SE | SPRATT EMANUEL
ENGINEERING LTD.

2348 Yukon Street
Vancouver, BC
Canada V5Y 3T6
Phone 604 872-1211
Fax 604 872-1274
see@telus.net

BUILDING ENVELOPE CONDITION REVIEW

FOR

CONFERENCE PLAZA
438 SEYMOUR STREET, VANCOUVER, B.C.

Presented to:

Strata Plan LMS 2371 – Conference Plaza
c/o Rancho Management Services Ltd.
6th Floor – 1190 Hornby Street
Vancouver, B.C. V6Z 2K5
Email: amalek@ranchogroup.com

Attention: Mr. Ali Malek

Prepared by:

Spratt Emanuel Engineering Ltd.
2348 Yukon Street
Vancouver, B.C. V5Y 3T6
Phone: 604-872-1211
Email: office@sprattemanuel.com

Our File No.: R13-221

December 5, 2013

1.0 SCOPE OF WORK

1.1. Adam Jarolim, B.Eng., E.I.T., Jim Fedorchuk, Project Consultant, and Patrick Grzelak, B.Eng., E.I.T., of Spratt Emanuel Engineering Ltd. (SEE) visited the above noted site on December 4 and 5, 2013 to perform the visual condition survey. Weather conditions at the time of review were clear skies, with an ambient temperature of approximately 0°C. This report should be read in conjunction with the attached colour photographs, which were taken at the time of reviews.

1.2. The primary focus of the review was building envelope, and included exterior wall surfaces, windows, flashings, sealants, roofing, decks, doors, and parkade.

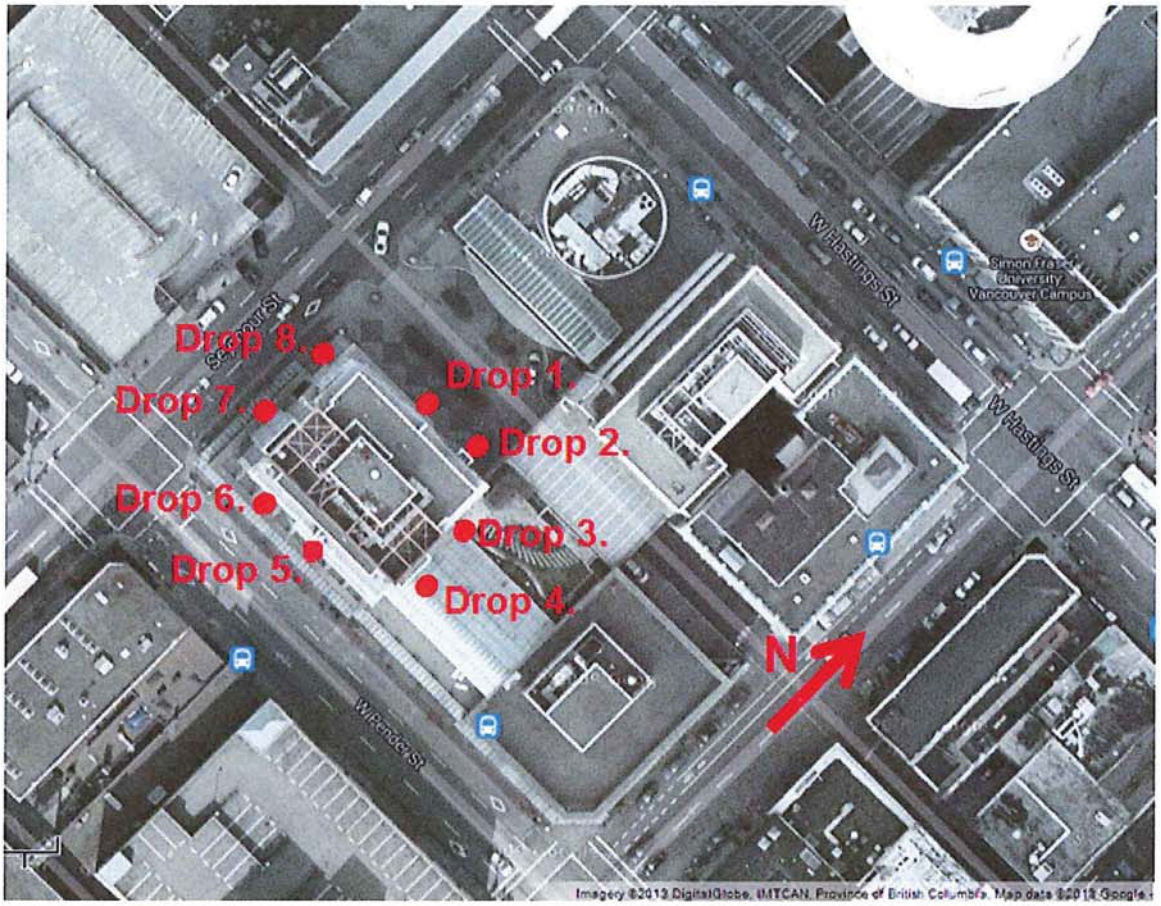
1.3. The observations and recommendations contained in this report are based upon the information obtained during a visual review and reflect the general condition of the building structure at this time. The review does not include the excavation of landscaping, nor cutting of any cladding or interior drywall. It is not the intent of the writer to outline each defect which may or may not be present in the exterior of the building, within the scope of this limited review.

1.4. This report was prepared to the account of Rancho Management Services Ltd. and the material in it reflects the best judgment of the writers in light of the information available at the time of preparation. Any use that a third party makes of this report, and any reliance on decisions made based upon this report, are the responsibility of such third parties. SEE accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based upon this report.

1.5. It is assumed that the building was designed and built completely with proper Permits and approvals and in accordance with all applicable Codes at the time of construction, and that all subsequent work was done in a similar 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.

1.6. Eight Bosun's chair drops were conducted in order to visually assess the high-rise tower from the exterior at all four elevations with the purpose of producing the following Building Envelope Condition Survey.

Please refer to the following figure, as well as Item No. 3.1 of this report for locations of all eight Bosun chair drops.



