.5</p>		<p>The balconies are reinforced concrete suspended slabs, coated with liquid waterproofed membrane and sloped to a drain located in the center of the slab. These drains, drain the water through a pipe to the outside of the building.</p>
<p>3.6</p>		<p>As per our visual observations, the main roof, roof decks, podiums as applicable are reinforced sloped concrete slabs.</p>

4.0 OBSERVATIONS AND COMMENTS

4.1 PARKADES

Item	Photo	Description
4.4.1.1		<p>This photo shows a typical hairline crack existing along the east wall of the building on level 3 (parkade). This wall is facing towards the High St level.</p> <p>This kind of cracks are caused by shrinkage/thermal process of the concrete elements. These cracks are usually straight and even in width and commonly they do not represent a structural problem. However, these cracks may create a building envelope concern since they may become a source of water ingress into the building, for this particular case into the parkade. Water in parkade may create slippery conditions or future deterioration.</p> <p>It is always recommended to seal these cracks with compatible sealant in order to stop, reduce or prevent water ingress.</p> <p>Location: Along the east wall on level 3 Type: BE Importance: Medium Action required: Upkeep as needed</p>
4.4.1.2		<p>Cracks in concrete block/firewalls were observed.</p> <p>Repair as needed in order to restore the fire stop system.</p> <p>Location:</p> <ul style="list-style-type: none"> - Emergency generator room - Besides stall #301 (P3) - Commercial parking, pedestrian entrance beside Glen and Hight street entrances. <p>Type: NSD Importance: Medium Action required: Maintenance</p>

<p>4.4.1.3</p>		<p>Water ponding was observed and confirmed by the occupants of unit 102. A drain should be installed or re-sloping the deficient area to remove the water from there.</p> <p>Location: Back entrance of unit 102 located on Glen Drive Type: SDE Importance: Medium Action required: Further Investigation and Upkeep as needed</p>
<p>4.4.1.4</p>		<p>This photo is representative of many of the areas on the ceiling for all of the suspended slabs. Many hairline cracks were observed, with no specific pattern identified, in many areas. These hairline cracks are very common in cast-in-place concrete elements.</p> <p>These cracks are usually from the shrinkage process as the concrete cures and comes to strength and typically are not a structural concern. However, they may and/or develop water ingress coming from them into the interior of the parkade and or other applicable areas in the building(s).</p> <p>For such leak occurrences, it is recommended to address the most noticeable cracks and/or their related external membrane or dampproofing details affecting them that may leak when they are noted by either concrete injection or if able topical membrane detailing for their proper upkeep as needed.</p> <p>Location: Ceiling of suspended slabs for all floors Type: NSD Importance: Low Action required: Monitor & Upkeep as needed</p>

<p>4.4.1.5</p>		<p>Generally cracks on concrete slabs should be repaired at the minimum by acceptable crack sealing methodologies depending whether they are on the suspended parking slabs with a traffic bearing membrane or on the concrete slabs-on-grade of the parking garage. For slab-on-grade cracks, routing and proper caulking sealant is a maintenance repair option.</p> <p>The locations of the most excessive cracks at the time of the review are reported below.</p> <p>Locations: Concrete slab of P1. Stall # 65, from #4 to #30 and #40, from #14 to #19</p> <p>Type: NSD Importance: Medium Action required: Maintenance</p>
<p>4.4.1.6</p>		<p>These photos show possible shear cracks on the perimeter wall. These cracks may be the result of shear-stress concentration on the wall. However, since this is a singular hairline crack and no shear damage pattern was observed in any other area, we are the opinion that these particular cracks do not represent any structural concern at the time of this review.</p> <p>Nevertheless, we do recommend monitoring in order to detect any new cracks or a specific pattern that represent a hint of a structural deficiency as well as any water ingress into the parkade. In the case of water ingress, we recommend a polyurethane crack injection.</p> <p>Location: Parking 1 stall #70, 39, 36, 35, 9, 3 Type: NSD Importance: Low Action required: Monitor & Upkeep as needed</p>



<p>4.4.1.7</p>		<p>These photos are intending to show failures by delamination in concrete elements. It appears that some concrete patches located on the column base and one of the walls of the parkade ramp towards P1 are popped-up.</p> <p>We recommend conducting further review and monitoring and/or upkeep as needed.</p> <p>Location: Column in P1 and southeast parkade ramp towards P1</p> <p>Type: SDE Importance: Medium Action required: Further Investigation and Upkeep as needed</p>
<p>4.4.1.8</p>	 <p>Photo A.- Concrete delamination on the commercial parking</p> <p>Photo B.- Notorious water ingress from the commercial parking level towards P1 level</p>	<p>The following photos show a major deficiency in the commercial parking and its related ramp towards level 2 and the garbage loading bay.</p> <p>Photo A is showing a sample of some areas located on the commercial parking and the garbage loading bay. Concrete and membrane delaminations were documented prior to being repaired during 2019.</p> <p>As a part of the repair project undertaken in 2019 to repair this widespread deficiency at the commercial parking and numerous other locations of the parkade, some cracks/cold joints were discovered when the concrete delaminations started to show. This structural deficiency in the concrete slab entails other deficiencies related to water ingress. In the opinion of the writer, these water ingress into the parkade would not exist if the concrete delamination has never happened and hence the waterproof membrane have not been disintegrated/delaminated (Photos B and C).</p>



Photo C.- Notorious water ingress from the commercial parking level towards P1 level



Photo D.- Crack possibly injected with polyurethane foam located beside the ramp which ends at P1

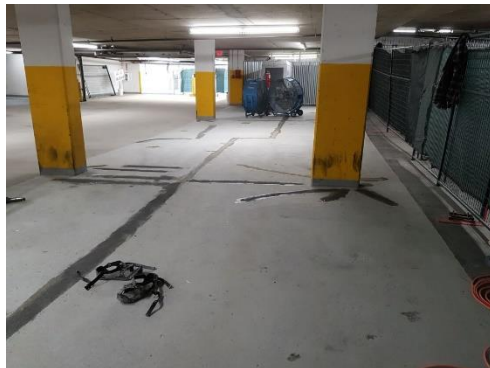


Photo E.- Concrete floor state after after removing the topping from several areas and ready for re-coating with waterproof membrane.

Major repairs were conducted by the owners to repair the concrete suspended slab and also replace the waterproofed membrane at the commercial parking areas (mostly) (photos D and E).

Location: Commercial parking and garbage loading bay

Type: SDE and SDA

Importance: High

Action required: Further Investigation, Monitor and Upkeep as needed

4.4.1.9



Photo A.- Exposed concrete slab in the ceiling of Urban Gate Restaurant



Photo B.- Efflorescence in concrete block firewall due to water ingress in the emergency generator room



Photo C.- Efflorescence in concrete block firewall and concrete floor due to water ingress outside the emergency generator room

Signs of water ingress observed and confirmed by the occupant of the commercial unit located on the corner of The Hight St. and Atlantic Ave (southeast corner of the complex). Lack of insulation was noticed in a wide area of the ceiling. The occupant mentioned that water is leaking from the room located on the top (Photo A).

The room located on top is the Emergency generator room and when we reviewed it, some clear signs of water and efflorescence were observed on the concrete block wall and the floor located on the east side of the interior of the room (Photo B).

Moreover, on the outside of the wall and the control joint of the concrete blocks wall some efflorescence was observed. We also observed that some repairs were being conducted on the floor (Photo C, D and E)

Since the water stains and efflorescence were observed from the top of the wall towards the bottoms, we are the opinion that some water may be leaking from the podium above. This podium was reviewed and commented in this document in section number 4.3


We highly suggest conducting a further investigation and a membrane review of the concrete slab on top.

Location: Emergency generator room in the southeast side.


Type: BE




Importance: High

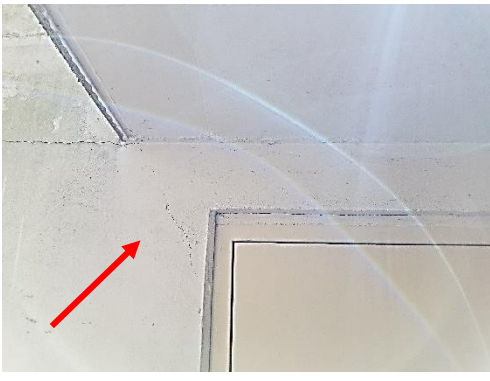


Action required: Further Investigation, Monitor and Upkeep as needed


	 <p>Photo D.- Efflorescence due to water ingress on the control joint between a concrete wall and a concrete block wall</p>	
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4.2 COMMON INTERIOR AREAS, CORRIDORS, STAIRWELLS


Item	Photo	Description
4.4.2.1		<p>Vertical hairline cracks were observed at numerous locations in drywall and they occur naturally along the seams between two boards. These isolated cracks usually do not represent a structural problem unless additional evidence of damage is observed.</p> <p>Location: Lobby of Grand Central Tower One. Level 22 (unit 2203, 2201), level 21 (units 2103, 2104), level 20 (units 2003, 2004), level 19 (unit 1901, 1903, 1904), level 18 (unit 1801, 1803, 1804), level 17 (unit 1703, 1704), level 11 (unit 1104), level 110 (unit 1001, 1007, 1004), level 9 (unit 901, 904), level 8 (unit 804), level 7 (unit 704, 701), level 6 (unit 604, 602, 601), level 3 (unit 301).</p> <p>Type: NSD Importance: Low Action required: Upkeep as needed</p>



<p>4.4.2.2</p>		<p>Numerous cracks like this were observed in the stairs ramps of all of the levels. In our opinion, this deficiency does not represent a structural concern.</p> <p>Location: Stairwells Type: NSD Importance: Low Action required: Upkeep as needed</p>
<p>4.4.2.3</p>		<p>Numerous cracks in the concrete block fire walls were observed at several locations. Repair as needed in order to restore the fire stop system.</p> <p>Location: - Stair 2, level 2 - Stair 3, level 2 Type: NSD Importance: Medium Action required: Maintenance</p>
<p>4.4.2.4</p>		<p>Hairline cracks observed on the concrete header of some levels. They are not seen as structural problems. At this point, we don't see any action required unless water ingress is observed on the cracks located on the outside.</p> <p>Location: - Stair 2, level 1, 2, and 3 - Rooftop entrance - Service area (2nd level) on the north side</p>




		<p>Type: NSD Importance: Low Action required: Upkeep as needed</p>
<p>4.4.2.5</p>		<p>Water ingress observed on the ceiling.</p> <ul style="list-style-type: none"> - It appears that the water ingress in the storage room is coming from the drainage system, however, further investigation is recommended in order to certainly know the source of the water ingress. - Unknown source of water ingress in the ceiling of the corridors. Further investigation is recommended. <p>Location:</p> <ul style="list-style-type: none"> - Corridor ceiling in front of the units 2307, 1501, 1506 - Media Center ceiling - Storage parking 1 at #91 and #53 <p>Type: ML Importance: Medium Action required: Further Investigation and Maintenance</p>
<p>4.4.2.6</p>		<p>Detached drywall tape was observed.</p> <p>Location: Level 31, Level 30 (all units), level 29 (unit 204, 2902, 2901, 2907), level 28 (unit 2804, 2801, 2802), level 27 (unit 2704, 2702, 2706), level 26 (unit 2604, 2605, 2603, 2601), level 22 (all units), level 19 (unit 1905), level 18 (unit 1805), level 8 (unit 805).</p> <p>Type: ML Importance: Low Action required: Upkeep as needed</p>



<p>4.4.2.7</p>		<p>Evidence of water ingress. Due to the pattern observed, it appears that there is a crack on the suspended concrete slab.</p> <p>Further investigation and monitoring are recommended.</p> <p>Location: Media Centre Type: ML Importance: Medium Action required: Upkeep as needed</p>
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4.3 EXTERIOR COMPONENTS OF THE TOWER, ROOFTOP AND PODIUM OF THE TOWER





Item	Photo	Description
<p>4.4.3.1</p>		<p>These photos are showing delaminated caulking and caulking ageing. These two types of failures are found very common in the caulking sealer of the gum lip flashing which is the first water barrier of the waterproofing system for the concrete slab.</p> <p>It appears that the caulking has reached his service life in some areas since its appearance looks cracked and brittle. This is a very clear sign of ageing.</p> <p>We recommend conducting a maintenance plan and replacement in order to prevent water ingress into the membrane edge which might find a way to seep through.</p> <p>Location: 5th level. Along the perimeter wall. Type: BE Importance: Medium Action required: Upkeep as needed</p>



<p>4.4.3.2</p>		<p>This photo shows the lack of mineral protection or another mechanical layer to protect the membrane. It appears that the waterproof membrane was not protected with any mechanical protection and this deficiency may end it up getting the membrane pinched against the concrete elements and letting water infiltrate until the concrete slab or any cold joint.</p> <p>Since some water ingress is reported in many locations under this area. We do recommend conducting a membrane review to clarify the current state of the waterproof system.</p> <p>Location: 5th level in the south and southeast corner. Type: BE Importance: High Action required: Further Investigation and Upkeep as needed</p>
<p>4.4.3.3</p>		<p>These attached photos are showing examples of typical hairline cracks existing along the South perimeter wall of the building on level 5 (podium). This wall is facing Atlantic Ave.</p> <p>This kind of cracks are caused by shrinkage/thermal process of the concrete elements. These cracks are usually straight and even in width and commonly they do not represent a structural problem.</p> <p>However, since these cracks are exposed to direct rain may represent a building envelope concern because they may be a source of water ingress into the building or may contribute to deteriorating the paint coat of the walls facing outside the building.</p> <p>There is one particular crack that needs attention because it was observed to be approximately around 3 mm in width and has the potential to cause water ingress. Nevertheless, it is always recommended</p>


		<p>to seal all these cracks with compatible sealant or even better by applying new paint coating after the sealant in order to stop, reduce or prevent water ingress.</p> <p>Location: 5th level in the south and southeast corner. Type: BE Importance: High Action required: Monitor & Upkeep as needed</p>
<p>4.4.3.4</p>		<p>These photos show the same deficiency mentioned in the previous point but in a different location. These photos were taken in the east of the perimeter wall of the rooftop.</p> <p>In the second photo, it can be observed how the paint was popped up from the concrete due to water ingress from the inside of the wall.</p> <p>The recommendation is the same as it was described for the point 4.4.3.3</p> <p>Location: Rooftop level in the east and west location. Type: BE Importance: High Action required: Upkeep as needed</p>
<p>4.4.3.5</p>		<p>This photo shows shear cracks on the concrete wall of the elevator shaft. These cracks are the result of shear-stress concentration on the wall. Although these cracks may be narrow cracks at this time, the writer feels due to their position/pattern depending on the areas may represent a structural concern. It is recommended to have a further investigation and also as part of this investigation, install cracks monitors. Once further investigation and monitoring has been done, further recommendations can be made.</p>

		<p>Location: East and west walls of the elevator shaft on the rooftop.</p> <p>Type: SDE</p> <p>Importance: Medium</p> <p>Action required: Further Investigation, Monitor and Upkeep as needed</p>
<p>4.4.3.6</p>		<p>This photo shows some exposed cold joints between two different concrete walls. Due to the width, position and the elements that are connected through these joints, we do not think they are a structural concern at this time. However, as mentioned before, these cold joints may represent a source of water ingress into the building.</p> <p>We recommend replacing the delaminated or missed caulking. We recommend installing vertical flashings to protect the area against direct sunlight and rain.</p> <p>Location: Southeast and southwest walls on the rooftop level.</p> <p>Type: NSD</p> <p>Importance: Medium</p> <p>Action required: Maintenance</p>
<p>4.4.3.7</p>		<p>The following photos show examples of typical deterioration in the waterproofing membrane at many locations of the building. This deficiency extends from areas where the membrane is deficient to areas where the membrane is disintegrated.</p> <p>We recommend addressing this envelope deficiency on ledges, overhangs and other building elements built with minimal slopes since the lack of waterproofing membrane helps water penetrate through the existing cracks on the surface of these elements.</p> <p>The water that penetrates the exposed concrete elements may ingress inside the units and it may contribute to increasing the humidity in the air inside the unit. High levels of humidity and a differential of the temperature from the outside to the inside may create or contribute to having condensation on the windows and concrete walls in the inside of the unit.</p> <p>The last photo of this deficiency was taken from the outside of unit 301. This unit is reported to experience water ingress from the</p>


		<p>bottom of the window where the waterproofed membrane was disintegrated or washed. We also observed some cracks in the concrete ledge.</p> <p>Location: Exterior concrete elements around the complex.</p> <p>Type: BE Importance: High Action required: Maintenance</p>
<p>4.4.3.8</p>		<p>This attached photo shows what appears to be a crack that needs attention to avoid water ingress into the cavity of the wall assembly.</p> <p>Location: On top of the stone cladding of unit 104 at 1168 The High St.</p> <p>Type: NSD Importance: Medium Action required: Maintenance</p>
<p>4.4.3.9</p>		<p>These photos are showing potential signs of water ingress into the stairwells or parkade (from the services doors) and this particular unit (301). Further investigation (membrane review) and monitoring are suggested in order to prevent water ingress into the parkade or stairwells.</p> <p>Location: Beside unit 301 and several locations</p> <p>Type: NSD Importance: Low Action required: Further Investigation and Monitor</p>





		
<p>4.4.3.10</p>	 	<p>These photos show possible lack of maintenance on the balconies. Moss growing and paint peeling are observed on the edges of the balcony decks.</p> <p>A recommended maintenance program should be conducted to remove all the organic matter from the building envelope. Some areas should be recoated to restore the waterproof system.</p> <p>Location: All the elevations being more critical the north elevation Type: BE Importance: Medium Action required: Maintenance</p>
<p>4.4.3.11</p>		<p>This typical crack was observed in several locations. This type of crack is commonly observed on the edge of the balconies especially under the railings. This may be due to the closeness to the edge of the drilling needed to install the bolts for the railings.</p> <p>Although these hairline cracks do not usually represent a structural concern since shrinkage cracking at concrete is normal. Having them exposed to the weather without any waterproofing protection will lead to further deterioration.</p>