(Photo courtesy of Google Maps: https://maps.google.ca, retrieved Dec. 12, 2013)

2.0 GENERAL DESCRIPTION

Conference Plaza is a 31 storey cast-in-place concrete high rise structure completed in 1996 and is located at 438 Seymour Street, Vancouver, B.C. The exterior building envelope wall elements include aluminum framed window wall glazing system and exposed concrete. There are also aluminum framed punched windows and doors installed at balconies and storefront windows at the ground level. The tower's main roofing system consists of a protected waterproofing membrane with an inverted rigid extruded polystyrene insulation (XPS) and river rock ballast system. There is a terrace deck on Level 4 with a protected waterproofing membrane with an inverted XPS and concrete pavers, landscaping, or concrete topping system. There are six levels of underground parking. Suspended parkade slabs have a polyurethane waterproofing traffic membrane.

The tower is abutted by a 3-storey commercial cast-in-place concrete low-rise structure located at the corner of West Pender Street and Richards Street. Wall elements consist of rainscreened masonry brick veneer and aluminum framed curtainwall units. The low-rise roofing system consists of a protected waterproofing membrane with an inverted XPS and river rock ballast system.

Building Owner	Strata Plan LMS 2371
Building Address	438 Seymour Street, Vancouver, B.C.
Building Name	Conference Plaza
Building Type	Mixed-Use Residential Strata-Titled Condominiums and CRUs at grade
Building Occupancy	Residential
Other Occupancy	Commercial
Number of Storeys	31
Number of Units	252 Residential and 90 Commercial
Date of Construction	1996
Applicable Building Code	VBBL # 6134 C/W Amendments to 1996
Type of Construction	Non-combustible concrete
Sprinklered	Yes
Cladding	Exposed concrete walls, window wall assembly
Windows	Aluminum framed window wall glazing units, punched aluminum framed windows, storefront glazing and curtain wall glazing at Level 4 and ground level entrances
Window Colour	Green metallic tint
Glazing Type	Insulated Glazing Units
Roofing	Inverted protected roof membrane assembly
Bounding Properties	North: Lane Way/Entrance Courtyard South: West Pender Street East: Richards Street West: Seymour Street
Parking	Secure, 6 Level Underground Parkade

3.0 OBSERVATIONS

3.1 Bosun Chair Drops

	Description	Photos
3.1.1	Drop No. 1: north elevation, centre of elevation	1
3.1.2	Drop No. 2: north elevation, northeast corner	
3.1.3	Drop No. 3: east elevation, northwest corner	2
3.1.4	Drop No. 4: east elevation, southeast corner	
3.1.5	Drop No. 5: south elevation, southeast corner	3
3.1.6	Drop No. 6: south elevation, southwest corner	
3.1.7	Drop No. 7: west elevation, southwest corner	4
3.1.8	Drop No. 8: west elevation, northwest corner	

3.2 Structure

The residential tower is constructed with cast-in-place concrete floor slabs, roof slabs, foundation walls, columns and balconies. The tower roof has a steel column and beam structure supporting pre-cast concrete panels which surround the mechanical doghouse. No significant structural defects were noted; however, efflorescence, rust staining and exposed steel reinforcement was noted at several locations at concrete eyebrows and balconies, and at concrete columns along the Level 4 wrap-around deck. Some cracking of concrete was noted, primarily at the Level 4 deck.

The commercial low rise is constructed with cast-in-place concrete floor slabs, roof slabs, foundation walls, columns and an architectural concrete parapet feature on the roof. The roof also has a steel column and beam structure supporting corrugated metal cladding which surrounds the mechanical doghouse. No significant structural defects were noted.

	Description	Photos
3.2.1	Suspended concrete balcony slabs at Level 31 were noted to have exposed rebar at several locations as well as visible corrosion. Efflorescence staining was also visible.	5-8
3.2.2	Exposed rebar was observed at the underside of the Level 4 suspended concrete balcony slab on the north elevation	9
3.2.3	Spalling concrete was observed on the Level 4 deck which wraps around the residential tower on the west and south elevations	10-14
3.2.4	Efflorescence staining was typically noted at the embedded swing stage cable bypass sleeves.	15-18

3.3 Roof

The residential tower's main roof is a protected membrane with an inverted assembly constructed of drain mat lined with geotextile fabric, 4" XPS insulation and river rock ballast. The roof membrane at Levels 4 and 5 is a protected membrane with an inverted assembly consisting of drain mat lined with geotextile fabric, 2" XPS insulation, drain mat lined with geotextile fabric, pea gravel, and either concrete pavers or landscaping.

The roof for the low rise commercial building is a protected membrane with an inverted assembly constructed of drain mat lined with geotextile fabric, 4" XPS insulation, and river rock ballast.

	Description	Photos
3.3.1	A liquid-applied PMMA (polymethyl methacrylate) has been applied to the rooftop's steel structure column footings and the concrete curb on which the columns stand. In a few locations, large air pockets and minor delaminations were noted.	**19-22**
3.3.2	The original membrane applied to rooftop concrete curbs and mechanical equipment pedestals was noted to be delaminating and wearing through in multiple locations.	**23-24**
3.3.3	Flashings at the tower's main roof incorporate a lap joint with sealant and exposed fasteners. The sealant was noted to have failed in several locations. Fasteners were showing signs of corrosion.	**25**
3.3.4	At the Level 4 roof patio, repair work is underway to the existing membrane in the area of the east facing door.	**26**
3.3.5	The polyurethane sealant applied to joints in precast concrete parapet cap sections was observed to be failing in several locations at the Level 5 roof, which abuts the pool's skylight canopy.	**27-29**
3.3.6	At the commercial low rise roof, membrane up-legs are protected by gum-lip flashings. Sealant appears to be in good condition.	**30-31**
3.3.7	At the commercial low rise roof, the concrete curb supporting the rooftop steel columns is protected by a flashing, which incorporates standing seam joints. The flashing appears to be in good condition.	**32-33**
3.3.8	At the commercial low rise roof, efflorescence staining was observed at the interior of the roof level stair case, at the construction joint between the cast-in-place concrete curb and concrete block wall. It appears that a new flashing has been installed at the exterior of this area.	**34-35**

3.4 Balconies, Eyebrows, and Decks:

Cast-in-place concrete balconies are located at Level 31 and at Level 4 on the north elevation. Cast-in-place concrete eyebrows are located on Level 18 of the north and west elevations and on Level 23 of the south and east elevations of the building. Balconies and eyebrows are finished with a polyurethane traffic coating.

Decks are at Level 30 and Level 4 and consist of a protected membrane with an inverted assembly consisting of drain mat lined with geotextile fabric, 2" XPS insulation, drain mat lined with geotextile fabric, pea gravel and either concrete pavers or a stamped concrete topping.

	Description	Photos
3.4.1	The polyurethane traffic coating applied to the balconies and eyebrows was noted to be delaminating in several locations. Membrane up-legs and downlegs were observed to be inadequate in several locations. Concrete cracking was also observed in multiple locations.	**36-37**
3.4.2	Water ingress is apparent around the embedded swing stage cable bypass sleeves at both eyebrows. Some of the tethered caps were noted to be missing.	**38-40**
3.4.3	Concrete post tension cable grout plug sealant was observed to have failed on the south elevation at the Level 23 eyebrow.	**41-42**
3.4.4	Bolts and nuts for the guard rail mounting posts were observed to have surface corrosion throughout the building. It appears that the original hardware was galvanized steel.	**43-45**
3.4.5	Parapet flashings at Level 30 decks were noted to incorporate a lap seam at joints finished with an application of sealant. A drip edge extension has been fastened to original flashings effectively extending flashing's overhang.	**46-47**
3.4.6	On the south elevation, construction was underway at the deck on Level 30. It appears that the roof assembly was in the process of being removed to access the underlying protected membrane.	**48**

3.5 Exterior Walls:

The exterior wall system of the residential tower consists of brick masonry veneer cladding up to Level 3, pre-cast concrete panels from Levels 4 to 31 and metal cladding panels at the slab bypass sections of the window wall system. Polyurethane sealant and silicone sealant tape have been utilized at cladding joints and at joints between dissimilar materials. Polyurethane sealant was generally noted to be at the end of its service life in most locations.

The commercial low-rise exterior wall cladding system is a brick masonry veneer cladding. Polyurethane sealant is used at joints in the cladding.

	Description	Photos
3.5.1	Dow Corning 123 silicone tape has been applied to joints in the metal cladding panels at the slab bypass sections of the window wall system. The tape appears to be performing well. The colour has faded and does not aesthetically match the surrounding metal panels.	**49-52**
3.5.2	Recent applications of polyurethane sealant at window wall metal cladding panels appear to be performing well.	**53-54**
3.5.3	What appears to be the original polyurethane sealant is still present at many joints at the window wall metal cladding panels. Sealant was noted to be well aged and alligatoring throughout.	**55-57**
3.5.4	Spalling concrete was noted at: - Drop No. 1 – Level 17 - Drop No. 2 – Level 27 - Drop No. 8 – Level 21	**58-60**
3.5.5	Air duct vent grills were noted to have issues of concern at: - Drop No. 1 – Level 30 and Level 6 vent grills were missing. Level 6 vent grill was located on Level 4's balcony - Drop No. 6 – Level 5 vent was loose and pulling away from the cladding	**61-63**
3.5.6	Sealant applied to the joints between brick veneer cladding and pre-cast concrete panels was noted to be delaminating in several locations at the commercial low-rise building.	**64-65**
3.5.7	Organic staining was observed at the brick veneer cladding on the north elevation.	**66-67**

3.6 Windows and Doors:

Aluminum framed window walls and punched aluminum windows are installed from Level 5 to Level 31 on the residential high rise tower. Curtainwall glazing systems have been utilized from the ground floor to Level 4. Polyurethane sealant has been installed at the perimeter of window systems, as well as at joints between window units. Silicone fillet beads of sealant have been applied to connections of window wall frame pieces.

The glazing for the commercial low-rise building is aluminum-framed curtain-wall installed into punched openings. Polyurethane sealant is applied to the perimeter of the curtain wall system.

	Description	Photos
	What appears to be the original polyurethane sealant applied to window jambs and heads was observed to be aged and alligatoring at the majority of the locations. It appears that it has reached the end of its service life.	**68-75**
	A recent application of Dow Corning 123 silicone tape to punched window sills was noted to be performing well.	**76-77**
	Condensation at the inside of insulated glazing units (IGUs) was observed at multiple units. Due to the perspective of the reviewer it could not be determined if the condensation was at the interstitial space between the glass panes or at the interior side of the IGU. Condensation was noted at: - Drop No. 1 – Level 27, Level 25, Level 18 - Drop No. 2 – Level 28, Level 24, Level 22, Level 21, Level 18, and Level 14 - Drop No. 3 – Level 9 - Drop No. 4 – Level 31, Level 26, Level 19, Level 16 and Level 15 - Drop No. 6 – Level 21 - Drop No. 7 – Level 30, Level 20 and Level 15 - Drop No. 8 – Level 29, Level 27, Level 23, Level 18, Level 10 and Level 7	**78-81**
	Cracked IGUs were noted at: - Drop No. 4 – Level 18 and Level 7 - Drop No. 5 – Level 31 - Drop No. 6 – Level 15 and Level 6 - Drop No. 7 – Level 14	**82-83**
	Damaged window hardware was noted in a few locations at: - Drop No. 6 – Level 24 operable window lite - Drop No. 7 – Level 22 operable window lite	**84-85**
	Fillet beads of clear silicone sealant have been applied to connections in the window wall frame pieces. In many locations this sealant was observed to be delaminating from the frame.	**86-87**
	Weep holes in window wall frames were generally noted to be unobstructed.	**88-89**
	Condensation from the humid indoor pool was observed to be leaking through the corner of the curtainwall frames at the west facing deck on Level 4.	**90-91**

3.7 Skylight and Entrance Canopies

Pressure cap skylights are installed at the Level 4 pool roof as well as at the ground level canopies on the east, south and west elevations of the development.