		<p>Left unsealed and unrepaired, those cracks will develop deterioration and further damage.</p> <p>Location: All the elevations but being more critical the north elevation Type: SDE Importance: High Action required: Maintenance</p>
<p>4.4.3.12</p>		<p>This photo shows an example of missed flashing.</p> <p>Self-adhered membrane exposed to UV radiation. The self-adhered membrane must be protected against water and direct sunlight.</p> <p>Vertical flashing should be installed.</p> <p>Location: Multiple locations such as north elevation level 30, east elevation level 32 and 29 as the most notorious.</p> <p>Type: BE Importance: Low Action required: Maintenance</p>
<p>4.4.3.13</p>		<p>Scupper or overflows drains were observed without proper extrude pipes. This leads to faster paint discoloration and may contribute to water ingress in some areas where raining water would not access normally.</p> <p>Location: Multiple locations such as level 19 on east elevation. Levels 6 and 7 on South Elevation.</p> <p>Type: BE Importance: Low Action required: Maintenance</p>

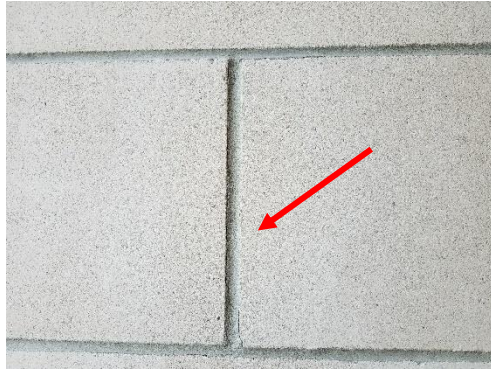
<p>4.4.3.14</p>		<p>These photos show examples of cracks commonly observed on the corners of windows. Even though some of these cracks appear after time, they always should be properly repaired to avoid water ingress into the units. We recommend attending these deficiencies with your maintenance plan or when the general repaint of the building is conducted.</p> <p>Location: Multiple locations around the four elevations. Type: BE Importance: Medium Action required: Maintenance</p>
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4.4 EXTERIOR COMPONENTS OF COMMERCIAL UNITS

Item	Photo	Description
<p>4.4.4.1</p>		<p>The following photos are showing a repetitive deficiency on the brick and stone veneers. It appears that the cladding was not sealed with a penetrating waterproofing sealant (silane siloxane sealer) to protect against mould, algae, efflorescence and humidity as minimum protection.</p> <p>These signs may indicate water penetration from outside to the inside the veneer and/or water trying to escape from the inside cavity of the wall assembly. In any of the previously described situations, this deficiency needs to be attended in order to prevent further damages to the cladding or the units.</p>

		<p>Location: Exterior cladding of the commercial units Type: BE Importance: High Action required: Maintenance</p>
<p>4.4.4.2</p>	  	<p>Cracks in brick veneer and missed caulking may contribute to water ingress into the wall cavity. Even though in our opinion, these isolate deficiencies do not represent a structural concern for the cladding structure, they should be attended to and addressed in a maintenance program to prevent water ingress into the building.</p> <p>Location: Exterior cladding of the commercial units Type: BE Importance: High Action required: Maintenance</p>

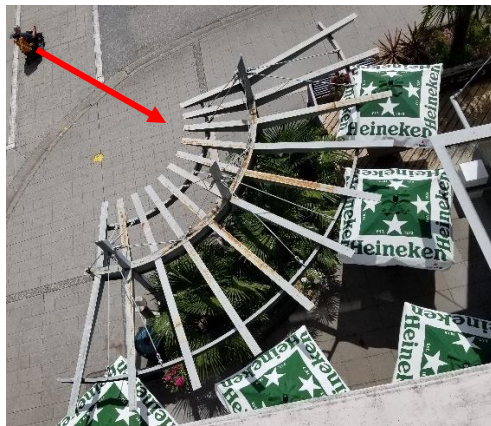
4.4.4.3



Cracks in stone veneer and missed caulking between the veneer and other elements may contribute to water ingress into the wall cavity. Even though in our opinion these isolate deficiencies do not represent a structural concern for the cladding structure, they should be attended and considered in a maintenance program to prevent water ingress into the building.


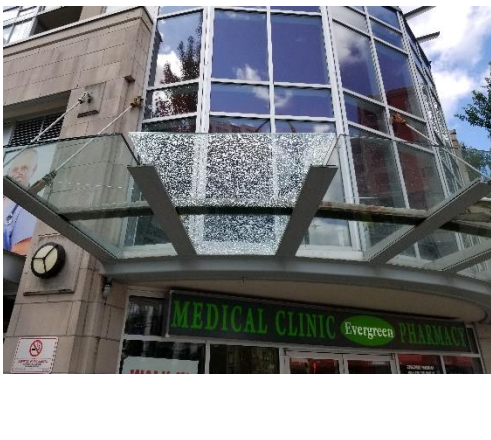

Location: Exterior cladding of the commercial units
 Type: BE
 Importance: High
 Action required: Maintenance




4.4.4.4





These attached photos show the deterioration of the attached pergolas. The pergolas are observed with serious deteriorations of their anti-corrosion coating. The coating is delaminated in several portions of the elements and the water has started to corrode many of them. This deficiency may ultimately lead to a reduction in the load-carrying capacity of the elements.

We recommend conducting an evaluation of the condition of the structure and prepare a maintenance



		<p>program to restore the anti-corrosion coating.</p> <p>Location: Commercial Units Type: SDE Importance: High Action required: Further Investigation and Maintenance</p>
<p>4.4.4.5</p>		<p>Some of the glass panels were observed broken. These deficiencies represent a serious concern for the pedestrians/users' safety of this complex. We suggest replacing the panels at the earliest opportunity to avoid any possible accidents.</p> <p>Location: Commercial Units Type: SDE Importance: High Action required: Maintenance</p>
<p>4.4.4.6</p>		<p>Concrete delamination observed in the recycling room. These delaminations should be considered and attended in a maintenance plan for the upkeep of the building.</p> <p>Location: Recycling room entrance (Atlantic Ave.) Type: NSD Importance: Medium Action required: Maintenance</p>



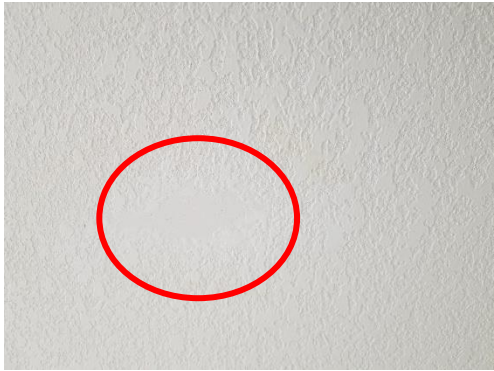
		
<p>4.4.4.7</p>		<p>This photo is showing the location of a cold joint where water has drained-out the paint and the concrete patch. Signs of water ingress are observed.</p> <p>Location: Garbage room on Atlantic Ave. Type: BE Importance: Low Action required: Maintenance</p>
<p>4.4.4.8</p>		<p>Corroded flashing observed at the base of a concrete column. These flashings are part of the envelope building and it is always good practice to maintain all the elements in good shape. Recommended replacing as needed.</p> <p>Location: Unit located on the corner of Glen Drive and The High st. Type: BE Importance: Low Action required: Maintenance</p>




4.5 INTERIOR AREAS OF THE UNITS




Item	Photo	Description
<p>4.4.5.1</p>		<p>Sign of water ingress observed in the ceiling of the commercial unit 102 of Glen Drive. The occupant of the unit mentioned that this problem has happened and damages have occurred two times. The exact source of water ingress has not been found.</p> <p>Based on the mold/algae growing on the stone cladding on the second floor on top of the unit 102 additionally to these previous water ingress mentioned, we suspect that the membrane located on the 3rd level may be deteriorated and allowing water ingress into the concrete suspended slab as well as into the cavity between the cladding and the concrete wall.</p> <p>We recommend conducting a review of the membrane located on top of this unit (north service area on the 3rd floor), to minimize the possibility of water ingress from this podium.</p> <p>Location: Unit 102 Type: BE Importance: High Action required: Further Investigation, Monitor and Upkeep as needed</p>
<p>4.4.5.2</p>		<p>These photos show evidence of previous water ingress into the unit 100. The occupant of the unit mentioned that some water was observed a few times during raining days. However, the source of the water ingress has not been found. We recommend conducting a leak investigation to determine the source or cause of the water ingress.</p> <p>Location: Unit 100 Type: BE Importance: High Action required: Further Investigation, Monitor and Upkeep as needed</p>


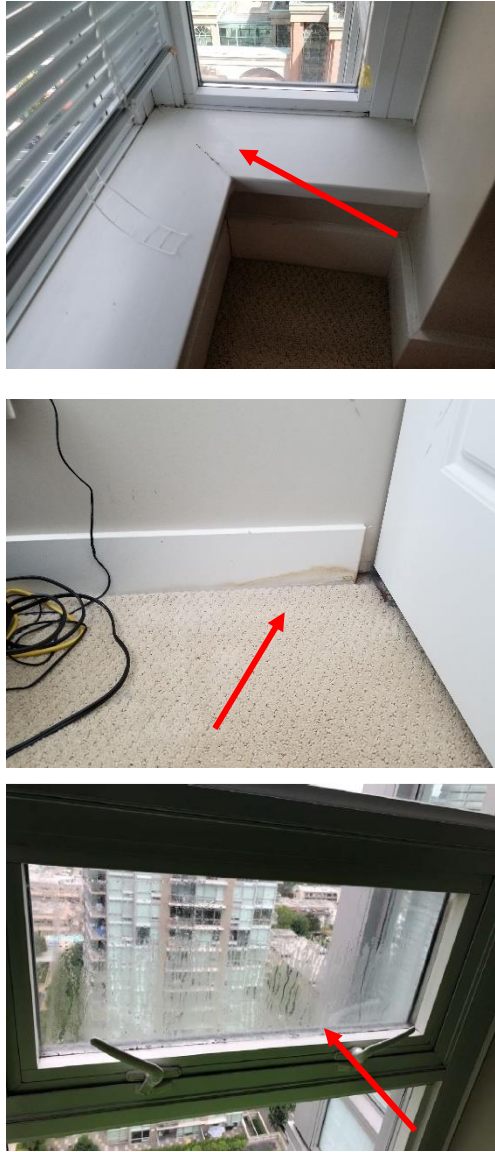
		
<p>4.4.5.3</p>		<p>In the course of our review, we observed that almost all the gutters located over the entrance of the commercial units do not appear to be in optimal conditions for their intended purpose.</p> <p>We are concerned that this lack of maintenance contributes to the water ingress issue reported at the entrance doors in almost all of the commercial units.</p> <p>In order to minimize the possibility of water ingress into the units from overflowing water from the gutters, we recommend implementing and conducting a rigorous maintenance program or in the case there is already one, increasing the cleaning frequency for all the gutters and monitor these areas. In case of this maintenance program does not solve the problem, a leak investigation should be conducted.</p> <p>Location: Commercial units Type: BE Importance: High Action required: Further Investigation and Maintenance</p>

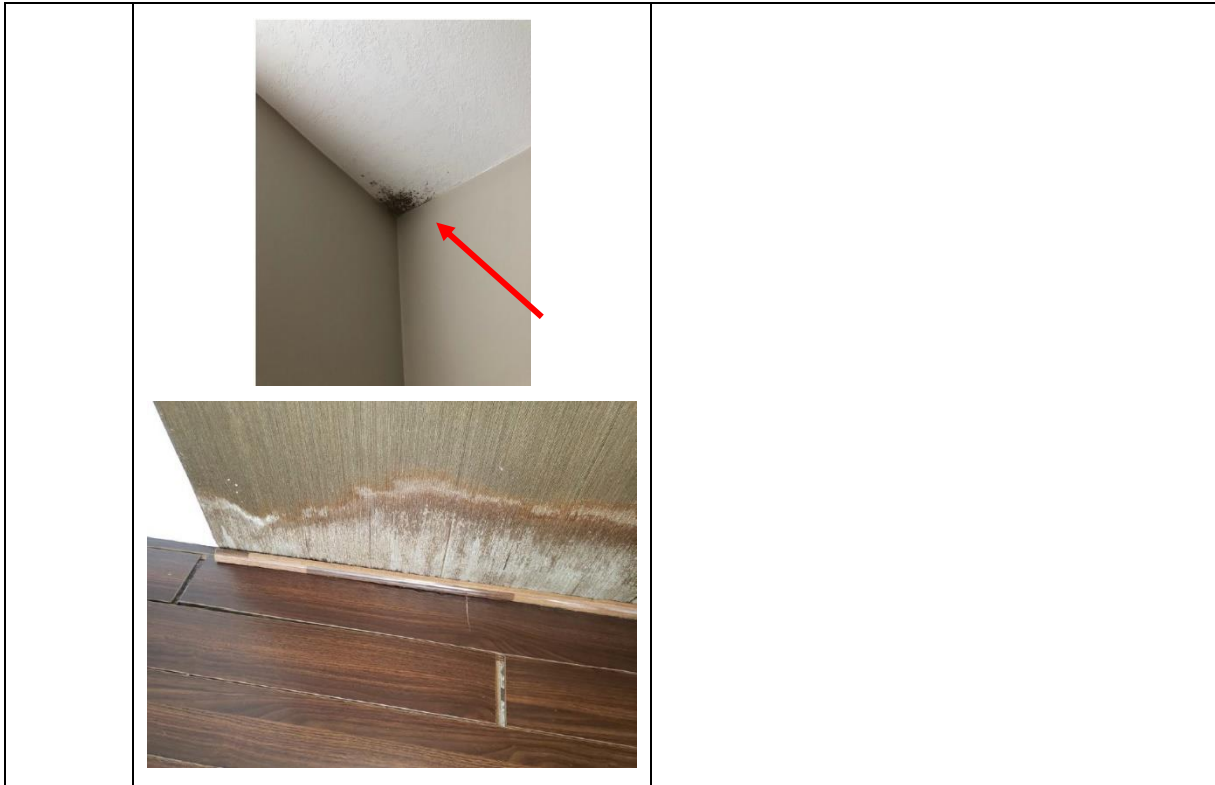
<p>4.4.5.4</p>		<p>All commercial units reported periodic and re-occurring water ingress at the ground floor, from exterior sources. This deficiency should be further investigated and attended since water ingress into the units and especially at entrance doors may become a risk for their occupants and belongings.</p> <p>We presume that attending the precede deficiency (gutters maintenance program) may aid to minimize this situation, but in the case this does not happen, further investigation should be conducted.</p> <p>Location: Commercial units Type: BE Importance: High Action required: Further Investigation, Monitor and Upkeep as needed</p>
<p>4.4.5.5</p>		<p>Water ingress is reported in the unit. Further investigation is recommended to identify the source of the water ingress.</p> <p>The second photo shows the current state of the concrete ledge of the outside of the window. The horizontal surfaces or those ones with minimal slope must be always waterproofed to prevent water ingress into the building. This deficiency is widely explained in section 4.3 of this document.</p> <p>The third photo shows the location of widely open crack on the bottom of the window.</p> <p>Location: Unit 301 Type: BE Importance: High Action required: Further Investigation, Monitor and Upkeep as needed</p>

		
<p>4.4.5.6</p>		<p>Water ingress was reported into the unit. Based on the occupants' comments, water is constantly dripping/leaking from the cast-iron pipe. The occupants reported that this problem has happened several times in different locations of the unit. Further investigation is recommended in order to detect the source of the problem and if the system meets the British Columbia Building Code.</p> <p>Location: Unit 3203 Type: ML Importance: High Action required: Further Investigation, Monitor and Upkeep as needed</p>
<p>4.4.5.7</p>		<p>Water ingress through the ceiling of the master bedroom was reported. It appears that water is dripping over the middle of the bed when the dryer machine is on. A leak investigation is recommended to detect the source of the problem which is suspected to be from the dryer vent.</p> <p>Location: Unit 2802 Type: ML Importance: High Action required: Further Investigation, Monitor and Upkeep as needed</p>

<p>4.4.5.8</p>		<p>Occupants reported water stains/leaking on the ceiling. A leak investigation is recommended to detect the source of the problem.</p> <p>Location: Units 1201, 3204, 301 Type: ML Importance: Medium Action required: Further Investigation, Monitor and Upkeep as needed</p>
<p>4.4.5.9</p>		<p>Water ponding on the balcony deck is observed at many units. Even when just a few from the total units were visited, this deficiency was commonly observed/reported. It appears that the balcony deck's drains are not fully functionally since some moss was observed growing in their scuppers. This moss clogs the drains and creates a poor water drain which most of the time ends in water ponding on the decks.</p> <p>We recommend conducting a maintenance program to restore the drainage system.</p> <p>Location: Units 1006, 1805, 3202, 3203, 3204 Type: NSD Importance: Medium Action required: Maintenance</p>
<p>4.4.5.10</p>		<p>Detached drywall tape on many ceilings of units was observed.</p> <p>Location: Several units Type: ML Importance: Low Action required: Upkeep as needed</p>

<p>4.4.5.11</p>		<p>Vertical hairline cracks in drywall were observed. These isolated cracks usually may not represent a structural problem unless in addition to other deficiencies show evidence of further damage.</p> <p>Location: Interior of the units Type: NSD Importance: Low Action required: Upkeep as needed</p>
<p>4.4.5.12</p>		<p>The attached photo shows an example of the crack reported by the occupant. However, these hairline cracks are very common in concrete elements and usually are the result of shrinkage. Commonly, these hairline cracks do not represent a structural problem and no attention is required unless other deficiencies like water leaking are observed.</p> <p>Location: Interior of the units Type: NSD Importance: Low Action required: Upkeep as needed</p>
<p>4.4.5.13</p>		<p>Organic material like mould, mildew and moss is observed in several dryer vents, balcony edges, scuppers, etc. Even though these problems are not structural damage or concern, they should be attended and removed from the building envelope.</p> <p>This organic material commonly grows in almost any kind of surfaces when they experience long wet periods and shady conditions that do not allow the surfaces to dry out easily.</p> <p>We suggest including this deficiency as a part of the maintenance program.</p> <p>Location: All around the building envelope especially the north elevation Type: BE Importance: Medium to High Action required: Maintenance</p>

<p>4.4.5.14</p>		<p>The attached photo shows an example of small blisters and soft drywall areas on the ceiling reported by the occupant. We recommend monitoring and a possible further investigation in case the deficiency increases since it may be a result of water ingress in the washroom fan duct.</p> <p>Location: Unit 1201 Type: NSD Importance: Low Action required: Further Investigation and Monitor</p>
<p>4.4.5.15</p>		<p>Water ingress and condensation in windows and walls are reported by the occupant/owner of some units.</p> <p>Since this review was conducted in the summertime, it was not possible to encounter the suitable conditions for condensation in the unit 1201. However, some signs of this possible deficiency are observed on the surface of the baseboard and the window stool (first two photos).</p> <p>The third, fourth and fifth photos were taken by the occupant of the unit 2606 in the previous winter season. We observed possible mould/mildew spores growing on the ceiling and wall corner.</p> <p>We recommend further investigation, upkeep as needed and monitoring during winter time where the weather conditions are suitable to observe condensation inside the units.</p> <p>Location: Unit 1201, 2606 (reported) Type: BE Importance: High Action required: Further Investigation and Monitor</p>



5.0 CONCLUSIONS AND RECOMMENDATIONS

I3 Building Science and Consulting Inc. visited the complex, conducted a visual structural review to note any areas of visually obvious deterioration and or tell-tales of structural deficiencies to obtain a general understanding of the exterior building envelope, interior areas and or its exposed structural elements as noted within this report. Our review covered a general sampling of typical important components/systems of the building (s) and complex that would relate to this type of review and mandate such as:

1. A visual review of the exposed structure, balconies/decks, exterior walls, concrete slabs from the exterior ground and bosun chair drops were selected in a way to provide solely a general consensus of the overall condition of the building, considering our limited access and that to review and/or fully cover every single location and related components of the building would be unrealistic for retained visual-only review mandate.
2. A visual review of the surface of exposed concrete parking slabs, ramps, columns, slab bands, beams, foundations and any retaining walls etc.
3. A visual review of the exterior and interior stairwells, common hallways and or corridors, floors, a sampling of units, as well as exterior balconies, podiums, roof decks and roofs.
4. **Note:** for the above, it pertains to areas as noted within this report where readily accessible and/or we had been authorized and provided access to for a visual-only review.

The following observations summarized below are indicative of the conditions observed or existing at the time of the inspection, and should not be considered a total list of irregularities but a representative list of items considered:

- .1 Some potential deficiencies were observed and they might indicate that some structural components of the building might not be performing their intended function and or might have related issues. During our review of the building, the most notable deficiencies or defects are described in the under section items 4.4.1.3 (Water ponding), 4.4.1.7 and 4.4.1.8 (Concrete delamination in parkade), 4.4.3.5 (Large shear cracks on the concrete walls), 4.4.3.11 (Cracks on the balconies' edges), 4.4.4.4 (Coating delamination on pergolas/overhangs). Since the noted deficiencies or defects from our understanding and interpretation can be related to the 10-year-warranty, we recommend having a further investigations as noted within this report in order to further identify the source of the problem(s) and as applicable identify and further recommend possible solutions to be implemented as needed for each of these deficiencies as applicable within these items and/or as noted.

- .2 The podium located on the 5th floor was visually reviewed to identify deficiencies as well as to obtain an understanding of their structural condition. Generally, the perimeter parapets and their respective overhangs were observed with several hairline cracks that may be a result of a natural shrinkage of concrete. However, in our opinion, they should be included in the maintenance plan and properly repaired to avoid water ingress into walls and ending between the waterproof membrane and concrete slab.

- .3 Based on the findings observed on the outside of the podium walls and some water ingress in some units as well as into the generator room. We are the opinion to conduct a review of the outside podium membrane and waterproofing in order to identify its current condition. The most notable deteriorated areas are located on top of the generator room and the perimeter podiums with access through the "service area doors" on the 3rd floor as well as the area on the north side of the 5th level podium.

- .4 The stairs were visually reviewed to identify signs of cracks and deficiencies as well as to obtain an understanding of their structural condition. Generally, the stairwells that lead to the parkade and or other areas were in fair condition, with a few exceptions where some minor cracks were observed and or other smaller concerns noted.

- .5 We recommend conducting further investigations for some of the deficiencies noted during our visual-only review. These deficiencies were mentioned in the points 4.4.1.9, 4.4.2.5, 4.4.3.2, 4.4.3.5, 4.4.3.9, 4.4.4.4, 4.4.5.1, 4.4.5.2, 4.4.5.3, 4.4.5.4, 4.4.5.5, 4.4.5.6, 4.4.5.7, 4.4.5.8, 4.4.5.14, 4.4.5.15

- .6 General preventative maintenance as needed with different levels of importance (exterior cladding and related components, caulking, flashing, exterior painting, vents, etc., also cracks in the parkade, paint coatings, sealants, and for the roofing). A number of components require regular refinishing and maintenance over their service life.

Exterior and similar noted maintenance should be reviewed regularly and performed every 5 to 7 years on average for most of them; We recommend as noted that consideration should be given for the exterior building envelope & other noted preventative maintenance assessment program be first further assessed, implemented and carried for these and or related applicable exterior and or protective components in 1 to 3 years depending on the item/component etc., beginning with the further assessment and creation of this recommended preventative maintenance plans as its starting point. We recommend the regular maintenance to the building be implemented on a regular and more preventative maintenance etc. program as noted to be further implemented.

- .7 Early failure of the parkade membrane, caused in part by structural issues of the parkade concrete slabs were observed and already repaired by the owners at the commercial parking areas during 2019.

Based on the findings of our “Ten-Year Structural Warranty” Review, our initial conclusions are:

1. The “Grand Central One” building and its related Commercial Units are performing as intended.
2. Some localized structural deficiencies were observed during our review. Evidence of some structural failures was noted and documented in the commercial parking area, slab and walls. Other minor but visible deficiencies were also mentioned in this report, since they may lead to possible future repairs on the balcony concrete deck in the coming years.
3. The envelope of the building (such as exterior paint, cracking repairs and a waterproof membrane for most of the concrete elements) require significant maintenance in our opinion, and a list of items in need of periodic maintenance was identified and noted in this report.

This report is prepared exclusively for the use and benefit of the client identified on the first page of this report and is not for the use and benefit of, nor may it be relied upon by, any other person or entity. The contents of this report may not be quoted in whole or in part or distributed to any person or entity without the permission of the client.

6.0 LIMITS OF LIABILITY

- .1 The investigation undertaken by i3 Building Science & Consulting Inc. was based on visual observations only and limited to a selected sampling locations as noted within this report.
- .2 Only eight (8) site visits were made concerning the problems highlighted in the report with no attempt to review every element or portion of the buildings to fully ascertain the quality of sufficiency of any particular aspect of the building. As such, our opinion cannot be extended to elements and portions of the building not reviewed, or situations reasonably beyond the control of i3 Building Science & Consulting Inc based on this type of visual only review.

- .3 The intent of this investigation was to determine a general consensus only of areas of obvious deterioration or in need of repair. Our comments are not a guarantee or warranty of any aspect of the condition of the building whatsoever. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility for damages of any kind suffered by any third or other party, as a result of decisions made or actions based on this report.

If you have any questions arising from this report, please do not hesitate to contact the writer.

BUILDING ENVELOPE 5 YEARS WARRANTY REVIEW REPORT

Located at:
2975 Atlantic Avenue, Coquitlam B.C.



Prepared For:

Strata Plan BCS 3495 – Grand Central 3
STRATA AGENT FIRST SERVICE RESIDENTIAL

Attention:

Mr. Mikhail Ratchkovski

E: Mikhail.Ratchkovski@fsresidential.com

Oct 04th, 2019

Prepared by:

i3 Building Science & Consulting Inc.
949 Sherwood Ave, Coquitlam, BC

T: 604-553-4984

Email: info@i3bsc.com

File number: FSR-016-19-A
Oct 4th, 2019

Strata Agent First Service Residential
200 Granville Street | Suite 700 |
Vancouver, BC, Canada V6C 1S4

Dear Mr. Mikhail Ratchkovski

Re: **Strata Plan BCS 3495 – Grand Central 3**
- **2975 Atlantic Ave, Coquitlam**
- **Building Envelope 5 years Warranty Review Report**

As requested by Strata Agent First Service Residential., i3 Building Science and Consulting Inc., conducted a site visits at “Grand Central 3” located at 2975 Atlantic, Coquitlam B.C. for the purpose of carrying out a Building Envelope 5- years warranty review report. The intent of this review was to identify defects in the Building Envelope or violation of the building code that may be visually evident at the time of our field review.

A visual only field review has been conducted at the exterior of the building, with the aim to obtain a general consensus of the condition of the building; however, this type of visual only review is not technically exhaustive in nature, nor does it include for more intrusive destructive examination and or testing.

Photographs were taken to document and illustrate conditions observed during our review. Except where indicated otherwise, conditions noted throughout this report are general in nature, and a record of every location at which any one defective condition is present has not been made.

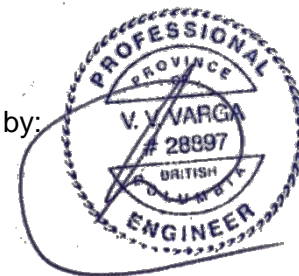
Should you have any questions and or require further clarifications after reviewing this report, please do not hesitate to contact us at any time that is convenient for you.

Yours truly,
i3 Building Science and Consulting.,



Mina Hwang B. Arch
Project Consultant
minah@i3bsc.com

Reviewed by:



Val Varga, M.Eng, P.Eng.
Principal, Senior Engineer
valv@i3bsc.com

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1.0 INTRODUCTION

i3 Building Science and Consulting Inc. was retained by the Owners of Strata Plan BCS 3495 located at 2975 Atlantic Ave., Coquitlam B.C. to conduct a 5-Year Visual Building Envelop Warranty Review. The reviews were conducted on Oct 2nd, 2019 from the ground level, bosun's chair and common areas.

1.1 Scope of Review

The 5-Year warranty coverage is for defects in Building Envelope supplied for the exterior cladding, caulking, windows, and doors that may lead to the detachment or material damage to the new home, and for any defect in Building Envelope which renders the new home unfit to live in, and for violation of the building code, if the noncompliance constitutes an unreasonable health or safety risk, or has resulted in, or is likely to result in, material damage to the new home.

It is assumed that the Grand Central 3 complex was designed and built in accordance with the permits and approvals necessary to comply with the codes and by-laws applicable at the time of their construction. It is also assumed that all subsequently performed maintenance work was completed in an appropriate and compliant manner. No attempt has been made to analyze the design of the buildings or their components and no detailed zoning or Building Code review has been conducted.

1.2 Warranty Description

Typically, new construction projects have a variety of different warranty terms. The most common are the Homeowner Protection Act (HPA) mandated 2-5-10; manufacturers' warranties; and depending on the developer, "good will". We comment on these as follows:

2-5-10: The HPA mandates that all multi-family residential construction is covered by a third party warranty broken down into three coverages: Materials and Labour Warranty (12, 15 and 24 months); Building Envelope Warranty (5 years) and Structural Warranty (10 years).

At the 5-yr warranty period, the third party warranty provided by National Home Warranty includes:

- a) *"in the first 15 months, any defect in materials and labour;*(EXPIRED)
- b) *in the first 24 months;* (EXPIRED)
 - i) any defect in materials and labour supplied for the electrical, plumbing, heating, ventilation and air conditioning delivery and distribution systems,

- ii) any defect in materials and labour supplied for the exterior cladding, caulking, windows and doors that may lead to detachment or material damage to the new home, and
 - iii) any Building Code Defect
- c) *in the first five years, any Building Envelope Defect; and*
d) *in the first ten years, any Structural Defect.”*

Due to the fact that the 15-month / 24-month warranty have expired, material and labour related defects that will not, or not likely to cause water penetration, are no longer warrantable defects and are considered to be maintenance items. Although, the warranty provider may determine some items to be non-warrantable, there may be developer, supplier or sub-trade warranties in place that cover these items. Before evaluating any potential warranty claims, we recommend the owners refer to their actual warranty policies and seek legal advice for interpretation, if and as necessary.

This report is limited to “any defect in the building envelope of a new home, including a defect which permits unintended water penetration such that it causes, or likely to cause, material damage to the New Home”, that was able to be visually evident at the time of review to areas that were easily and readily accessible from a walk-around type of exterior review within normal visual site. A review of the roofs, its components was not conducted by us, Council members stated to us, that they had another Roofing Consultant perform this review for them, so as such has not been included specifically as part of our review and or report.

The same applies to balcony deck membranes overall or other components that were not made accessible for our review or any other concealed building component, installation or portion thereof for that matter, not visible at the time of our visit.

1.3 Review Process

1. Field Review Work

The review was conducted by i3BSC building science consultants on Oct 2nd 2019. We conducted our review from ground level, bosun’s chair and common area.

The weather during the review was mostly overcast with cloudy weather. Periods of humid weather patterns also preceded our site review



1.4 Review Observations and Recommendations





To maintain the clarity of this report, our observations and recommendations are grouped into several categories according to the type of building envelope component (walls, windows, and doors, roof, pavement, concrete curbs and landscaping and parking).

Also, we have summarized our observations in the following tables, and have provided preliminary recommendations for addressing deficiencies under the “category” part. Each item has been categorized according to the type of problem as follows:

- **Category - Monitor** – A defect exists, in our opinion, when the observed conditions in the building complex differ from the intent of the documentation provided for review or from good construction practice. Such defects may be considered under the five-year warranty term and should be brought to the attention of the developer and/or warranty provider.
- **Category - Maintenance** – A maintenance deficiency exists, in our opinion, when the observed conditions in the building complex are caused by general wear and tear on building components and equipment, or when they concern an item that has not received routine service, adjustments and/or cleaning. Such maintenance deficiencies should be corrected as part of the maintenance program.
- **Category - Investigation**– A defect exists, in our opinion, where no clear decision can be made as to whether the problem is a design, construction or maintenance defect. Repairs to correct the defect or further investigation by the strata, e.g., test openings or material/component testing, is generally required. Such defects should be brought to the attention of the developer, warranty provider and design team, and should be further reviewed by strata for required action / correction.



2. General Description



Item	Picture	Description
2.1		<p>The Grand Central 3 is a 246unit high-rise complex that consists of thirty-seven (37) levels building, with an additional 3 ground parkade levels and 1 underground parkade level located at 2795 Atlantic Ave.</p> <p>The main entrance to the complex is from Atlantic Avenue and the building has been build in 2014.</p>
2.2		<p><u>Pakade:</u> Traffic-bearing membrane on the concrete surface at the parkade level 1 to level 3.</p>



2.3		<p><u>Windows:</u></p> <ul style="list-style-type: none">• Double glazed window wall system c/w seismic jamb• Aluminum beauty cap c/w in-fill insulation and ends caps at every floor level.
2.4		<p><u>Balcony:</u></p> <p>The balconies are covered with a liquid applied membrane with top-mount aluminum and glass railing.</p>
2.5		<p><u>Roof:</u></p> <p>The main roof is an inverted flat roof. The roof assembly appears to be as follow:</p> <ul style="list-style-type: none">• Concrete slab• Waterproofing membrane• Protection sheet• Rigid insulation• Filter cloth• Gravel material
2.6		<p><u>Podium:</u></p> <p>The interlocking and asphalt pavers on the walkway and podium area were properly installed in most locations with fair condition.</p>

3.0 Observation and Recommendations

3.1 Parkades Review

Item	Picture	Description
3.1.1		<p><u>OBSERVATION</u> Damaged and de-bonding waterproof traffic deck coating was observed at the entrance of the parkade.</p> <p><u>LOCATIONS</u> CG3 parkade main entrance and #2-49.</p> <p><u>RECOMMENDATION</u> Localized traffic deck coating repair work (patching) is recommended.</p> <p><u>CATEGORY</u> Maintenance.</p>
3.1.2		<p><u>OBSERVATION</u> Multiple cracks with efflorescence staining was observed on the ceiling of the suspended slab of the ground level of the parkade.</p> <p><u>LOCATIONS</u> Parkade Level 1; All around the parkade</p> <p><u>RECOMMENDATION</u> Remove efflorescence and monitor to show frequency and extent. Further investigation is recommended if the water ingress is still active.</p> <p><u>CATEGORY</u> Monitor.</p>

		
3.1.3		<p>OBSERVATION Typical to similar locations. Concrete cracking, water stains, and efflorescence were observed on the ceiling of the suspended slab of parkade level 2.</p> <p>LOCATIONS Parkade Level 2; Stall #: 2-09, 2-20, 2-24, 2-25, 2-26, 2-51, 2-52, 2-53, 2-54, 2-55, 2-93, 2-94, 2-95, 2-97, 2-98, 2-99, 2-100, 2-101, 2-102, 2-104, 2-106, 2-107, 2-110, 2-125, 2-213, 2-214, 2-119, 2-124, 2-125, 2-129, 2-128, 2-130, 2-131, 2-135, 2-137, 2-153, 2-156, 2-157, outside of bicycle room.</p> <p>RECOMMENDATION Remove efflorescence and monitor to show frequency and extent. Further investigation is recommended if the water ingress is still active.</p> <p>CATEGORY Monitor</p>

<p>3.1.4</p>		<p><u>OBSERVATION</u> Concrete cracking, water stains, and efflorescence were observed on the Perimeter wall of Level 3.</p> <p><u>LOCATIONS</u> Parkade level 3; Stall #: 3-199, 3-210,3-211,3-213 3-214, 3-215, 3-216, 3-217and 3-300.</p> <p><u>RECOMMENDATION</u> Remove efflorescence and monitor to show frequency and extent. Further investigation is recommended if the water ingress is still active.</p> <p><u>CATEGORY</u> Monitor</p>
<p>3.1.5</p>		<p><u>OBSERVATION</u> Typical to similar locations. Concrete cracking, water stains, and efflorescence were observed on the ceiling of the suspended slab of parkade level 3.</p> <p><u>LOCATIONS</u> Parkade Level 3; Stall #: 3-109, 3-111, 3-113, 3-115, 3-140, 3-141, 3-142, 3-143, 3-144, 3-165, 3-166, 3-167, 3-170, 3-171, 3-172, 3-173, 3-174, 3-175, 3-177, 3-179, 3-180, 3-181, 3-182, 3-196, 3-197, 3-198, 3-200, 3-202, 3-203, 3-206, 3-208, 3-209, 3-211, 3-214, 3-215, 3-219, 3-223, 3-225, 3-226, 3-227, 3-228, 3-232, 3-233,</p> <p><u>RECOMMENDATION</u> Remove efflorescence and monitor to show frequency and extent. Further investigation is recommended if the water ingress is still active.</p> <p><u>CATEGORY</u> Monitor</p>



<p>3.1.6</p>		<p><u>OBSERVATION</u> Typical to similar locations. Concrete cracking, water stains, and efflorescence were observed on the ceiling of the suspended slab of Level P1.</p> <p><u>LOCATIONS</u> Parkade Level P1; Stall #: P174, P175, P176, P177, P178, P180 to P183, P189, P194, P195, P196 P219, P211, P214, P218, P219, P232, P233</p> <p><u>RECOMMENDATION</u> Remove efflorescence and monitor to show frequency and extent. Further investigation is recommended if the water ingress is still active.</p> <p><u>CATEGORY</u> Monitor</p>
<p>3.1.7</p>	 <p>Photo A.- Concrete delamination on the commercial parking</p>	<p><u>OBSERVATION</u> The following photos show a major deficiency in the commercial parking and its related ramp towards level 2 and the garbage loading bay.</p> <p>Photo A is showing a sample of some areas located on the commercial parking and the garbage loading bay. Concrete and membrane delaminations were documented prior to being repaired during 2019.</p> <p>As a part of the repair project undertaken in 2019 to repair this widespread deficiency at the commercial parking and numerous other locations of the parkade, some cracks/cold joints were discovered when the concrete delaminations started to show. This structural deficiency in the concrete slab entails other deficiencies related to water ingress. In the opinion of the writer, these water ingress into the parkade would not exist if the concrete delamination has never happened and hence the waterproof</p>



Photo B.- Notorious water ingress from the commercial parking level towards P1 level



Photo C.- Notorious water ingress from the commercial parking level towards P1 level



Photo D.- Crack possibly injected with polyurethane foam located beside the ramp which ends at P1

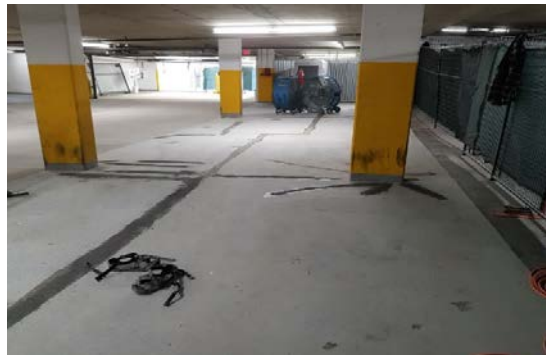


Photo E.- Concrete floor state after removing the topping from several areas and ready for re-coating with waterproof membrane.

membrane have not been disintegrated/delaminated (Photos B and C).