	Description	Photos
3.7.1	The pool's pressure cap skylight roof system was noted to be in good condition. Sealant installed at IGU joints appears continuous. Where the skylight roof abuts the residential building the sealant applied to the gum-lip flashing also appears to be in good condition.	92-94
3.7.2	There were a few cracked glass panels on the south elevation's ground level skylight canopy.	95

3.8 Parkade

The parkade consists of 6 underground levels. The parkade entrance ramp connects with the entrance courtyard and alley to the north of the development. The suspended slabs are coated with a polyurethane traffic coating which was observed to have an 8" up-leg.

	Description	Photos
3.8.1	Cracking and efflorescence staining was noted in several locations at the perimeter cast-in-place concrete walls at: - Stall No. 1, Stall No. 9, Stall No. 53, Stall No. 55, Stall No. 131, Stall No. 132, Stall No. 194, P3 Gate and Stall No. 208	96-99
3.8.2	Polyurethane traffic coating membrane was observed to generally be in good condition with a few delaminated areas typically at the upper level parkade ramps and at the perimeter of parkade drains. Delaminations were specifically noted at or adjacent to: - Stall No. 6, P1 Ramp, P2 Ramp, Stall No. 78, Stall No. 91, Stall No. 100, Stall No. 104, Stall No. 124, P3 Ramp, the Pump Room on P3, Stall No. 151, Stall No. 193, Drain at P4 Ramp, Drain at P5 Ramp	100-105
3.8.3	Previous crack injections have been completed throughout the parkade and have been observed to generally achieve success at limiting water ingress; however, some injections are still showing sign of ingress at: - Stall No. 34, Stall No. 195, Stall No. 205 and Stall No. 206	106-108
3.8.4	A crack was noted in the suspended slab at the Hotel stairway door at Level P3	109-110
3.8.5	Minor spalling concrete was noted at the slab-on-grade at Level P6	111
3.8.6	Sprayed fiberglass insulation was noted to be continuous for the building's footprint at the underside of the suspended floor slab.	112

4.0 DISCUSSION & RECOMMENDATIONS

4.1 The tower structure generally appears to be in good condition. Minor spalling deterioration is occurring in the exposed concrete walls, eyebrows and balconies, which is typical of concrete and does not indicate structural defects. However, water ingress is noted at several of the cracks and has led to corrosion staining. If left untreated, further water ingress will cause corrosion and expansion of reinforcing steel causing further spalling and cracks to develop, thus accelerating the rate of deterioration.

Recommendation: Remove delaminated concrete in the spalled areas to a depth of 1" behind the exposed rebar. Saw cut the perimeter of the patches. Clean off the rebar corroded surface and coat with a corrosion inhibitor. Apply concrete patching material formulated for vertical applications.

4.2 The tower roof membrane appears to be the original membrane from the date of construction and is now roughly 18 years old. Building staff have not reported any current water ingress issues. Membrane at curb up-legs and mechanical equipment pedestals is delaminating in several locations. A recent application of a liquid-applied flashing membrane was applied to the northwest corner of the roof curb. Building staff reported that this successfully addressed a previous water ingress issue. Debris buildup was noted at the roof drains.

Recommendation: Clean drains and strainers of any built-up debris. Repair membrane at curbs and pedestals with a UV stable liquid-applied flashing membrane. At the access opening for the north half of the roof, install a flashing to protect the new membrane in this high traffic area.

4.3 The commercial low-rise roof appears to have been addressed since original construction. Flashings have been installed at the roof's concrete curbs which are supporting the roof's steel structure. Minor efflorescence staining was visible at cold joints at the interior of the mechanical doghouse. Staining may have occurred prior to any roof repairs.

Recommendation: Efflorescence staining should be cleaned and monitored.

4.4 Flashings installed at the tower roof and at the Level 30 deck incorporate a lap joint with sealant. Sealant is discontinuous in most locations.

Recommendation: Apply Dow Corning 123 silicone tape to all lap flashing joints.

4.5 Organic growth was noted on all balconies and eyebrows as well as the north elevation of the commercial low rise building.

Recommendation: Clean off all organic buildup on all exterior walls, balconies, and eyebrows by scrubbing with a TSP (trisodium phosphate) solution. A light pressure washing could also be utilized with pressures limited to 2000 psi while consistently angling the wand downwards. This should be completed as part of the regular maintenance program and prior to any of the following work being completed.

4.6 It is evident that water ingress is occurring through the eyebrow slabs at the embedded swing stage cable by-pass sleeves. There is no drip edge at the underside of the slab so water is easily traveling laterally.

Recommendation: Apply a 1/2" fillet bead to the circumference of the top of the sleeve. At the underside of the sleeve, apply a 1/2" bead of sealant around the circumference, effectively acting as a drip-edge.

4.7 The nuts and bolts for the top mounted balcony guard rail posts are corroding at both the Level 31 and Level 4 balconies.

Recommendation: Remove the surface corrosion and apply a rust inhibitor coating to the balcony guard rail posts' nuts and bolts. Coat the base of the mounting posts with a UV stable liquid applied flashing membrane, covering the nuts and bolts while effectively tying the membrane onto the balcony slab to provide a seal at the perimeter of posts. Finish all edges with a clean masking tape line.

4.8 The polyurethane traffic coating applied to concrete balconies and eyebrows was noted to be delaminating in several locations. Concrete cracks were visible through the membrane at some eyebrows and at the post tension cable grout plugs on the south elevation. Our records show that the existing membrane was installed in 2005, which indicates that the membrane has reached the end of its service life.

Recommendation: Repair cracks larger than 1/16" by routing a 1/4" x 1/4" groove and then applying polyurethane sealant. Reseal grout plugs for all post tension cables with polyurethane sealant. Remove any delaminated polyurethane traffic coating. Provide a xylene wipe to all existing membrane to promote bonding of new membrane layer. Apply a new layer of polyurethane traffic coating base to coat to the delaminated areas and top coat to all surfaces.