Major repairs were conducted by the owners to repair the concrete suspended slab and also replace the waterproofed membrane at the commercial parking areas (mostly) (photos D and E).

LOCATION

Parkade Level 1 - Commercial parking and garbage loading bay.



RECOMMENDATION

Action required: Further Investigation, Monitor and Upkeep as needed.

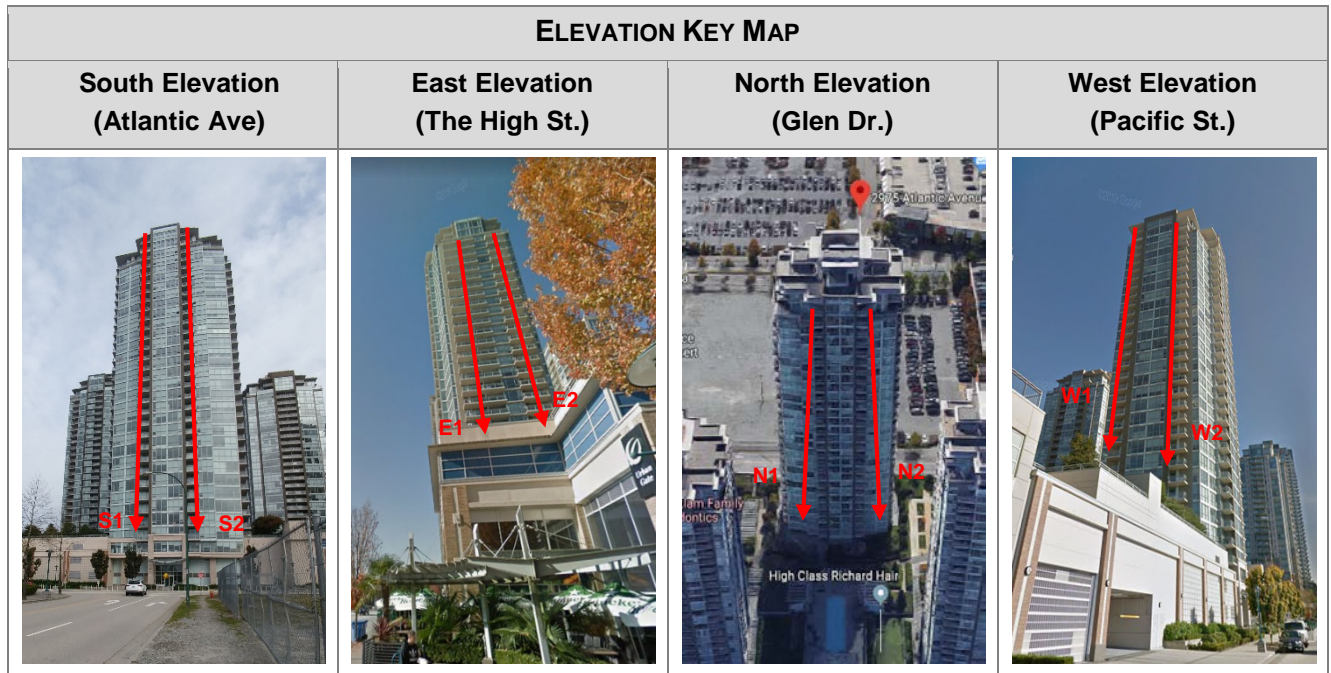
CATEGORY


Monitor




3.2 Emergency Generator Room / Stairwells



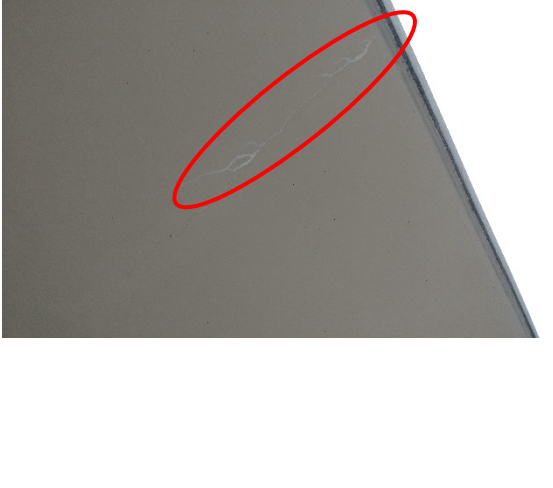
Item	Picture	Description
3.2.1		<p><u>OBSERVATION</u> Concrete cracking and efflorescence stain were observed. Bottom picture shows the crack on the exterior side of the wall where water ingress is occurring.</p> <p><u>LOCATIONS</u> North side wall of stair on the Level 39 (beside roof access door).</p> <p><u>RECOMMENDATION</u> The cracking should be routed out and sealed. However, a more comprehensive repair may require waterproofing from the exterior. Further investigation is recommended if the water ingress is still active.</p> <p><u>CATEGORY</u> Monitor.</p>
3.2.2		<p><u>OBSERVATION</u> Concrete cracking with efflorescence stain and peeling off paint were observed at the cold joint of stair wall and the suspended slab.</p> <p><u>LOCATIONS</u> Stair #6 Level 5.</p> <p><u>RECOMMENDATION</u> The cracking should be routed out and sealed. However, a more comprehensive repair may require waterproofing from the exterior. Further investigation is recommended if the water ingress is still active.</p> <p><u>CATEGORY</u> Monitor.</p>

3.3 Exterior Components Review






ITEM	PICTURE	DESCRIPTION
3.3.1		<p><u>OBSERVATION</u> Efflorescence staining and crack on the wall were observed.</p> <p><u>LOCATIONS</u></p> <ul style="list-style-type: none"> • Parkade entrance wall. • Roof parapet wall – Level 38 (W) and Level 38(N) • W1L5, S1L9 and S1L37 <p><u>RECOMMENDATION</u> Repair as needed during first upcoming maintenance program is recommended.</p> <p><u>CATEGORY</u> Maintenance.</p>

<p>3.3.2</p>		<p><u>OBSERVATION</u> Peeling of protective paint was observed on the bottom part of entrance wall.</p> <p><u>LOCATIONS</u> Ground Level (S)</p> <p><u>RECOMMENDATION</u> The peeling of paint will not create a problem in the foreseeable future. However, for aesthetic reasons, painting and protection of the concrete is recommended to prevent water ingress into the wall assemblies.</p> <p><u>CATEGORY</u> Maintenance.</p>
<p>3.3.3</p>		<p><u>OBSERVATION</u> Green/Black stain below on the exterior wall, flashing and balcony band was observed.</p> <p><u>LOCATIONS</u> Level 39 – Upper roof and balcony band (typical)</p> <p><u>RECOMMENDATION</u> Generally, the moss on this surface holds water. Depending on the condition of the concrete, it may also lead to spalling or frost damage of the concrete itself. Regular cleaning is recommended.</p> <p><u>CATEGORY</u> Maintenance.</p>
<p>3.3.4</p>		<p><u>OBSERVATION</u> Waterproofing membrane delaminated/ failure was noted on the exterior face of the balcony, on the balcony or overhang.</p> <p><u>LOCATIONS</u> N1L5 and typical to similar locations.</p> <p><u>RECOMMENDATION</u> Refinishing of the affected areas is required; matching the colour as close as possible.</p> <p><u>CATEGORY</u> Maintenance.</p>

<p>3.3.5</p>		<p><u>OBSERVATION</u> Concrete cracking was observed at the ends of overhang, balcony band or exterior wall.</p> <p><u>LOCATIONS</u> Level - 6 to 37 (E), 5(W), 27(W), 35(W), 36(W), 16(N), 26(N), 29(N), 30(N), 31(N), 35(N), 15(S), 16(S), and 35(S).</p> <p><u>RECOMMENDATION</u> Such cracks should be sealed (with specialized sealant) and painted, during any future upcoming maintenance program. Left unrepaired, these types of cracks can and will cause water ingress into the wall assembly.</p> <p><u>CATEGORY</u> Investigate.</p>
<p>3.3.6</p>		<p><u>OBSERVATION</u> Corrosion and staining was observed on steel structure.</p> <p><u>LOCATIONS</u> Main entrance canopy.</p> <p><u>RECOMMENDATION</u> Proper protection of the metallic surfaces is recommended to prevent future deterioration. Refinishing of the affected areas is required; matching the colour as close as possible.</p> <p><u>CATEGORY</u> Maintenance.</p>
<p>3.3.7</p>		<p><u>OBSERVATION</u> A crack with efflorescence stain at the underside of the concrete overhang.</p> <p><u>LOCATIONS</u> Level 37(S)</p> <p><u>RECOMMENDATION</u> Such cracks should be sealed (with specialized sealant) and painted, during any future upcoming maintenance program. Left unrepaired, these types of cracks can and will cause water ingress into the wall assembly.</p> <p><u>CATEGORY</u> Maintenance.</p>

<p>3.3.8</p>		<p><u>OBSERVATION</u> Damage cementitious parging and or sacking applied to concrete wall were observed on the exterior wall.</p> <p><u>LOCATIONS</u> Level 37 (N, W and S), Level 38(S), and S1L38</p> <p><u>RECOMMENDATION</u> Refinishing of the affected areas is recommended to prevent future deterioration.</p> <p><u>CATEGORY</u> Maintenance.</p>
<p>3.3.9</p>		<p><u>OBSERVATION</u> Exterior paint failure was noted on the exterior face.</p> <p><u>LOCATIONS</u> S1L3</p> <p><u>RECOMMENDATION</u> Refinishing of the affected areas is recommended to avoid water ingress; matching the colour as close as possible.</p> <p><u>CATEGORY</u> Maintenance.</p>

<p>3.3.10</p>		<p><u>OBSERVATION</u> The efflorescence staining and crack on the wall</p> <p><u>LOCATIONS</u> S1L15</p> <p><u>RECOMMENDATION</u> The efflorescence forming at the crack suggests water ingress and water path conditions due to the crack. Such cracks should be repaired during any upcoming maintenance program. These types of cracks can and will cause water ingress into the concrete slab.</p> <p><u>CATEGORY</u> Maintenance.</p>
<p>3.3.11</p>		<p><u>OBSERVATION</u> Missing cover fixture for the scupper was observed.</p> <p><u>LOCATIONS</u> S1L38</p> <p><u>RECOMMENDATION</u> Cover should be properly installed to prevent water ingress to the wall assembly.</p> <p><u>CATEGORY</u> Maintenance.</p>
<p>3.3.12</p>		<p><u>OBSERVATION</u> Crack between concrete wall and the stone veneer.</p> <p><u>LOCATIONS</u> S1L5</p> <p><u>RECOMMENDATION</u> Regular maintenance and repair as needed are recommended.</p> <p><u>CATEGORY</u> Maintenance.</p>

4. Conclusions

- 4.1 In general, Grand Central 3 buildings appear to be built as a relatively medium maintenance complex. The majority of the building envelope components perform as intended for their age and exposure; however, several deficiencies were observed which require being rectified, either under 5-Warranty or as Maintenance.
- 4.2 All other miscellaneous deficiencies related to building envelope together with our recommendations are listed above under Section 3 of this report. In general, all the exterior

cladding and finishing components must be properly treated and maintained to allow for their good performance during their expected service life.

4.3 Since not all of the Owners provided information about deficiencies observed in their units, i3 Building Science and Consulting Inc., cannot guarantee that all defects were identified at this point of time. We recommend that an Owner /Occupant questionnaire is distributed once a year to obtain input from the Owners. **All the above-listed issues should be rectified under the 5-Year Warranty Defects in Building Envelope Warranty.**

4.4 It is recommended that Building Envelope Maintenance Manual with the maintenance instructions is provided for the Strata and Individual Owners.

5. Limits of liability

5.1 The 5- years warranty review of building components undertaken by i3 Building Science and Consulting Inc. as requested by owners of strata plan BCS 6795 was based on selected visual observations, with no attempt to review every element or portion of the building to ascertain the quality or sufficiency of any particular aspect of the buildings. As such, our opinion cannot be extended to elements and portions of the buildings not reviewed, or situations reasonably beyond the control of i3 Building Science and Consulting Inc.

5.2 During our site reviews i3 Building Science and Consulting Inc. was not able to verify/confirm all the reported problems and/or concern regarding the building envelope system; therefore, i3 Building Science and Consulting Inc. cannot certify the extent of the problems and/or concern reported, nor can guarantee or warranty the condition of the building envelope system at some of the reported areas. We cannot guarantee that all defects were identified, but the effort was made to identify potential problems within the scope of the review. As such, our opinion cannot be extended to elements and portions of the buildings not reviewed, or situations reasonably beyond the control of i3 Building Science and Consulting Inc.

5.3 The intent of this review was to determine in a general way the overall quality and sufficiency of the building envelope assemblies and components and to determine areas of empirically obvious deterioration or need for future repair. Our comments are not a guarantee or warranty of any aspect of the design\construction of the building whatsoever. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. I3 Building Science and Consulting Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



10-YEAR STRUCTURAL WARRANTY REVIEW

Located at:
Grand Central One – 2978 Glen Drive, Coquitlam, BC



Prepared for:
Strata Plan BCS3495
Strata Agent First Service Residential

Attention
Mr. Mikhail Ratchowski, Strata Manager
Via E-mail: Mikhail.ratchkovski@fsresidential.com

July 15th, 2019

Prepared by:

I3 Building Science & Consulting Inc.
949 Sherwood Ave, Coquitlam, BC
T: 604-553-4984
E-mail: info@i3bsc.com

File number: FSR-005-19-D
July 15th, 2019

Strata Agent First Service Residential

200 Grandville Street, Suite 700
Vancouver, BC, V6C 1S4

Dear Mr. Mikhail Ratchowski

Re:

“Grand Central One”, 2978 Glen Drive, Coquitlam, BC
- 10-Year Structural Warranty Review

i3 Building Science & Consulting Inc. was authorized by the Owners of the Strata Corporation under Strata Plan BCS3495 - “Grand Central One”, Strata Agent First Service Residential, to carry out an Update Condition Assessment of its related complex located at 2978 Glen Drive, Coquitlam, BC as per our proposal dated June 5th, 2019 (FSR-005-19-D). The purpose of this Condition Assessment Report is to provide the strata with a better understanding of the present structural condition of the building and to describe our observations, conclusions and recommendations (in regard to upkeep and to satisfy the requirements of the third-party warranty provider) at the above-listed complex. Our report contains photos and photo annotations (corresponding to our observations and recommendations). This Condition Assessment was limited to an evaluation of the building structure only and was executed to identify any possible defects that may be covered by the Ten-Year Warranty term that expires in July 2019.

The visual building review was performed over several site visits taking place between June 18th and July 09th, 2019 as well as previous information documented while some repairs were conducted within the current service life of the complex. The following work, described briefly below, was performed as part of this Structural Condition Assessment:

1. A visual review of the exposed structure, balconies/decks, exterior walls, concrete slabs from the exterior ground and bosun chair drops were selected in a way to provide solely a general consensus of the overall condition of the building, considering our limited access and that to review and/or fully cover every single location and related components of the building would be unrealistic for retained visual-only review mandate.
2. A visual review of the surface of exposed concrete parking slabs, ramps, columns, slab bands, beams, foundations and any retaining walls etc.

3. A visual review of the exterior and interior stairwells, common hallways and or corridors, floors, a sampling of units, as well as exterior balconies, podiums, roof decks and roofs.
4. **Note:** for the above, it pertains to areas as noted within this report where readily accessible and/or we had been authorized and provided access to for a visual-only review.

Based on the findings of our “Ten-Year Structural Warranty Review”, our overall conclusions are:

1. The “Grand Central One” building and its related Commercial Units are performing with some significant structural issues or concerns.
2. Some significant structural defects were observed during our review. Evidence of some structural failures was noted and documented in the commercial parking area, slab and walls. Other minor but important deficiencies, since they may lead to major repairs on the balcony concrete deck in the coming years.
3. The envelope of the building with special attention on the exterior paint, cracking repairs and a waterproof membrane for the most of the concrete elements require significant maintenance in our opinion, and a list of items in need of periodic maintenance was identified and noted in this report.

This report is prepared exclusively for the use and benefit of the client identified on the first page of this report and is not for the use and benefit of, nor may it be relied upon by, any other person or entity. The contents of this report may not be quoted in whole or in part or distributed to any person or entity without the permission of the client.

If you have any questions arising from this report, please do not hesitate to contact the writer.

Yours truly,
i3 Building Science and Consulting.,

Observer:



Jorge Navaro, B.Eng., M.Eng
Project Consultant
jorgen@i3bsc.com

Review by:



Val Varga, M.Eng., P.Eng
Senior Engineer
valv@i3bsc.com

1.0 INTRODUCTION

.1 i3 Building Science and Consulting Inc. was retained by the Owners of the Strata Plan BCS3495 - "Grand Central One" located at 2978 Glen Drive, Coquitlam, BC to carry out an Update Condition Assessment of the complex for the strata plan and address mentioned above. These visual building review visits were performed over several site visits taking place between June 18th and July 09th, 2019. Our reviews were conducted via a walk-around review of the exteriors from the ground and where access was provided of common interior areas, such as stairs, rooms, parkades, podiums roofs etc. as well as a sampling of the suites and related balconies. In addition, an additional visual review of the exterior of the tower was completed via bosun chair.

The 10-Year Warranty for 2978 Glen Drive, Coquitlam, BC (BCS3495- "Grand Central One") expires on the following date according to *Travelers Warranty Policy* provide by the Strata:

- 10 Year Structural Defects Warranty expiring date: **July 24th, 2019**
- .2 It is assumed that the "Grand Central One" Complex was designed and built in accordance with the necessary permits and approvals, in conformance with Codes and By-laws applicable at the time of construction and that all subsequently performed maintenance work was executed in an appropriate manner. No attempt has been made to analyze the design of the building or its components and no detailed zoning or Building Code review has been conducted.
- .3 We understand that the warranty provider for the complex is *Travelers*. In addition, the Owners may have optional coverage that is different from or extends beyond the standard warranty policy. As described in the Homeowner Protection Act (HPA), the following is the minimum coverage for new strata home warranties:
- .4 We understand that the warranty provider for the complex is *Travelers*. In addition, the Owners may have optional coverage that is different from or extends beyond the standard warranty policy. As described in the Homeowner Protection Act (HPA), the following is the minimum coverage for new strata home warranties:
- In the first 15 months, for the common property, common facilities and other assets of a strata corporation coverage for any defect in materials and labour. - **Expired.**
 - In the first 24 months:
 - Coverage for any defect in materials and labour supplied for the electrical, plumbing, heating, ventilation and air conditioning delivery and distribution systems,
 - Coverage for any defect in materials and labour supplied for the exterior cladding, caulking, windows and doors that may lead to detachment or material damage to the Common Property, and,
 - Any Building Code Defect. - **Expired.**

- In the first 5 years:
 - Any Building Envelope Defect in the new home including a defect which permits unintended water penetration such that it causes, or is likely to cause, material damage to the new home. - **Expired.**
 - In the first 10 years, any Structural defects. - **Still in effect.**
- .5 A Questionnaire was provided to the Owners to answer several questions and to list any concerns or deficiencies related to the building structure, especially those which could be observed from inside and/or from their balconies and decks of their units. From a total of 181 units, 23 answered and returned back the questionnaires. From the questionnaires and a visual review of some of the units, there was not any identified structural deficiency.
- .6 Despite our efforts, we cannot guarantee that all the deficiencies have been identified, and as such, we recommend that all issues reported by the Owners such as cold drafts, water ingress and/or excessive moisture content in the units and condensation on the windows must be further investigated.

2.0 PROBLEM CLASSIFICATION

To maintain the clarity and consistency of the format of our our reporting, problems mentioned by owners within received questionnaires or on-site to us and / or observed by personnel of I3 Building Science and Consulting (I3BSC) during any of our site review visits made, are reported generally under ***five (5) main problem / deficiency categories*** for our warranty review report structure and depending on the mandated year and type of warranty review for the specific assignment we are conducting for our review.

For this report for Strata Plan BCS3495 the "Grand Central One", it is a visual-only 10-year structural warranty review prior to its expiration; so this review and report will have its main focus on the last three problems/deficiencies categories as they are more related to this review and reporting mandate.

After the main description problem/deficiency category type, we will also note the level of importance of a problem/deficiency item(s) as either of the following levels:

- Low
- Medium
- High

Finally, for a reported problem/deficiency item(s), we will briefly discuss and or recommend a general action to be taken and or considered for it.

.1 CATEGORY TYPE

As noted, according to the type of the deficiency and as related to our warranty review year and its concentration, they would be classified based on visual observations and the opinion of the I3BSC consultants in 5 main problem/deficiency categories as follows and show below as well. (1) Material and Labour deficiencies, (2) Building Envelope deficiencies, (3) Non-Structural Defect, (4) Structural Defect, and (5) Structural Damage. However, also as noted, for this report, it will focus more on the last three

categories since they are related to the main purpose of this report, the 10-year warranty structural review. At times, depending on our reporting mandate and if a deficiency may have been caused and or further adversely affected by another and or in relation to multiple categories, we may also refer to those other related categories too, as and when applicable or appropriate for our reporting purposes.

C1 MATERIAL AND LABOUR (ML)

Any deficiencies in materials and labour supplied for the electrical, plumbing, heating, ventilation and air condition delivery and distribution systems.

Any deficiencies in materials and labour of the exterior cladding, caulking, windows and doors that may lead to detachment or material damage to the units, common areas, facilities or any other assets of the strata corporation.

Any deficiencies in materials and labour which renders the new home unfit to live in, and for violation of the Building Code.

C2 BUILDING ENVELOPE (BE)

Any deficiencies in the building envelope, including a defect that permits unintended water penetration such that it causes, or is likely to cause, material damage to the units, common areas, facilities or any other assets of the strata corporation.

C3 NON-STRUCTURAL DEFICIENCY (NSD)

Any deficiencies in the building structure that based on visual observation and the opinion of the i3BSC consultants may not result in the failure of any Load Bearing portion, and the Load Bearing function of other elements including but not limited to units, common areas, facilities or any other assets of the strata corporation may not be affected.

C4 STRUCTURAL DEFICIENCY (SDE)

Any deficiencies or damages in the building structure that based on visual observation and the opinion of the i3BSC consultants may result in failure of any Load Bearing portion, and the Load Bearing function of other elements including but not limited to units, common areas, facilities or any other assets of the strata corporation may be affected.

C5 STRUCTURAL DAMAGE (SDA)

Any defects or damage in any element, system or assembly of the building that based on visual observations and personal opinion of the I3BSC consultants, might be resulted from a Structural Deficiency.

.2 IMPORTANCE LEVEL

There are three subcategories for this category. Low, Medium, and High.

LOW

All minor problems that based on visual observations and the opinion of the I3BSC consultants, that will not affect or cause significant damage in any other element, system or assembly of the building and they may not need to be repaired or attended in the upcoming years for structural purposes of the building.

MEDIUM

All standard/common problems based on visual observations and the opinion of the I3BSC consultants, that may affect or cause significant damage in other elements, system or assembly of the building and they might need to be monitored by visual observation, repaired or attended in the upcoming years either or not for structural purposes of the building.


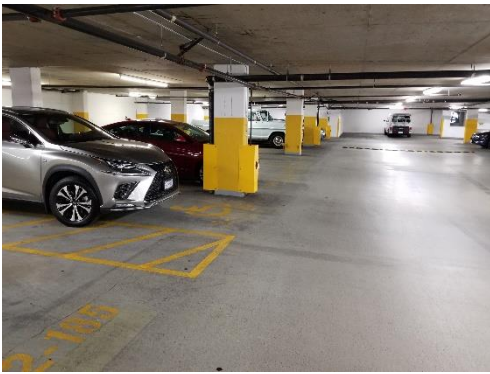
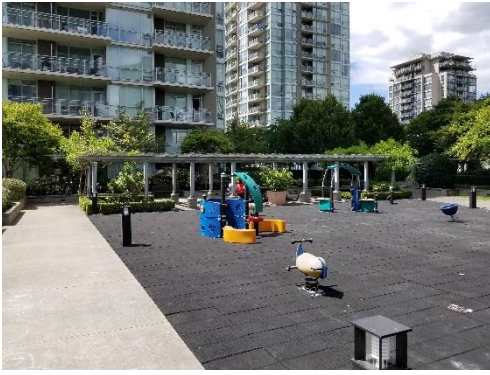
HIGH




All important problems that based on visual observations, the opinion of the I3BSC consultants, and on-site measurements that are or will be affecting or causing significant damage in other elements, system or assembly of the building and/or compromising the structural stability of the building. They need to be monitored by measurements, repaired or attended in a short period of time.

.3 ACTION REQUIRED

Describes the action to be taken in order to address the problem. We will briefly discuss and or considered for the reported problem/deficiency item(s).



3.0 GENERAL DESCRIPTION



Item	Photo	Description
3.1		<p>The “Grand Central One” consists of two buildings. A twenty-eight (28) floors high residential tower and a three (3) floors high commercial building plus one underground level which is part of the parking. The complex is a cast-in-place concrete building with various types of finishings and/or claddings.</p> <p>The tower exposed concrete elements are painted along the 28 floors. The commercial units’ cladding is a combination of different materials such as stone culture, brick veneer and painted concrete.</p>
3.2		<p>This photo shows a general view of one area of the parkade. The parkade consists of four (4) levels. Three (3) of them are built on suspended slabs and one (1) is an on-grade slab. Of the four (4) slabs that are part of the parkade, just the three (3) suspended slabs are coated with a liquid membrane waterproof.</p>
3.3		<p>The following photo is a general view of one area of the podium of the building located on the fifth (5th) floor. This podium is surrounded by the three towers which are part of the Grand Central Complex.</p>



<p>3.4</p>		<p>The windows are thermally-broken and aluminum-framed. Aluminum insulated metal swing doors provide access to balconies. The exterior walls consist, as it was previously mentioned, of the following components and or depending on wall type and location:</p> <ul style="list-style-type: none"> - Brick veneer - Stone veneer - Painted Concrete - Window glazing - Window/Guard glazing - Aluminum window/doors frames - Flashings on different locations
<p>3.5</p>		<p>The balconies are reinforced concrete suspended slabs, coated with liquid waterproofed membrane and sloped to a drain located in the center of the slab. These drains, drain the water through a pipe to the outside of the building.</p>
<p>3.6</p>		<p>As per our visual observations, the main roof, roof decks, podiums as applicable are reinforced sloped concrete slabs.</p>

4.0 OBSERVATIONS AND COMMENTS

4.1 PARKADES

Item	Photo	Description
4.4.1.1		<p>This photo shows a typical hairline crack existing along the east wall of the building on level 3 (parkade). This wall is facing towards the High St level.</p> <p>This kind of cracks are caused by shrinkage/thermal process of the concrete elements. These cracks are usually straight and even in width and commonly they do not represent a structural problem. However, these cracks may create a building envelope concern since they may become a source of water ingress into the building, for this particular case into the parkade. Water in parkade may create slippery conditions or future deterioration.</p> <p>It is always recommended to seal these cracks with compatible sealant in order to stop, reduce or prevent water ingress.</p> <p>Location: Along the east wall on level 3 Type: BE Importance: Medium Action required: Upkeep as needed</p>
4.4.1.2		<p>Cracks in concrete block/firewalls were observed.</p> <p>Repair as needed in order to restore the fire stop system.</p> <p>Location:</p> <ul style="list-style-type: none"> - Emergency generator room - Besides stall #301 (P3) - Commercial parking, pedestrian entrance beside Glen and Hight street entrances. <p>Type: NSD Importance: Medium Action required: Maintenance</p>

<p>4.4.1.3</p>		<p>Water ponding was observed and confirmed by the occupants of unit 102. A drain should be installed or re-sloping the deficient area to remove the water from there.</p> <p>Location: Back entrance of unit 102 located on Glen Drive Type: SDE Importance: Medium Action required: Further Investigation and Upkeep as needed</p>
<p>4.4.1.4</p>		<p>This photo is representative of many of the areas on the ceiling for all of the suspended slabs. Many hairline cracks were observed, with no specific pattern identified, in many areas. These hairline cracks are very common in cast-in-place concrete elements.</p> <p>These cracks are usually from the shrinkage process as the concrete cures and comes to strength and typically are not a structural concern. However, they may and/or develop water ingress coming from them into the interior of the parkade and or other applicable areas in the building(s).</p> <p>For such leak occurrences, it is recommended to address the most noticeable cracks and/or their related external membrane or dampproofing details affecting them that may leak when they are noted by either concrete injection or if able topical membrane detailing for their proper upkeep as needed.</p> <p>Location: Ceiling of suspended slabs for all floors Type: NSD Importance: Low Action required: Monitor & Upkeep as needed</p>

<p>4.4.1.5</p>		<p>Generally cracks on concrete slabs should be repaired at the minimum by acceptable crack sealing methodologies depending whether they are on the suspended parking slabs with a traffic bearing membrane or on the concrete slabs-on-grade of the parking garage. For slab-on-grade cracks, routing and proper caulking sealant is a maintenance repair option.</p> <p>The locations of the most excessive cracks at the time of the review are reported below.</p> <p>Locations: Concrete slab of P1. Stall # 65, from #4 to #30 and #40, from #14 to #19</p> <p>Type: NSD Importance: Medium Action required: Maintenance</p>
<p>4.4.1.6</p>		<p>These photos show possible shear cracks on the perimeter wall. These cracks may be the result of shear-stress concentration on the wall. However, since this is a singular hairline crack and no shear damage pattern was observed in any other area, we are the opinion that these particular cracks do not represent any structural concern at the time of this review.</p> <p>Nevertheless, we do recommend monitoring in order to detect any new cracks or a specific pattern that represent a hint of a structural deficiency as well as any water ingress into the parkade. In the case of water ingress, we recommend a polyurethane crack injection.</p> <p>Location: Parking 1 stall #70, 39, 36, 35, 9, 3 Type: NSD Importance: Low Action required: Monitor & Upkeep as needed</p>



<p>4.4.1.7</p>		<p>These photos are intending to show failures by delamination in concrete elements. It appears that some concrete patches located on the column base and one of the walls of the parkade ramp towards P1 are popped-up.</p> <p>We recommend conducting further review and monitoring and/or upkeep as needed.</p> <p>Location: Column in P1 and southeast parkade ramp towards P1</p> <p>Type: SDE Importance: Medium Action required: Further Investigation and Upkeep as needed</p>
<p>4.4.1.8</p>	 <p>Photo A.- Concrete delamination on the commercial parking</p> <p>Photo B.- Notorious water ingress from the commercial parking level towards P1 level</p>	<p>The following photos show a major deficiency in the commercial parking and its related ramp towards level 2 and the garbage loading bay.</p> <p>Photo A is showing a sample of some areas located on the commercial parking and the garbage loading bay. Concrete and membrane delaminations were documented prior to being repaired during 2019.</p> <p>As a part of the repair project undertaken in 2019 to repair this widespread deficiency at the commercial parking and numerous other locations of the parkade, some cracks/cold joints were discovered when the concrete delaminations started to show. This structural deficiency in the concrete slab entails other deficiencies related to water ingress. In the opinion of the writer, these water ingress into the parkade would not exist if the concrete delamination has never happened and hence the waterproof membrane have not been disintegrated/delaminated (Photos B and C).</p>



Photo C.- Notorious water ingress from the commercial parking level towards P1 level



Photo D.- Crack possibly injected with polyurethane foam located beside the ramp which ends at P1

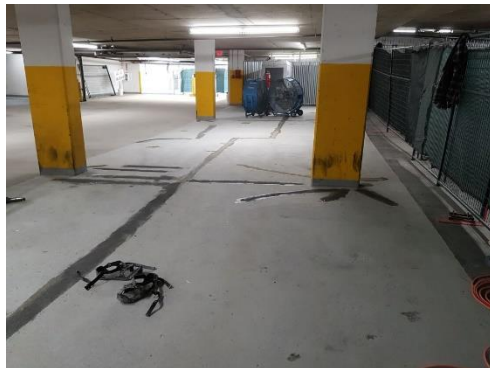


Photo E.- Concrete floor state after after removing the topping from several areas and ready for re-coating with waterproof membrane.

Major repairs were conducted by the owners to repair the concrete suspended slab and also replace the waterproofed membrane at the commercial parking areas (mostly) (photos D and E).

Location: Commercial parking and garbage loading bay

Type: SDE and SDA

Importance: High

Action required: Further Investigation, Monitor and Upkeep as needed

4.4.1.9



Photo A.- Exposed concrete slab in the ceiling of Urban Gate Restaurant



Photo B.- Efflorescence in concrete block firewall due to water ingress in the emergency generator room



Photo C.- Efflorescence in concrete block firewall and concrete floor due to water ingress outside the emergency generator room

Signs of water ingress observed and confirmed by the occupant of the commercial unit located on the corner of The Hight St. and Atlantic Ave (southeast corner of the complex). Lack of insulation was noticed in a wide area of the ceiling. The occupant mentioned that water is leaking from the room located on the top (Photo A).

The room located on top is the Emergency generator room and when we reviewed it, some clear signs of water and efflorescence were observed on the concrete block wall and the floor located on the east side of the interior of the room (Photo B).

Moreover, on the outside of the wall and the control joint of the concrete blocks wall some efflorescence was observed. We also observed that some repairs were being conducted on the floor (Photo C, D and E)

Since the water stains and efflorescence were observed from the top of the wall towards the bottoms, we are the opinion that some water may be leaking from the podium above. This podium was reviewed and commented in this document in section number 4.3


We highly suggest conducting a further investigation and a membrane review of the concrete slab on top.

Location: Emergency generator room in the southeast side.