4.9 Air duct grills were noted to be missing or pulling away from the wall in several locations.

Recommendation: Reinstate the missing or loose vent grills. During the course of any of the noted repair work, check all accessible grills to ensure that they are secure.

4.10 The condition of the sealant greatly varies on the building. Recent applications of sealant to window wall joints and at the low-rise commercial building curtain wall windows were noted to be in good condition. Original sealant on the high-rise residential tower, applied to joints at window wall jambs, window heads, scupper penetrations, curtain wall glazing, concrete parapet caps and brick to concrete transitions were noted to be alligatoring or delaminating in many locations. The original sealant has now reached the end of its service life and should be replaced.

Recommendation: A global sealant renewal program should be completed for the high-rise residential tower at all locations which were not previously addressed during the 2005 – 2006 Exterior Sealant Renewal/Upgrading and Associated Work program.

4.11 Our records show that a concrete sealer was applied to the concrete walls and brick masonry in the 2005 – 2006 Exterior Sealant Renewal/Upgrading and Associated Work program. The sealer was noted to have successfully limited the amount of organic build-up on the precast concrete walls and masonry veneer cladding, thus limiting the moisture transfer through the porous surfaces.

Recommendation: A reapplication of concrete and masonry sealer should be applied to all such surfaces on the development as part of regular building maintenance.

4.12 Condensation was observed at the interior of several IGUs. From the perspective of the reviewer, it was not possible to definitively say whether the condensation was at the interior side of the glass or between the glass panes.

Recommendation: The noted locations of condensation should be reviewed from the interior by building staff to determine whether the condensation is in fact related to an IGU failure, allowing condensation between the glass panes. Failed IGUs should then be replaced.

4.13 Cracked IGUs were noted at several suites. Cracked glass panels were also noted at the skylight canopy on the ground level of the south elevation. Also, damaged window hardware was noted at two operable lights.

4.14 **Recommendation:** Cracked IGU's and skylight canopy glass panels should be replaced. Repair damaged window hardware.

4.15 The clear silicone sealant fillet beads, installed at joints at the sill and part way up the jambs of the window wall system, were noted to be delaminating throughout the high-rise residential tower. This sealant appears to have been installed during initial installation of the window walls, potentially being a requirement from the manufacturer.

Recommendation: As part of the tower's global sealant renewal program, remove existing sealant and apply new silicone sealant to match the existing installation configuration. While replacing the sealant, ensure that the window wall weep holes are unobstructed.

4.16 Condensation leakage occurring at the exterior of curtain wall jamb at the Level 4 pool is an indication that sealant has failed at the interior and exterior of the curtain wall. This also indicates that extensive condensation is occurring at the interior side of the curtain wall which is detrimental to interior finishes. The excessive condensation could be related to the indoor pool heating and ventilation system malfunctioning or having the incorrect settings.

Recommendation: Replace the sealant at the exterior and interior of the curtain wall glazing system installed at the Level 4 pool and gym area as part of the global sealant renewal program mentioned in Item No. 4.10. Recalibrate the heating and ventilation systems settings to lower the relative humidity.

4.17 Cracks at the parkade perimeter walls in the lower levels of the parkade show evidence of recent water ingress. Past crack injection repairs are visible throughout the parkade and have achieved reasonable success.

Recommendation: All cracks in the parkade perimeter walls showing efflorescence build-up and water staining should receive polyurethane crack injection.

4.18 The polyurethane traffic coating applied to the suspended parkade slabs appears to be in reasonably good condition. The parkade slab drains and inter level ramps were noted to have areas of membrane delamination. This is typical in high traffic areas. Cracks in the concrete slabs along with localized membrane delaminations were also noted.

Recommendation: A targeted crack routing and membrane replacement program should be initiated for the parkade as part of a regular maintenance program. Visible cracks should be routed to 1/4" x 1/4" and any delaminated membrane should be removed. Polyurethane sealant should be applied to routed cracks. New polyurethane traffic coating should be applied to the targeted areas, including a base and top coat formulated for vehicular traffic applications.

4.19 The crack in the suspended parkade slab located at the P3 hotel stairway could be related to concrete shrinkage of the parkade and stairway structures.

Recommendation: Monitor the crack by reviewing the width and the length regularly. If the crack is expanding a further structural review will be required. A movement joint should have been installed.

4.20 Spalling concrete was observed at the slab-on-grade at P6. This is potentially a tripping hazard.

Recommendation: Repair spalling concrete with a concrete patching material.

5.0 CONCLUSIONS

5.1 The high rise residential building and low rise commercial building at 438 Seymour Street are both generally in good condition. There are some issues of concern that should be addressed within the next two years. An exterior envelope maintenance program should be initiated to incorporate crack repairs, spalling concrete repairs, polyurethane traffic membrane renewal at balconies and eyebrows, roof membrane curb repairs, flashing sealant, failed IGU replacement, concrete and masonry sealer reapplication and a global sealant renewal program for the high rise tower.

5.2 The underground parkade at 438 Seymour Street is in generally good condition, but requires some attention to mitigate water ingress potential. Cracks in the perimeter parkade walls should be a priority repair to be completed within the next year. Targeted traffic coating membrane repairs at parkade ramps, drains and cracks should be completed within the next 2 years.

A maintenance repair specification should be developed for the above noted items so that the work could be put to tender and priced. SEE would be pleased to assist with the preparation of the Specification Package and Tendering Process. Our fees to prepare the specifications, complete the tendering process, assist with contract administration and perform quality assurance reviews of the contractor's work would be limited to 15% of the overall contract costs for the maintenance improvements. Fees could be lower depending on the sequencing of the work.

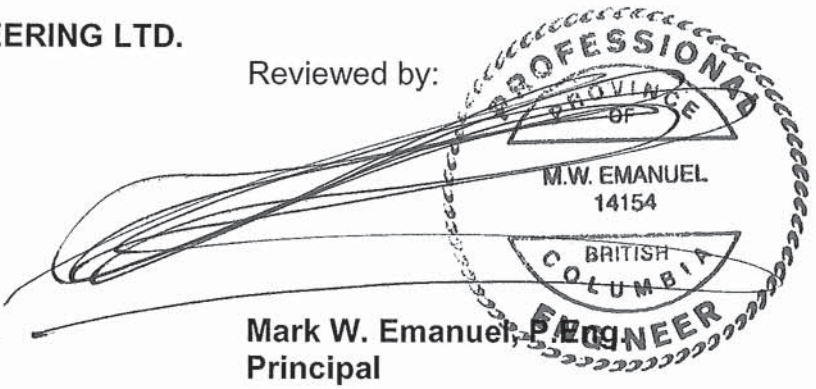
If you have any questions regarding the content of this report, please do not hesitate to contact the undersigned.

Yours truly,
SPRATT EMANUEL ENGINEERING LTD.

Per:

Adam Jarolim, B.Eng., E.I.T.
Project Consultant

Reviewed by:



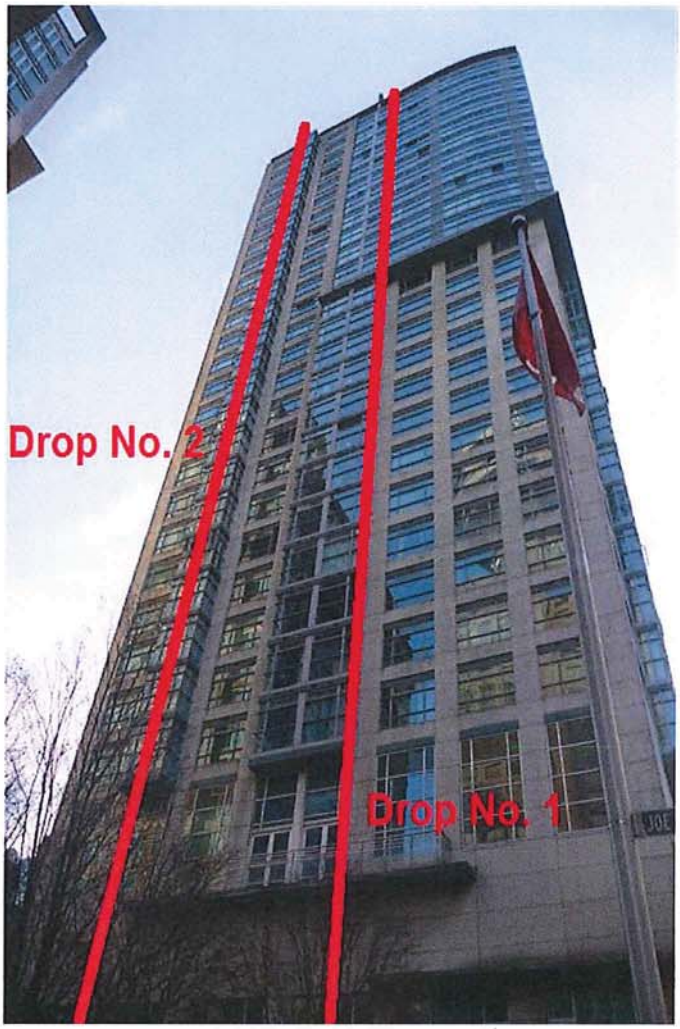
Mark W. Emanuel, P.Eng.
Principal

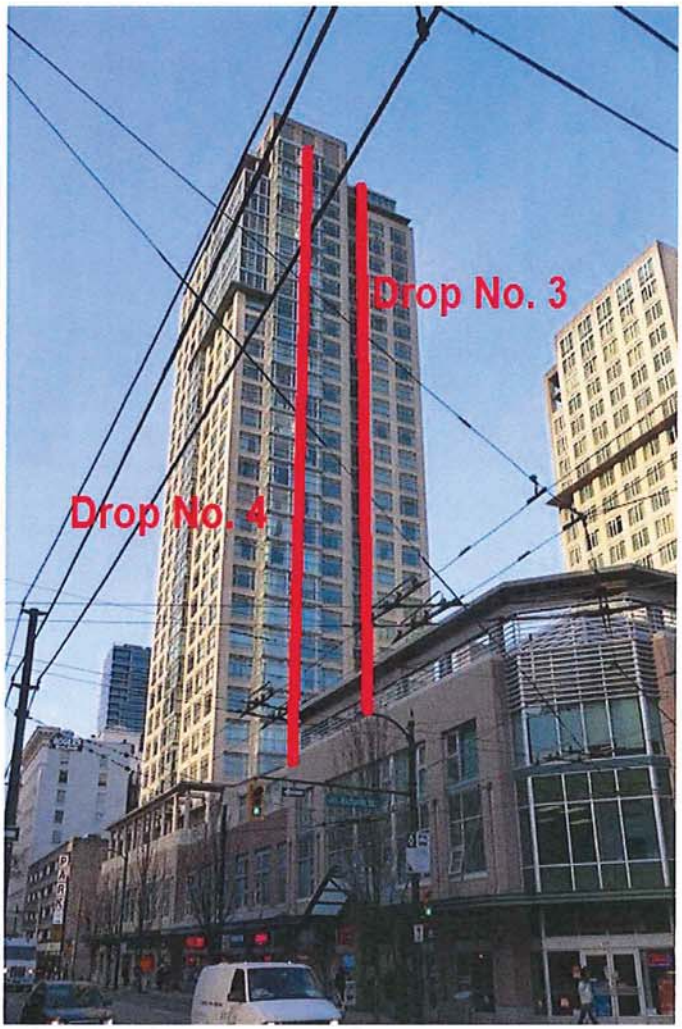
AJ/PG/aaa/encl.

SPRATT EMANUEL ENGINEERING LTD.