Type: BE




Importance: High

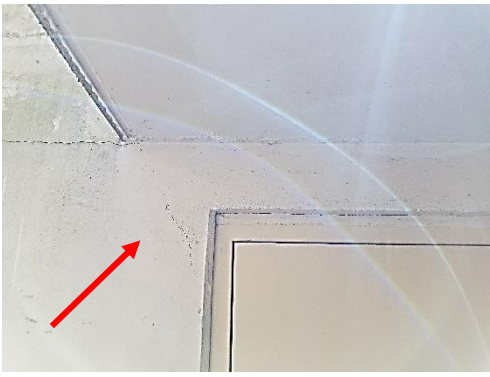


Action required: Further Investigation, Monitor and Upkeep as needed


	 <p>Photo D.- Efflorescence due to water ingress on the control joint between a concrete wall and a concrete block wall</p>	
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4.2 COMMON INTERIOR AREAS, CORRIDORS, STAIRWELLS


Item	Photo	Description
<p>4.4.2.1</p>		<p>Vertical hairline cracks were observed at numerous locations in drywall and they occur naturally along the seams between two boards. These isolated cracks usually do not represent a structural problem unless additional evidence of damage is observed.</p> <p>Location: Lobby of Grand Central Tower One. Level 22 (unit 2203, 2201), level 21 (units 2103, 2104), level 20 (units 2003, 2004), level 19 (unit 1901, 1903, 1904), level 18 (unit 1801, 1803, 1804), level 17 (unit 1703, 1704), level 11 (unit 1104), level 110 (unit 1001, 1007, 1004), level 9 (unit 901, 904), level 8 (unit 804), level 7 (unit 704, 701), level 6 (unit 604, 602, 601), level 3 (unit 301).</p> <p>Type: NSD Importance: Low Action required: Upkeep as needed</p>


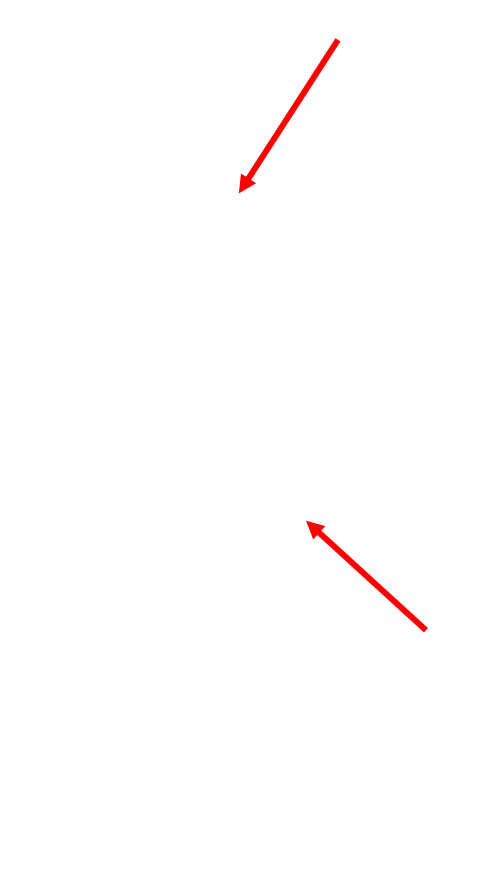
<p>4.4.2.2</p>		<p>Numerous cracks like this were observed in the stairs ramps of all of the levels. In our opinion, this deficiency does not represent a structural concern.</p> <p>Location: Stairwells Type: NSD Importance: Low Action required: Upkeep as needed</p>
<p>4.4.2.3</p>		<p>Numerous cracks in the concrete block fire walls were observed at several locations. Repair as needed in order to restore the fire stop system.</p> <p>Location: - Stair 2, level 2 - Stair 3, level 2 Type: NSD Importance: Medium Action required: Maintenance</p>
<p>4.4.2.4</p>		<p>Hairline cracks observed on the concrete header of some levels. They are not seen as structural problems. At this point, we don't see any action required unless water ingress is observed on the cracks located on the outside.</p> <p>Location: - Stair 2, level 1, 2, and 3 - Rooftop entrance - Service area (2nd level) on the north side</p>



		<p>Type: NSD Importance: Low Action required: Upkeep as needed</p>
<p>4.4.2.5</p>		<p>Water ingress observed on the ceiling.</p> <ul style="list-style-type: none"> - It appears that the water ingress in the storage room is coming from the drainage system, however, further investigation is recommended in order to certainly know the source of the water ingress. - Unknown source of water ingress in the ceiling of the corridors. Further investigation is recommended. <p>Location:</p> <ul style="list-style-type: none"> - Corridor ceiling in front of the units 2307, 1501, 1506 - Media Center ceiling - Storage parking 1 at #91 and #53 <p>Type: ML Importance: Medium Action required: Further Investigation and Maintenance</p>
<p>4.4.2.6</p>		<p>Detached drywall tape was observed.</p> <p>Location: Level 31, Level 30 (all units), level 29 (unit 204, 2902, 2901, 2907), level 28 (unit 2804, 2801, 2802), level 27 (unit 2704, 2702, 2706), level 26 (unit 2604, 2605, 2603, 2601), level 22 (all units), level 19 (unit 1905), level 18 (unit 1805), level 8 (unit 805).</p> <p>Type: ML Importance: Low Action required: Upkeep as needed</p>


<p>4.4.2.7</p>		<p>Evidence of water ingress. Due to the pattern observed, it appears that there is a crack on the suspended concrete slab.</p> <p>Further investigation and monitoring are recommended.</p> <p>Location: Media Centre Type: ML Importance: Medium Action required: Upkeep as needed</p>
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4.3 EXTERIOR COMPONENTS OF THE TOWER, ROOFTOP AND PODIUM OF THE TOWER


Item	Photo	Description
<p>4.4.3.1</p>		<p>These photos are showing delaminated caulking and caulking ageing. These two types of failures are found very common in the caulking sealer of the gum lip flashing which is the first water barrier of the waterproofing system for the concrete slab.</p> <p>It appears that the caulking has reached his service life in some areas since its appearance looks cracked and brittle. This is a very clear sign of ageing.</p> <p>We recommend conducting a maintenance plan and replacement in order to prevent water ingress into the membrane edge which might find a way to seep through.</p> <p>Location: 5th level. Along the perimeter wall. Type: BE Importance: Medium Action required: Upkeep as needed</p>





<p>4.4.3.2</p>		<p>This photo shows the lack of mineral protection or another mechanical layer to protect the membrane. It appears that the waterproof membrane was not protected with any mechanical protection and this deficiency may end it up getting the membrane pinched against the concrete elements and letting water infiltrate until the concrete slab or any cold joint.</p> <p>Since some water ingress is reported in many locations under this area. We do recommend conducting a membrane review to clarify the current state of the waterproof system.</p> <p>Location: 5th level in the south and southeast corner. Type: BE Importance: High Action required: Further Investigation and Upkeep as needed</p>
<p>4.4.3.3</p>		<p>These attached photos are showing examples of typical hairline cracks existing along the South perimeter wall of the building on level 5 (podium). This wall is facing Atlantic Ave.</p> <p>This kind of cracks are caused by shrinkage/thermal process of the concrete elements. These cracks are usually straight and even in width and commonly they do not represent a structural problem.</p> <p>However, since these cracks are exposed to direct rain may represent a building envelope concern because they may be a source of water ingress into the building or may contribute to deteriorating the paint coat of the walls facing outside the building.</p> <p>There is one particular crack that needs attention because it was observed to be approximately around 3 mm in width and has the potential to cause water ingress. Nevertheless, it is always recommended</p>

		<p>Left unsealed and unrepaired, those cracks will develop deterioration and further damage.</p> <p>Location: All the elevations but being more critical the north elevation Type: SDE Importance: High Action required: Maintenance</p>
<p>4.4.3.12</p>		<p>This photo shows an example of missed flashing.</p> <p>Self-adhered membrane exposed to UV radiation. The self-adhered membrane must be protected against water and direct sunlight.</p> <p>Vertical flashing should be installed.</p> <p>Location: Multiple locations such as north elevation level 30, east elevation level 32 and 29 as the most notorious.</p> <p>Type: BE Importance: Low Action required: Maintenance</p>
<p>4.4.3.13</p>		<p>Scupper or overflows drains were observed without proper extrude pipes. This leads to faster paint discoloration and may contribute to water ingress in some areas where raining water would not access normally.</p> <p>Location: Multiple locations such as level 19 on east elevation. Levels 6 and 7 on South Elevation.</p> <p>Type: BE Importance: Low Action required: Maintenance</p>

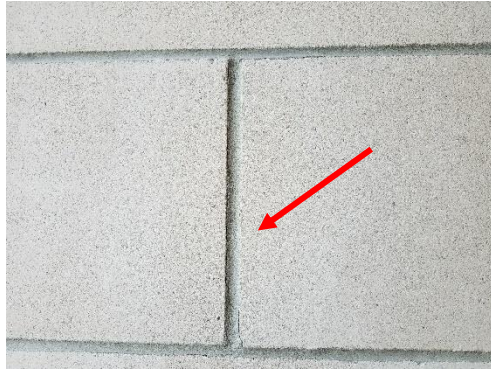
<p>4.4.3.14</p>		<p>These photos show examples of cracks commonly observed on the corners of windows. Even though some of these cracks appear after time, they always should be properly repaired to avoid water ingress into the units. We recommend attending these deficiencies with your maintenance plan or when the general repaint of the building is conducted.</p> <p>Location: Multiple locations around the four elevations. Type: BE Importance: Medium Action required: Maintenance</p>
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4.4 EXTERIOR COMPONENTS OF COMMERCIAL UNITS

Item	Photo	Description
<p>4.4.4.1</p>		<p>The following photos are showing a repetitive deficiency on the brick and stone veneers. It appears that the cladding was not sealed with a penetrating waterproofing sealant (silane siloxane sealer) to protect against mould, algae, efflorescence and humidity as minimum protection.</p> <p>These signs may indicate water penetration from outside to the inside the veneer and/or water trying to escape from the inside cavity of the wall assembly. In any of the previously described situations, this deficiency needs to be attended in order to prevent further damages to the cladding or the units.</p>

		<p>Location: Exterior cladding of the commercial units Type: BE Importance: High Action required: Maintenance</p>
<p>4.4.4.2</p>	  	<p>Cracks in brick veneer and missed caulking may contribute to water ingress into the wall cavity. Even though in our opinion, these isolate deficiencies do not represent a structural concern for the cladding structure, they should be attended to and addressed in a maintenance program to prevent water ingress into the building.</p> <p>Location: Exterior cladding of the commercial units Type: BE Importance: High Action required: Maintenance</p>

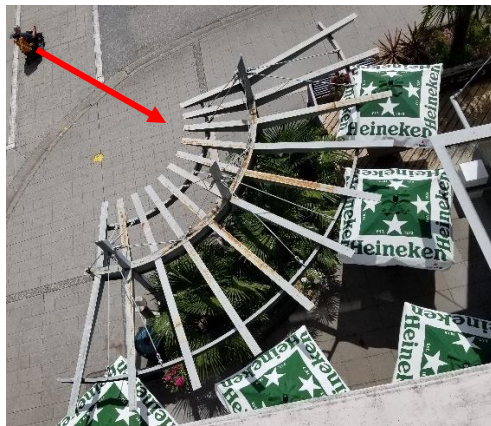
4.4.4.3



Cracks in stone veneer and missed caulking between the veneer and other elements may contribute to water ingress into the wall cavity. Even though in our opinion these isolate deficiencies do not represent a structural concern for the cladding structure, they should be attended and considered in a maintenance program to prevent water ingress into the building.


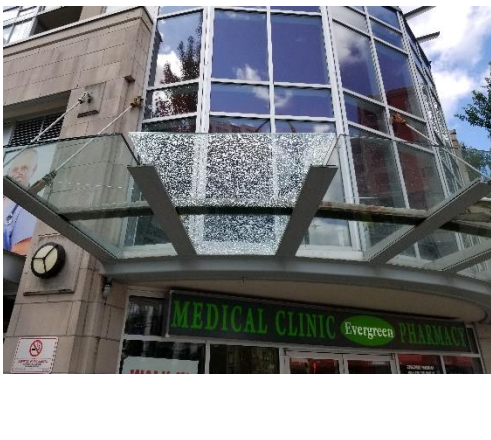

Location: Exterior cladding of the commercial units
Type: BE
Importance: High
Action required: Maintenance




4.4.4.4





These attached photos show the deterioration of the attached pergolas. The pergolas are observed with serious deteriorations of their anti-corrosion coating. The coating is delaminated in several portions of the elements and the water has started to corrode many of them. This deficiency may ultimately lead to a reduction in the load-carrying capacity of the elements.

We recommend conducting an evaluation of the condition of the structure and prepare a maintenance



		<p>program to restore the anti-corrosion coating.</p> <p>Location: Commercial Units Type: SDE Importance: High Action required: Further Investigation and Maintenance</p>
<p>4.4.4.5</p>		<p>Some of the glass panels were observed broken. These deficiencies represent a serious concern for the pedestrians/users' safety of this complex. We suggest replacing the panels at the earliest opportunity to avoid any possible accidents.</p> <p>Location: Commercial Units Type: SDE Importance: High Action required: Maintenance</p>
<p>4.4.4.6</p>		<p>Concrete delamination observed in the recycling room. These delaminations should be considered and attended in a maintenance plan for the upkeep of the building.</p> <p>Location: Recycling room entrance (Atlantic Ave.) Type: NSD Importance: Medium Action required: Maintenance</p>



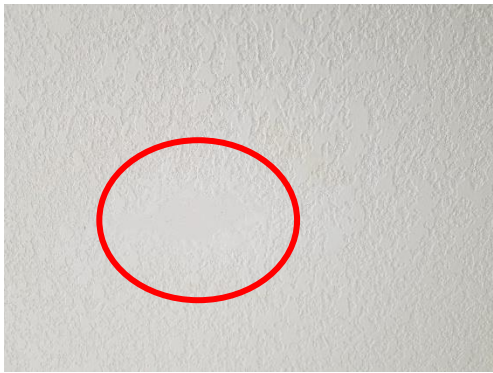
		
<p>4.4.4.7</p>		<p>This photo is showing the location of a cold joint where water has drained-out the paint and the concrete patch. Signs of water ingress are observed.</p> <p>Location: Garbage room on Atlantic Ave. Type: BE Importance: Low Action required: Maintenance</p>
<p>4.4.4.8</p>		<p>Corroded flashing observed at the base of a concrete column. These flashings are part of the envelope building and it is always good practice to maintain all the elements in good shape. Recommended replacing as needed.</p> <p>Location: Unit located on the corner of Glen Drive and The High st. Type: BE Importance: Low Action required: Maintenance</p>




4.5 INTERIOR AREAS OF THE UNITS




Item	Photo	Description
<p>4.4.5.1</p>		<p>Sign of water ingress observed in the ceiling of the commercial unit 102 of Glen Drive. The occupant of the unit mentioned that this problem has happened and damages have occurred two times. The exact source of water ingress has not been found.</p> <p>Based on the mold/algae growing on the stone cladding on the second floor on top of the unit 102 additionally to these previous water ingress mentioned, we suspect that the membrane located on the 3rd level may be deteriorated and allowing water ingress into the concrete suspended slab as well as into the cavity between the cladding and the concrete wall.</p> <p>We recommend conducting a review of the membrane located on top of this unit (north service area on the 3rd floor), to minimize the possibility of water ingress from this podium.</p> <p>Location: Unit 102 Type: BE Importance: High Action required: Further Investigation, Monitor and Upkeep as needed</p>
<p>4.4.5.2</p>		<p>These photos show evidence of previous water ingress into the unit 100. The occupant of the unit mentioned that some water was observed a few times during raining days. However, the source of the water ingress has not been found. We recommend conducting a leak investigation to determine the source or cause of the water ingress.</p> <p>Location: Unit 100 Type: BE Importance: High Action required: Further Investigation, Monitor and Upkeep as needed</p>


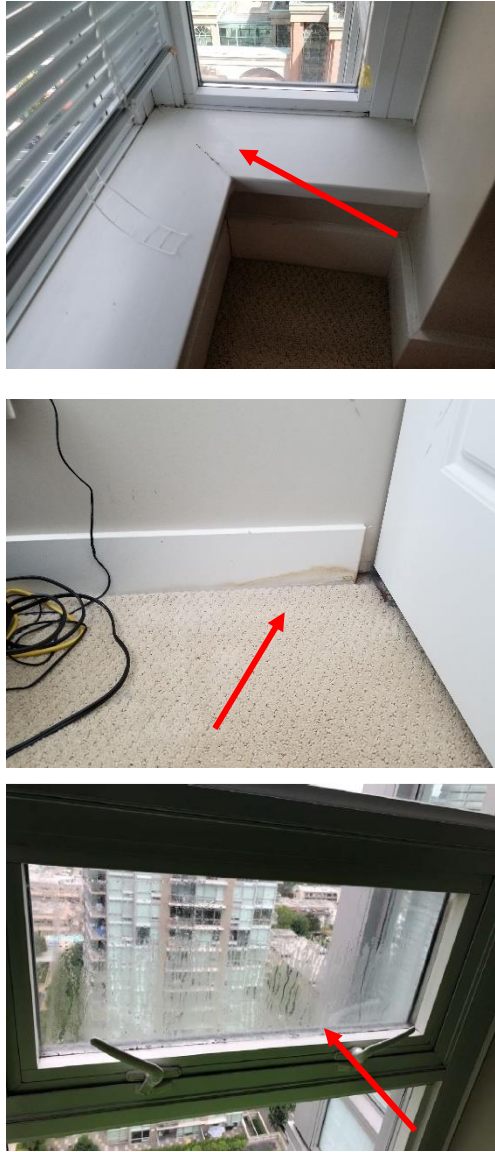
		
<p>4.4.5.3</p>		<p>In the course of our review, we observed that almost all the gutters located over the entrance of the commercial units do not appear to be in optimal conditions for their intended purpose.</p> <p>We are concerned that this lack of maintenance contributes to the water ingress issue reported at the entrance doors in almost all of the commercial units.</p> <p>In order to minimize the possibility of water ingress into the units from overflowing water from the gutters, we recommend implementing and conducting a rigorous maintenance program or in the case there is already one, increasing the cleaning frequency for all the gutters and monitor these areas. In case of this maintenance program does not solve the problem, a leak investigation should be conducted.</p> <p>Location: Commercial units Type: BE Importance: High Action required: Further Investigation and Maintenance</p>