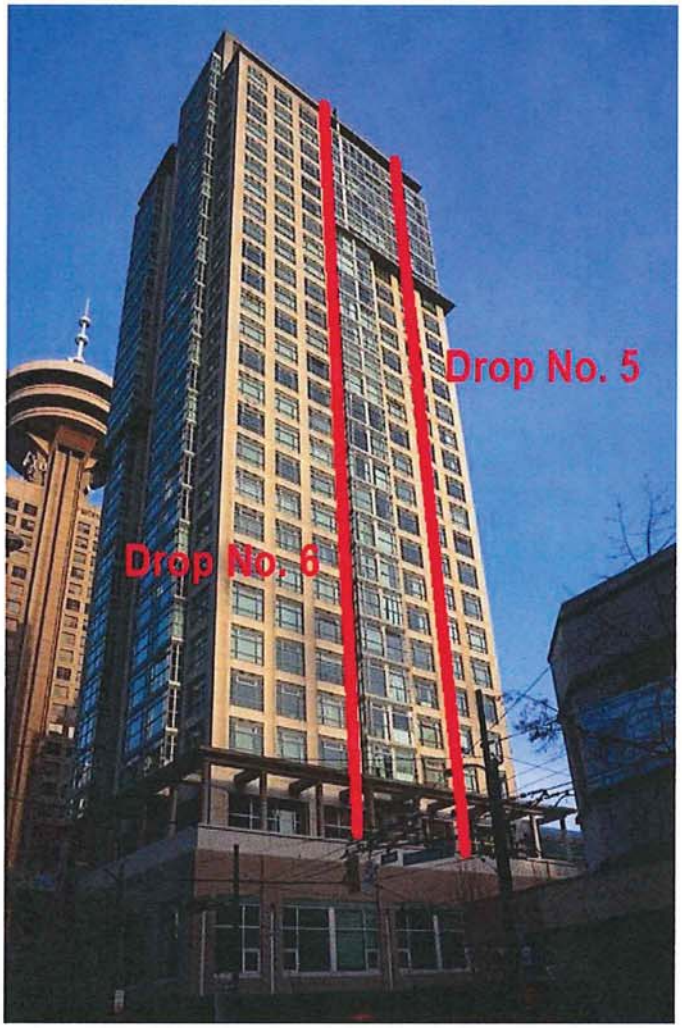
Our File No. R13-221

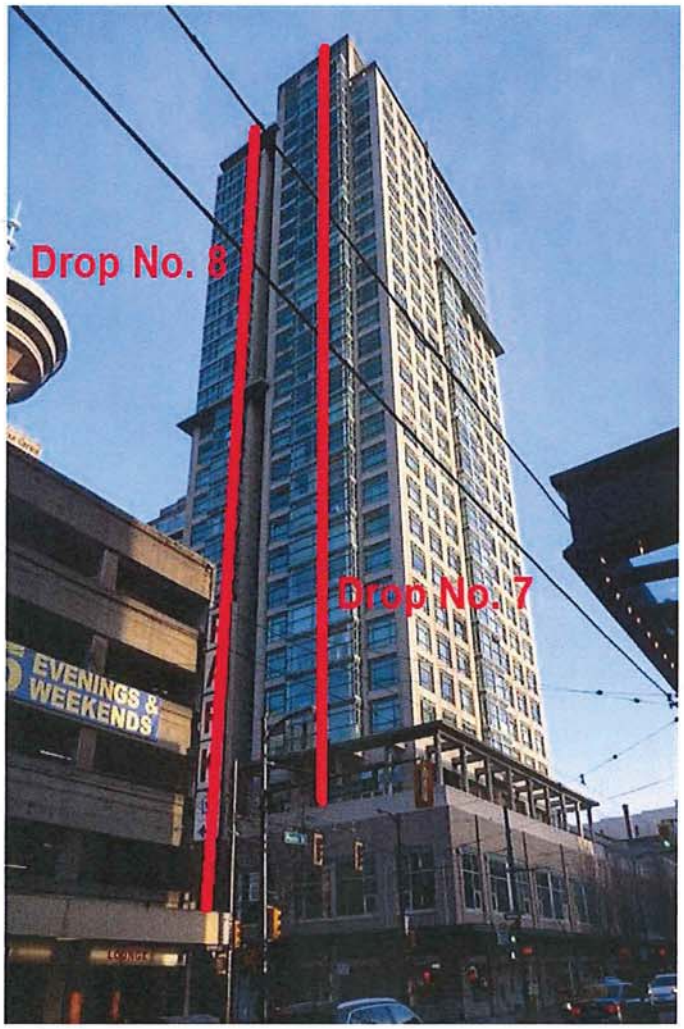
STRATA PLAN LMS 2371
438 SEYMOUR STREET, VANCOUVER, B.C.
PHOTOGRAPHS TAKEN BY ADAM JAROLIM, B.ENG., E.I.T.,
PATRICK GRZELAK, B.ENG., E.I.T. AND JIM FEDORCHUK, PROJECT CONSULTANT
ON DECEMBER 4 & 5, 2013