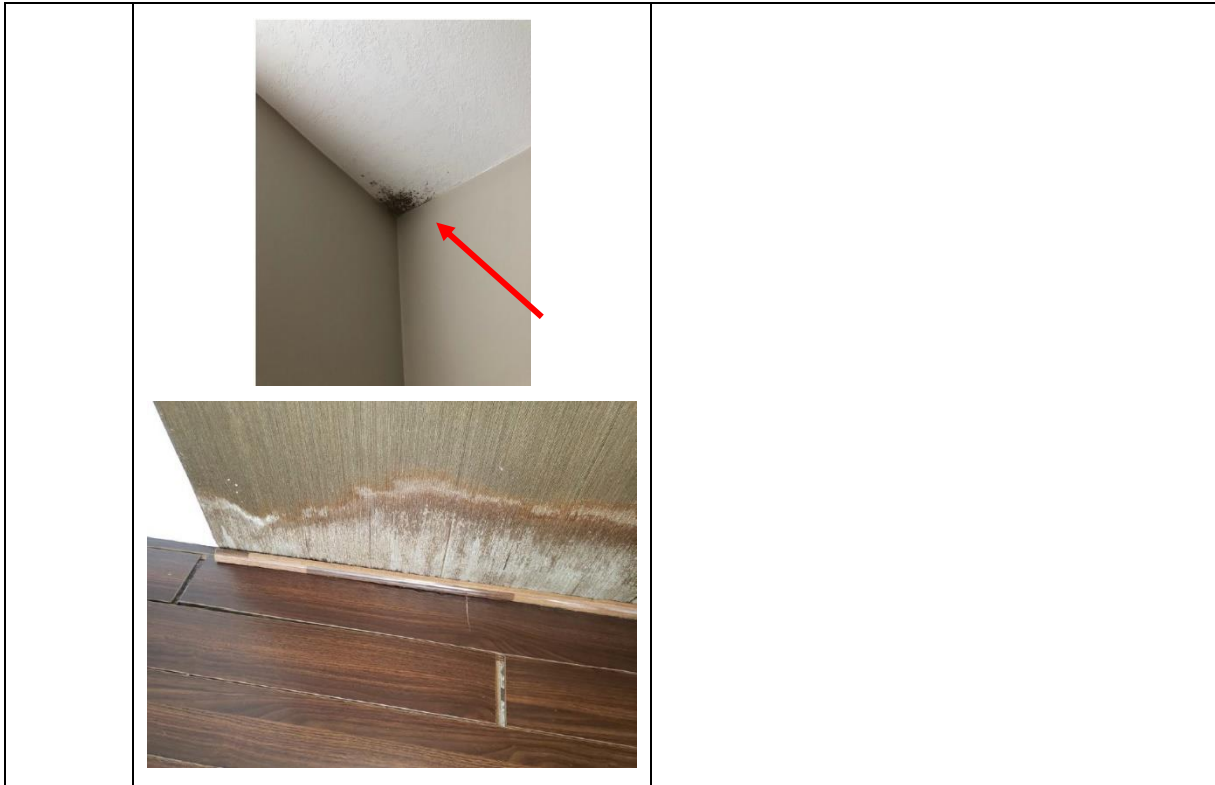
<p>4.4.5.4</p>		<p>All commercial units reported periodic and re-occurring water ingress at the ground floor, from exterior sources. This deficiency should be further investigated and attended since water ingress into the units and especially at entrance doors may become a risk for their occupants and belongings.</p> <p>We presume that attending the precede deficiency (gutters maintenance program) may aid to minimize this situation, but in the case this does not happen, further investigation should be conducted.</p> <p>Location: Commercial units Type: BE Importance: High Action required: Further Investigation, Monitor and Upkeep as needed</p>
<p>4.4.5.5</p>		<p>Water ingress is reported in the unit. Further investigation is recommended to identify the source of the water ingress.</p> <p>The second photo shows the current state of the concrete ledge of the outside of the window. The horizontal surfaces or those ones with minimal slope must be always waterproofed to prevent water ingress into the building. This deficiency is widely explained in section 4.3 of this document.</p> <p>The third photo shows the location of widely open crack on the bottom of the window.</p> <p>Location: Unit 301 Type: BE Importance: High Action required: Further Investigation, Monitor and Upkeep as needed</p>

		
<p>4.4.5.6</p>		<p>Water ingress was reported into the unit. Based on the occupants' comments, water is constantly dripping/leaking from the cast-iron pipe. The occupants reported that this problem has happened several times in different locations of the unit. Further investigation is recommended in order to detect the source of the problem and if the system meets the British Columbia Building Code.</p> <p>Location: Unit 3203 Type: ML Importance: High Action required: Further Investigation, Monitor and Upkeep as needed</p>
<p>4.4.5.7</p>		<p>Water ingress through the ceiling of the master bedroom was reported. It appears that water is dripping over the middle of the bed when the dryer machine is on. A leak investigation is recommended to detect the source of the problem which is suspected to be from the dryer vent.</p> <p>Location: Unit 2802 Type: ML Importance: High Action required: Further Investigation, Monitor and Upkeep as needed</p>

<p>4.4.5.8</p>		<p>Occupants reported water stains/leaking on the ceiling. A leak investigation is recommended to detect the source of the problem.</p> <p>Location: Units 1201, 3204, 301 Type: ML Importance: Medium Action required: Further Investigation, Monitor and Upkeep as needed</p>
<p>4.4.5.9</p>		<p>Water ponding on the balcony deck is observed at many units. Even when just a few from the total units were visited, this deficiency was commonly observed/reported. It appears that the balcony deck's drains are not fully functionally since some moss was observed growing in their scuppers. This moss clogs the drains and creates a poor water drain which most of the time ends in water ponding on the decks.</p> <p>We recommend conducting a maintenance program to restore the drainage system.</p> <p>Location: Units 1006, 1805, 3202, 3203, 3204 Type: NSD Importance: Medium Action required: Maintenance</p>
<p>4.4.5.10</p>		<p>Detached drywall tape on many ceilings of units was observed.</p> <p>Location: Several units Type: ML Importance: Low Action required: Upkeep as needed</p>

<p>4.4.5.11</p>		<p>Vertical hairline cracks in drywall were observed. These isolated cracks usually may not represent a structural problem unless in addition to other deficiencies show evidence of further damage.</p> <p>Location: Interior of the units Type: NSD Importance: Low Action required: Upkeep as needed</p>
<p>4.4.5.12</p>		<p>The attached photo shows an example of the crack reported by the occupant. However, these hairline cracks are very common in concrete elements and usually are the result of shrinkage. Commonly, these hairline cracks do not represent a structural problem and no attention is required unless other deficiencies like water leaking are observed.</p> <p>Location: Interior of the units Type: NSD Importance: Low Action required: Upkeep as needed</p>
<p>4.4.5.13</p>		<p>Organic material like mould, mildew and moss is observed in several dryer vents, balcony edges, scuppers, etc. Even though these problems are not structural damage or concern, they should be attended and removed from the building envelope.</p> <p>This organic material commonly grows in almost any kind of surfaces when they experience long wet periods and shady conditions that do not allow the surfaces to dry out easily.</p> <p>We suggest including this deficiency as a part of the maintenance program.</p> <p>Location: All around the building envelope especially the north elevation Type: BE Importance: Medium to High Action required: Maintenance</p>

<p>4.4.5.14</p>		<p>The attached photo shows an example of small blisters and soft drywall areas on the ceiling reported by the occupant. We recommend monitoring and a possible further investigation in case the deficiency increases since it may be a result of water ingress in the washroom fan duct.</p> <p>Location: Unit 1201 Type: NSD Importance: Low Action required: Further Investigation and Monitor</p>
<p>4.4.5.15</p>		<p>Water ingress and condensation in windows and walls are reported by the occupant/owner of some units.</p> <p>Since this review was conducted in the summertime, it was not possible to encounter the suitable conditions for condensation in the unit 1201. However, some signs of this possible deficiency are observed on the surface of the baseboard and the window stool (first two photos).</p> <p>The third, fourth and fifth photos were taken by the occupant of the unit 2606 in the previous winter season. We observed possible mould/mildew spores growing on the ceiling and wall corner.</p> <p>We recommend further investigation, upkeep as needed and monitoring during winter time where the weather conditions are suitable to observe condensation inside the units.</p> <p>Location: Unit 1201, 2606 (reported) Type: BE Importance: High Action required: Further Investigation and Monitor</p>



5.0 CONCLUSIONS AND RECOMMENDATIONS

I3 Building Science and Consulting Inc. visited the complex, conducted a visual structural review to note any areas of visually obvious deterioration and or tell-tales of structural deficiencies to obtain a general understanding of the exterior building envelope, interior areas and or its exposed structural elements as noted within this report. Our review covered a general sampling of typical important components/systems of the building (s) and complex that would relate to this type of review and mandate such as:

1. A visual review of the exposed structure, balconies/decks, exterior walls, concrete slabs from the exterior ground and bosun chair drops were selected in a way to provide solely a general consensus of the overall condition of the building, considering our limited access and that to review and/or fully cover every single location and related components of the building would be unrealistic for retained visual-only review mandate.
2. A visual review of the surface of exposed concrete parking slabs, ramps, columns, slab bands, beams, foundations and any retaining walls etc.
3. A visual review of the exterior and interior stairwells, common hallways and or corridors, floors, a sampling of units, as well as exterior balconies, podiums, roof decks and roofs.
4. **Note:** for the above, it pertains to areas as noted within this report where readily accessible and/or we had been authorized and provided access to for a visual-only review.

The following observations summarized below are indicative of the conditions observed or existing at the time of the inspection, and should not be considered a total list of irregularities but a representative list of items considered:

- .1 Some potential deficiencies were observed and they might indicate that some structural components of the building might not be performing their intended function and or might have related issues. During our review of the building, the most notable deficiencies or defects are described in the under section items 4.4.1.3 (Water ponding), 4.4.1.7 and 4.4.1.8 (Concrete delamination in parkade), 4.4.3.5 (Large shear cracks on the concrete walls), 4.4.3.11 (Cracks on the balconies' edges), 4.4.4.4 (Coating delamination on pergolas/overhangs). Since the noted deficiencies or defects from our understanding and interpretation can be related to the 10-year-warranty, we recommend having a further investigations as noted within this report in order to further identify the source of the problem(s) and as applicable identify and further recommend possible solutions to be implemented as needed for each of these deficiencies as applicable within these items and/or as noted.

- .2 The podium located on the 5th floor was visually reviewed to identify deficiencies as well as to obtain an understanding of their structural condition. Generally, the perimeter parapets and their respective overhangs were observed with several hairline cracks that may be a result of a natural shrinkage of concrete. However, in our opinion, they should be included in the maintenance plan and properly repaired to avoid water ingress into walls and ending between the waterproof membrane and concrete slab.

- .3 Based on the findings observed on the outside of the podium walls and some water ingress in some units as well as into the generator room. We are the opinion to conduct a review of the outside podium membrane and waterproofing in order to identify its current condition. The most notable deteriorated areas are located on top of the generator room and the perimeter podiums with access through the "service area doors" on the 3rd floor as well as the area on the north side of the 5th level podium.

- .4 The stairs were visually reviewed to identify signs of cracks and deficiencies as well as to obtain an understanding of their structural condition. Generally, the stairwells that lead to the parkade and or other areas were in fair condition, with a few exceptions where some minor cracks were observed and or other smaller concerns noted.

- .5 We recommend conducting further investigations for some of the deficiencies noted during our visual-only review. These deficiencies were mentioned in the points 4.4.1.9, 4.4.2.5, 4.4.3.2, 4.4.3.5, 4.4.3.9, 4.4.4.4, 4.4.5.1, 4.4.5.2, 4.4.5.3, 4.4.5.4, 4.4.5.5, 4.4.5.6, 4.4.5.7, 4.4.5.8, 4.4.5.14, 4.4.5.15

- .6 General preventative maintenance as needed with different levels of importance (exterior cladding and related components, caulking, flashing, exterior painting, vents, etc., also cracks in the parkade, paint coatings, sealants, and for the roofing). A number of components require regular refinishing and maintenance over their service life.

Exterior and similar noted maintenance should be reviewed regularly and performed every 5 to 7 years on average for most of them; We recommend as noted that consideration should be given for the exterior building envelope & other noted preventative maintenance assessment program be first further assessed, implemented and carried for these and or related applicable exterior and or protective components in 1 to 3 years depending on the item/component etc., beginning with the further assessment and creation of this recommended preventative maintenance plans as its starting point. We recommend the regular maintenance to the building be implemented on a regular and more preventative maintenance etc. program as noted to be further implemented.

- .7 Early failure of the parkade membrane, caused in part by structural issues of the parkade concrete slabs were observed and already repaired by the owners at the commercial parking areas during 2019.

Based on the findings of our “Ten-Year Structural Warranty” Review, our initial conclusions are:

1. The “Grand Central One” building and its related Commercial Units are performing as intended.
2. Some localized structural deficiencies were observed during our review. Evidence of some structural failures was noted and documented in the commercial parking area, slab and walls. Other minor but visible deficiencies were also mentioned in this report, since they may lead to possible future repairs on the balcony concrete deck in the coming years.
3. The envelope of the building (such as exterior paint, cracking repairs and a waterproof membrane for most of the concrete elements) require significant maintenance in our opinion, and a list of items in need of periodic maintenance was identified and noted in this report.

This report is prepared exclusively for the use and benefit of the client identified on the first page of this report and is not for the use and benefit of, nor may it be relied upon by, any other person or entity. The contents of this report may not be quoted in whole or in part or distributed to any person or entity without the permission of the client.

6.0 LIMITS OF LIABILITY

- .1 The investigation undertaken by i3 Building Science & Consulting Inc. was based on visual observations only and limited to a selected sampling locations as noted within this report.
- .2 Only eight (8) site visits were made concerning the problems highlighted in the report with no attempt to review every element or portion of the buildings to fully ascertain the quality of sufficiency of any particular aspect of the building. As such, our opinion cannot be extended to elements and portions of the building not reviewed, or situations reasonably beyond the control of i3 Building Science & Consulting Inc based on this type of visual only review.

- .3 The intent of this investigation was to determine a general consensus only of areas of obvious deterioration or in need of repair. Our comments are not a guarantee or warranty of any aspect of the condition of the building whatsoever. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility for damages of any kind suffered by any third or other party, as a result of decisions made or actions based on this report.

If you have any questions arising from this report, please do not hesitate to contact the writer.

GRAND CENTRAL
2978, 2968 Glen Dr (Tower 1 + 2)
2975 Atlantic Ave (Tower 3)
Coquitlam, B.C



Tag #	Equipment	Manuf.	Model	Location	additional info	Inspected- OK	see notes
1	volume domestic water heater	Raypak	WH3-0962	Mechanical PH - 2968	S/N - 1109329369	✓	
2	volume domestic water heater	Raypak	WH3-0962	Mechanical PH - 2968	S/N 1109329368	✓	
3	draft inducer	Tjernlund	1L	Mechanical PH - 2968		✓	
4	DHW controller	Tekmar	274	Mechanical PH - 2968		✓	
5	DHW Storage Tank	AO Smith	T series	Mechanical PH - 2968		✓	
6	DHW Storage Tank	AO Smith	T series	Mechanical PH - 2968		✓	
7	DHW Storage Tank	AO Smith	T series	Mechanical PH - 2968		✓	
8	DHW Storage Tank	AO Smith	T series	Mechanical PH - 2968		✓	
9	boiler pump (P-1)	Armstrong	E33B	Mechanical PH - 2968	S/N -182212-669	✓	
10	boiler pump	Armstrong	E33B	Mechanical PH - 2968	S/N - 180210-670	✓	
11	DHW recirculation pump	Grundfos	UPS25-99BFC	Mechanical PH - 2968		✓	
12	DHW expansion tank	Armstrong	AXT-30	Mechanical PH - 2968		✓	
13	DCW draw down tank	Armstrong	FX-500V	Mechanical PH - 2968		✓	
14	exhaust fan - Elevator Mech Rm	unknown	belted propeller	Elev PentHouse -2968	A34 belt - changed may 3/16		✗
15	Corridor MakeUp Air Unit	Engineered Air	DJs100/0	roof - 2968	4 @ 20x20x2 + 4 @20x25x2 [2 x B54 Belt]	✓	
15A	DCW High Flow PRV	Watts	PV10M	26th Flr - 2968	Serving Flr 15 - 25	✓	
15B	DCW Low Flow PRV	Watts	223	26th Flr - 2968	Serving Flr 15 - 25	✓	
15C	DHW High Flow PRV	Watts	PV10M	26th Flr - 2968	Serving Flr 15 - 25	✓	
15D	DHW Low Flow PRV	Watts	223	26th Flr - 2968	Serving Flr 15 - 25	✓	
15E	DCW High Flow PRV	Watts	PV10M	15th Flr - 2968	Serving Flr 3 - 12	✓	
15F	DCW Low Flow PRV	Watts	223	15th Flr - 2968	Serving Flr 3 - 12	✓	
15G	DHW High Flow PRV	Watts	PV10M	15th Flr - 2968	Serving Flr 3 - 12	✓	
15H	DHW Low Flow PRV	Watts	223	15th Flr - 2968	Serving Flr 3 - 12	✓	
16	Volume domestic water heaters	Raypak	WH3-1468	Mechanical PH - 2975	S/N - 1402372564	✓	
17	volume domestic water heaters	Raypak	WH3-1468	Mechanical PH - 2975	S/N - 1311367515	✓	
18	DHW controller	Tekmar	274	Mechanical PH - 2975		✓	

GRAND CENTRAL

2978, 2968 Glen Dr (Tower 1 + 2)

2975 Atlantic Ave (Tower 3)

Coquitlam, B.C



Tag #	Equipment	Manuf.	Model	Location	additional info	Inspected- OK	see notes
19	DHW Storage Tank	Laars/Bradford White	A2086000	Mechanical PH - 2975		✓	
20	DHW Storage Tank	Laars/Bradford White	A2086000	Mechanical PH - 2975		✓	
21	DHW Storage Tank	Laars/Bradford White	A2086000	Mechanical PH - 2975		✓	
22	DHW Storage Tank	Laars/Bradford White	A2086000	Mechanical PH - 2975		✓	
23	boiler pump	Grundfos	TP80-40/48	Mechanical PH - 2975		✓	
24	boiler pump	Grundfos	TP80-40/48	Mechanical PH - 2975		✓	
25	DHW recirculation pump	Grundfos	UPS26-150SF	Mechanical PH - 2975		✓	
26	DHW expansion tank	Amtrol	ST30VC (ASME)	Mechanical PH - 2975		✓	
27	DCW draw down tank	Amtrol	Thermxtrol	Mechanical PH - 2975		✓	
28	exhaust fan - Elevator Control Rm	Broan	DD cabinet	Elev PentHouse -2975		✓	
29	exhaust fan - elevator shaft	Broan	DD cabinet	Elev PentHouse -2975		✓	
30	Corridor MakeUp Air Unit	Engineered Air	DJs140/0	roof - 2975	2 @ B-85 belt; 3 @ 20x25x2 media & 6 @ 16x25x2 media	✓	
31	DHW High Flow PRV	Watts	PV10M	31st Flr Mech Room Closet - 2975	Serving 21 - 30 Flr	✓	
32	DHW Low Flow PRV	Watts	LF223	31st Flr Mech Room Closet - 2975	Serving 21 - 30 Flr	✓	
33	DCW High Flow PRV	Watts	PV10M	30th Flr Mech Room Closet - 2975	Serving 21 - 30 Flr	✓	
34	DCW Low Flow PRV	Watts	LF223	30th Flr Mech Room Closet - 2975	Serving 21 - 30 Flr	✓	
35	DHW High flow PRV	Watts	PV10M	21st Flr Mech Room Closet - 2975	Serving 10 - 20 Flr	✓	
36	DHW Low Flow PRV	Watts	LF223	21st Flr Mech Room Closet - 2975	Serving 10 - 20 Flr	✓	
37	DCW High Flow PRV	Watts	PV10M	20th Flr Mech Room Closet - 2975	Serving 10 - 20 Flr	✓	
38	DCW Low Flow PRV	Watts	LF223	20th Flr Mech Room Closet - 2975	Serving 10 - 20 Flr	✓	
39	DHW High Flow PRV	Watts	PV10M	10th Flr Mech Room Closet - 2975	Serving 2 - 9 Flr	✓	
40	DHW Low Flow PRV	Watts	LF223	10th Flr Mech Room Closet - 2975	Serving 2 - 9 Flr	✓	
41	DCW High Flow PRV	Watts	PV10M	9th Flr Mech Room Closet - 2975	Serving 2 - 9 Flr	✓	
42	DCW Low Flow PRV	Watts	LF223	9th Flr Mech Room Closet - 2975	Serving 2 - 9 Flr	✓	
43	volume domestic water heaters	Raypak	WH3-0962	Mechanical PH - 2978	S/N - 0810289151	✓	

GRAND CENTRAL

2978, 2968 Glen Dr (Tower 1 + 2)

2975 Atlantic Ave (Tower 3)

Coquitlam, B.C



Tag #	Equipment	Manuf.	Model	Location	additional info	Inspected- OK	see notes
44	volume domestic water heaters	Raypak	WH3-0962	Mechanical PH - 2978	S/N - 0810289150	✓	
45	DHW controller	Honeywell	T775B2040	Mechanical PH - 2978		✓	
46	DHW Storage Tank	Raypak	RSS 175A	Mechanical PH - 2978		✓	
47	DHW Storage Tank	Raypak	RSS 175A	Mechanical PH - 2978		✓	
48	DHW Storage Tank	Raypak	RSS 175A	Mechanical PH - 2978		✓	
49	DHW Storage Tank	Raypak	RSS 175A	Mechanical PH - 2978		✓	
50	boiler pump	Armstrong	E33B	Mechanical PH - 2978		✓	
51	boiler pump	Armstrong	E33B	Mechanical PH - 2978		✓	
52	DHW recirculation pump	Armstrong	E33B	Mechanical PH - 2978		✓	
53	DHW expansion tank	Amtrol	Thermxtrol ST30V	Mechanical PH - 2978		✓	
54	DCW draw down tank	Amtrol		Mechanical PH - 2978		✓	
55	exhaust fan - Elevator Mech Rm	unknown	tube axial	Elev PentHouse -2978	A53 Belt	✓	
56	Corridor MakeUp Air Unit	Engineered Air	DJ100/0	roof - 2978	8 @ 20x20x2 Media / B62 Belt	✓	
57	DCW Pressure reducing valve	Singer	106-PR48	16th Floor Mech Closet - 2978	Serves 15 - 22 flr	✓	
58	DHW Pressure reducing valve	Singer	106-PR48	15th Flr Mech Closet - 2978	Serves 15 - 22 flr	✓	
59	DHW Pressure reducing valve	Singer	106-PR48	6th Floor Mech Closet - 2978	Serving Flr 3 - 12	✓	
60	DCW Pressure reducing valve	Singer	106-PR48	5th Floor Mech Closet - 2978	Serving Flr 3 - 12	✓	
61	Exhaust Fan	Broan	LR12645	5th Flr Gym Closet - 2978		✓	
62	parking ventilation (exh/OA) fan	Balador	WPMB 48E8	stall 368	Belt A51	✓	
63	parking ventilation (exh/OA) fan	Cook	480 XLWH 48XLWH	stall 3-126	Belt A45	✓	
64	parking ventilation (exh/OA) fan	Windmaster	DC48	stall 3-218	Belt A51	✓	
65	Exhaust Fan	Broan	JE2Jo67N	Stall 3 - 219		✓	
66	Exhaust Fan	Broan	JE2Jo67N	3rd Floor Gym - 2975		✓	
67	Exhaust Fan	Acme	VQL 900	Exercise yoga room electrical closet - 2975		✓	
68	Condensing Unit	Carrier	38Qrr036	Between Stall 208/209	Coil needs cleaning		✗
69	parking ventilation fan	Twin City Fan	WPMB 48E8	Stall 210	Belt A51	✓	

GRAND CENTRAL

2978, 2968 Glen Dr (Tower 1 + 2)

2975 Atlantic Ave (Tower 3)

Coquitlam, B.C



Tag #	Equipment	Manuf.	Model	Location	additional info	Inspected- OK	see notes
70	Exhaust Fan	~	~	Stall 237 Storage Room	No Access	✓	
71	Exhaust Fan	~	~	Between stall 237/238 Chlorine Room		✓	
72	Exhaust Fan	~	~	Between Stall 267/268 Storage	No Access		✗
73	parking ventilation fan	Cook	480XLWN 48XLWH	stall 265	2 x A45	✓	
74	Exhaust Fan	Cook	135SQN-B	Between Stall 267/268 Storage	A 41 Belt	✓	
75	Exhaust Fan	~	~	Between Stall 267/268 Storage		✓	
76	Exhaust Fan	Cook		Stall 275 Communications Room		✓	
77	parking ventilation (exh/OA) fan	Cook	540XLW	stall 277	2 @ A67	✓	
78	Exhaust	~	~	Stall 277 - Storage Room		✓	
79	parking ventilation (exh/OA) fan	Windmaster	DC-R41	stall 2-123	Belt A52	✓	
80	parking ventilation (exh/OA) fan	Windmaster	DC-40	stall 2-142	Belt A51	✓	
81	Exhaust Fan	~	~	Media Room Lv 2 - 2975		✓	
82	Exhaust Fan	Broan	Direct Drive	Media Room Lv 2 - 2975	Dental Room	✓	
83	air handler	Trane	GAM2A0A224S21SBA	stall 2-23	Serves Media Room - JoinsTag#103	✓	
84	parking ventilation (exh/OA) fan	Twincity	For	WDMB 36E4	Belt A40	✓	
85	Transformer Rm AC condensing unit	Carrier	Gemini 338AR016	parkade wire enclosure	Requires coil clean		✗
86	Transformer Rm AC condensing unit	Carrier	Gemini 338AR016	parkade wire enclosure			✗
87	parking ventilation (OA) fan	Twin City	WPMD 48E8	P1 vistor - north - in wire cage	A51 belt	✓	
88	parking ventilation (exh) fan	Cook	360 XMH - 36XMH	Adjacent unit 102	Belt AX31	✓	
89	parking ventilation (exh) fan	Cook	360 XMH - 36XMH	Adjacent unit 102	Belt AX31	✓	
90	parking ventilation (exh) fan	Cook	300 XMW	2968 Glen North North	Belt A 45	✓	
91	parking ventilation (OA) fan	Windmaster	DC R30	commercial reserved stall #6 (west wall)	Belt 4L340	✓	
92	emergency pressurizing fan (FS-5)	Delhi	200 series	2978 stall P83 - FR enclosure		✓	
93	vestibule pressurizing fan	Delhi	200 series , Thermolec heater	visitor parking	B44	✓	
94	Parking Transfer Air Fan	Acme Tubemaster	HA-12	Ground Lv Parking - 2975		✓	
95	Parking Transfer Air Fan	Acme Tubemaster	HA-12	Ground Lv Parking - 2975		✓	

GRAND CENTRAL

2978, 2968 Glen Dr (Tower 1 + 2)

2975 Atlantic Ave (Tower 3)

Coquitlam, B.C



Tag #	Equipment	Manuf.	Model	Location	additional info	Inspected- Ok	see notes
96	Exhaust Fan	Broan	Direct Drive	Service Rm -2975		✓	
97	Exhaust Fan	Acme	VQL1500	Bike Room - 2975		✓	
98	Exhaust Fan	Acme	VQL900	Bike Room - 2975		✓	
99	Electrical Rms - A/C air handler- 2975	Titan (Ingersol Rand)	M4AH3060B1000AA	wire enclosure - commercial parking	1 @ 16x20x1 - Join Tag #101	✓	
100	Electrical Rms - A/C air handler- 2975	Titan (Ingersol Rand)	M4AH3060B1000AA	wire enclosure - commercial parking	1 @ 16x20x1 Joins Tag #102	✓	
101	Electrical Rms - A/C condenser - 2975	Trane	4TTA3060D3000CA	wire enclosure - commercial parking	Joins Tag #99	✓	
102	Electrical Rms - A/C condenser - 2975	Trane	4TTA3060D3000CA	wire enclosure - commercial parking	Joins Tag #100	✓	
103	A/C Unit	Trane	4TB302G1000AA	wire enclosure - commercial parking		✓	
104	parking transfer air fans (2)	Acme	HA18	commercial parking, stall P12	Belt A36	✓	
104	vestibule pressurizing fans - OA supply air fan w/ duct heater	Delhi	207, Thermolec heater	2978 stall P-69		✓	
105	Emergency Pressurizing Fan	Delhi	209	Between Stall 68/70		✓	
106	duplex sump pump station (P8,9)	NW Tech Con panel / Meyers pumps	13888-1 / 2 @ 3HP	Bike Room - stall P1		✓	
106	parking ventilation (exh/OA) fan	Twin City Fan	WPMB36E4	stall P70	Belt A40	✓	
107	Parking Transfer Fan (SF-3)	Twin City	BS1-245A	Between P68/P70	1 @ B66	✓	
108	Exhaust Fan	Broan	Direct Drive	2978 O1 Storage		✓	
109	2978 Transformer Rm AC air handler	Carrier	L40 RM - 016	Mechanical Rm - within Locker Rm	4 @ 16x25x2 Pleated / 4 @ 16x20x2 /A 40 Belt	✓	
110	exhaust fan - Mechanical Rm for AC air handler	unknown	DD cabinet	Mechanical Rm - within Locker Rm		✓	
111	exhaust fan - 2978 Emergency Distribution Rm	unknown	DD cabinet	Emergency Dist Rm off of Transformer Rm		✓	
112	hot water tank - P1 Handicap Washroom	AO Smith	electric	suspended in closet off of washroom			✗
113	simplex sump pump station	NW Tech Con panel / Meyers pump	13888-4 / 1 @ 1/2HP	stall P75 (2978)		✓	
114	duplex sump pump station (P12,13)	NW Tech Con panel / Meyers pumps	13888-2 / 2 @ 1/2HP	stall P76 (2978)		✓	
115	parking ventilation (exh/OA) fan	Twin City Fan	WPMB6025	stall P92	Belt A55	✓	
116	duplex sump pump station	NW Tech Con panel / Meyers pumps	13888-3 / 2 @ 1/2HP	stall P83 (2978)		✓	
117	Emergency Pressurizing Fan	Delhi	210	Stall 83 -2978		✓	
118	exhaust fan - 2978 Garbage/Recycling Rm	unknown	DD cabinet fan	2978 Garbage/RecyclingRm	replaced May 25,16	✓	

GRAND CENTRAL

2978, 2968 Glen Dr (Tower 1 + 2)

2975 Atlantic Ave (Tower 3)

Coquitlam, B.C



Tag #	Equipment	Manuf.	Model	Location	additional info	Inspected- Ok	see notes
119	DCW pressure booster package - 2978	Armstrong	6535-00	Water Entry/Sprinkler Rm - adj P96		✓	
120	DHW reheat tank - 2978	Rheem Ruud	EG85C-12	Water Entry/Sprinkler Rm - adj P96		✓	
121	DHW reheat tank - 2978	Rheem Ruud	EG85C-12	Water Entry/Sprinkler Rm - adj P96		✓	
122	DHW recirculation pump (P40) flrs 15-22 / 2978	Grundfos	UPS40-80	Water Entry/Sprinkler Rm - adj P96		✓	
123	DHW recirculation pump (P38) flrs 3-12 / 2978	Armstrong	E-24B	Water Entry/Sprinkler Rm - adj P96		✓	
124	backflow assembly - premise isolation	Apollo	(6") 4SG-100	Water Entry/Sprinkler Rm - adj P96	Last Tested 6/20/13	✓	
125	exhaust fan - Water Entry/Sprinkler Rm 2978	Broan	DD	Water Entry/Sprinkler Rm - adj P96		✓	
126	2978 Transformer Rm AC air handler	Carrier	L40 RM - 016	Water Entry/Sprinkler Rm - adj P96	4 @ 16x24x2 Pleated / 4 @ 16x20x2 / A 40 Belt	✓	
127	DCW PRV	Singer	106-PR48	Water Entry/Sprinkler Rm - adj P96		✓	
128	Reduced pressure backflow assembly (Water Feature)	Watts	009M3 / SN - B15412	Water Entry/Sprinkler Rm - adj P96	Tested March 2016	✓	
129	Double check valve assembly	Watts	007M1 / SN - A38504	Water Entry/Sprinkler Rm - adj P96	Tested March 2016	✓	
130	DCW pressure booster package - triplex 2968	Armstrong	6732	Water Entry/Sprinkler Rm - adj P96		✓	
131	exhaust fan - Water Entry/Sprinkler Rm	unknown	DD cabinet	Water Entry/Sprinkler Rm - adj P96		✓	
132	DHW reheat tank	Rheem Ruud	EG85c-9	Water Entry/Sprinkler Rm - adj P96		✓	
133	DHW reheat tank	Rheem Ruud	EG85c-9	Water Entry/Sprinkler Rm - adj P96		✓	
134	DHW tank heater	Rheem Ruud	electric	Water Entry/Sprinkler Rm - adj P96		✓	
135	DHW recirculation pump (P4)	Armstrong	E-24B	Water Entry/Sprinkler Rm - adj P96		✓	
136	DHW recirculation pump (P5)	Armstrong	E-24B	Water Entry/Sprinkler Rm - adj P96		✓	
137	backflow assembly - irrigation	Watts	(1 1/2") 009 M2 QT	Water Entry/Sprinkler Rm - adj P96	Last Test March 2016	✓	
138	backflow assembly - water feature	Watts	(1 1/4") 009 M2 QT	Water Entry/Sprinkler Rm - adj P96	Last Test March 2016	✓	
139	backflow assembly - hose bibbs	Watts	(1 1/2") 009 M2 QT	Water Entry/Sprinkler Rm - adj P96	Last Test March 2016	✓	
140	backflow assembly - premise	Apollo	(6") DC4SG	Water Entry/Sprinkler Rm - adj P96	Last tested 6/20/13	✓	
141	DCW High Flow PRV	Watts	PV10M	Water Entry/Sprinkler Rm - adj P96		✓	
142	DCW Low Flow PRV	Watts	U5BZ3	Water Entry/Sprinkler Rm - adj P96		✓	
143	duplex sump pump station (P11,12)	NW Tech Con panel / Meyers pumps	15296-2 / 2 @ 1/2HP	Water Entry/Sprinkler Rm - adj P96		✓	
144	exhaust fan - 2968 Garbage/Recycling Rm	unknown	DD cabinet fan	2968 Garbage/RecyclingRm		✓	

GRAND CENTRAL

2978, 2968 Glen Dr (Tower 1 + 2)

2975 Atlantic Ave (Tower 3)

Coquitlam, B.C



Tag #	Equipment	Manuf.	Model	Location	additional info	Inspected- Ok	see notes
145	parking ventilation (exh/OA) fan	Cook	360 XMWH	stall P144	Belt A31	✓	
146	parking ventilation (exh/OA) fan	Cook	360 XMWH	stall P144	Belt A31	✓	
147	duplex sump pump station	NW Tech Con panel / Meyers pumps	15296-1 / 2 @ 1 HP	stall P173 (2968)		✓	
148	exhaust fan	unknown	DD cabinet fan	2968 Telephone/Television Rm			X
149	exhaust fan (FE-14) - 2968 Electrical Rm	Cook	24n-0-B	2968 - Emergency Distribution Rm	A64 Belt	✓	
150	exhaust fan - 2968 Emergency Distribution Rm	unknown	DD cabinet fan	2968 - Emergency Distribution Rm		✓	
151	Electrical Rm - filter section- 2968	unknown	4 @ 2 x 24 x 2 pleated	2978 - elevator core	4 @ 12x24x2 (pleated)	✓	
152	simplex sump pump station	NW Tech Con panel / Meyers pump	15296-3 / 1 @ 1/2HP	stall P161 (2968)		✓	
153	parking ventilation (exh/OA) fan	Cook	360 XLWH	stall P209	AX -30	✓	
154	parking ventilation (exh/OA) fan	Windmaster	DCR48	stall P209	A52	✓	
155	exhaust fan - 2975 Locker Rm	unknown	DD cabinet fan	P1 Locker Rm - locker C-003	No Access	✓	
156	duplex sump pump station	NW Tech Con panel / Meyers pump	16262-160 / 2 @ 1 HP	stall P220 (2975)		✓	
157	parking ventilation (exh/OA) fan	Windmaster	DC48	P229	A51 belt	✓	
158	DCW pressure booster package - 2975	Grundfos	triplex w/VFD	Mechanical Rm P1 - 2975		✓	
159	DHW reheat tank	AO Smith	DRE-80 100	Mechanical Rm P1 - 2975		✓	
160	DHW reheat tank	AO Smith	DRE-80 100	Mechanical Rm P1 - 2975		✓	
161	DHW reheat tank	AO Smith	DRE-80 100	Mechanical Rm P1 - 2975		✓	
162	DHW recirculation pump	Grundfos	UPS26-150SF	Mechanical Rm P1 - 2975		✓	
163	DHW recirculation pump	Grundfos	UPS26-150SF	Mechanical Rm P1 - 2975		✓	
164	DHW recirculation pump	Grundfos	UPS26-150SF	Mechanical Rm P1 - 2975		✓	
165	hose bibb - DCW pressure reg valves	Watts	LF U5B Z3	Mechanical Rm P1 - 2975		✓	
166	exhaust fan - Mech Rm P1	Broan	DD cabinet	Mechanical Rm P1 - 2975		✓	
167	premise isolation backflow assembly	Apollo	(6") DC4SG	Mechanical Rm P1 - 2975		✓	
168	backflow assembly - irrigation	Watts	009M2/ SN - 158257	Mechanical Rm P1 - 2975		✓	
169	backflow assembly - water feature	Watts	009M2/ SN - 170203	Mechanical Rm P1 - 2975		✓	
170	duplex sump pump station	NW Tech Con panel / Meyers pump	16262-162 / 2 @ 1/2HP	stall P232 (2975)		✓	
171	exhaust fan - 2975 Garbage/Recycling Rm	unknown	DD cabinet fan	2975 Garbage/RecyclingRm		✓	
172	filter box- 2975 Garbage/Recycling Rm	Air Box	airbox 3	2975 Garbage/RecyclingRm		✓	