Photos No. 1 and 2





Photos No. 3 and 4

Photos No. 5 and 6

Photos No. 7 and 8

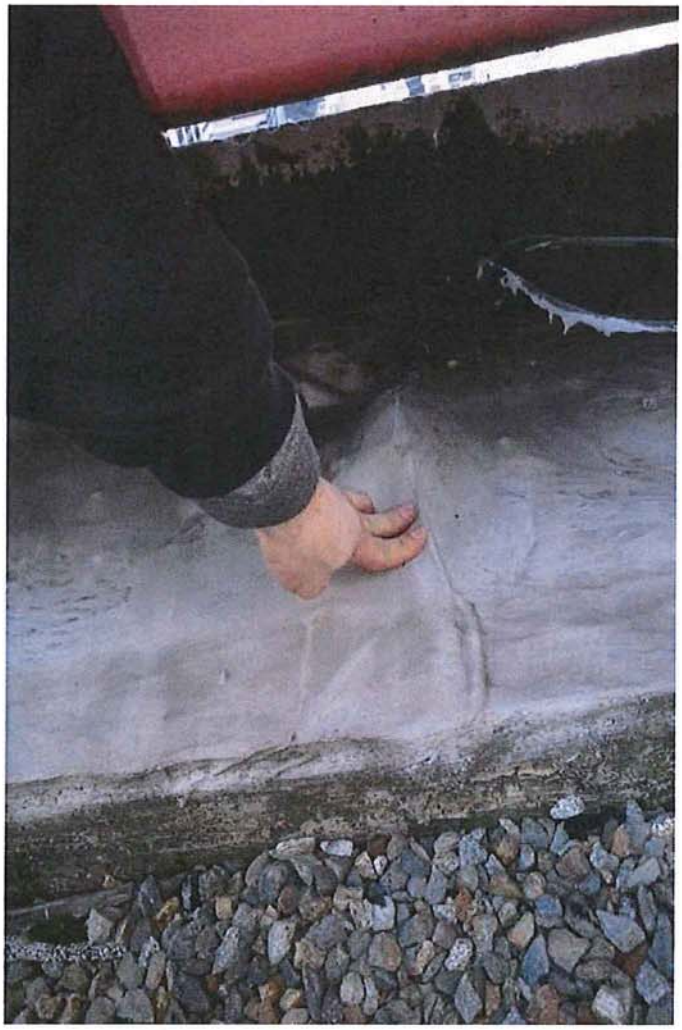
Photos No. 9 and 10

Photos No. 11 and 12

Photos No. 13 and 14

Photos No. 15 and 16

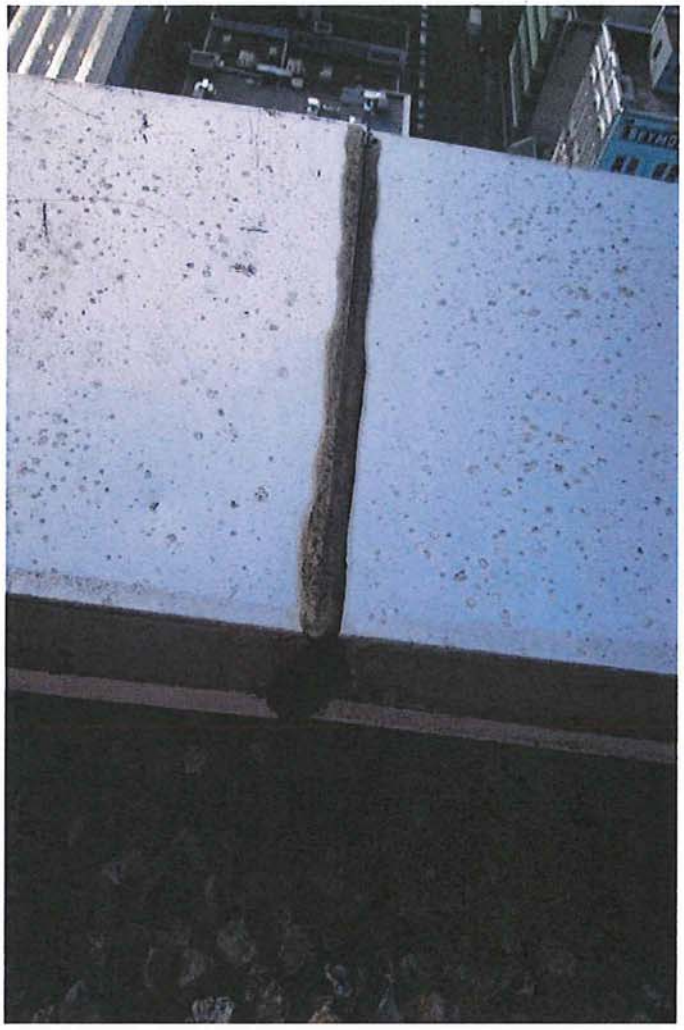
Photos No. 17 and 18



Photos No. 19 and 20

Photos No. 21 and 22

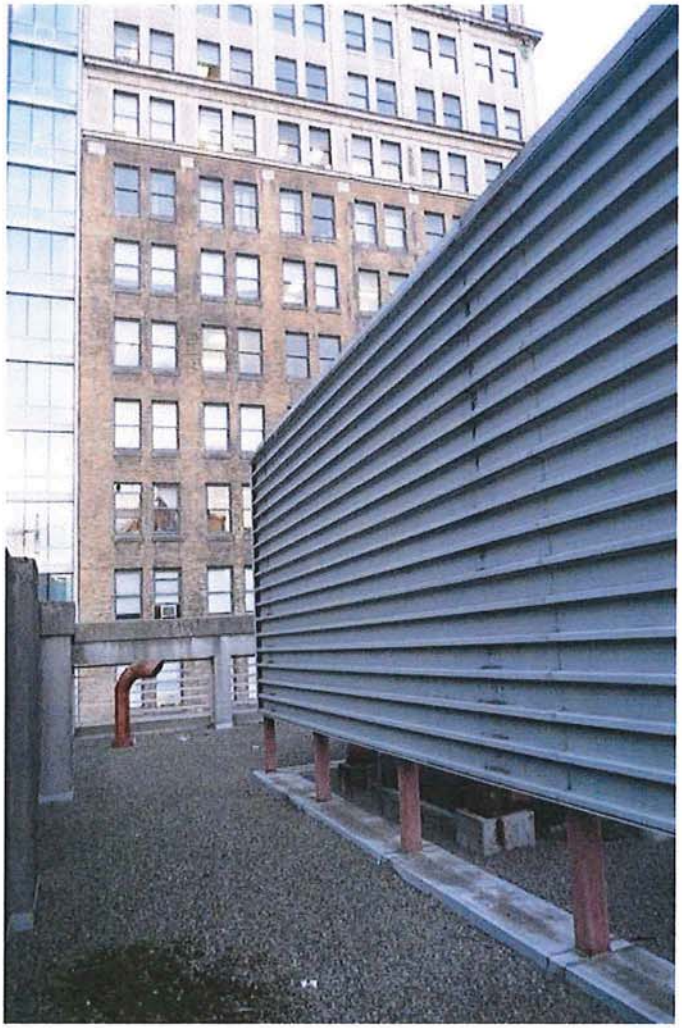
Photos No. 23 and 24



Photos No. 25 and 26

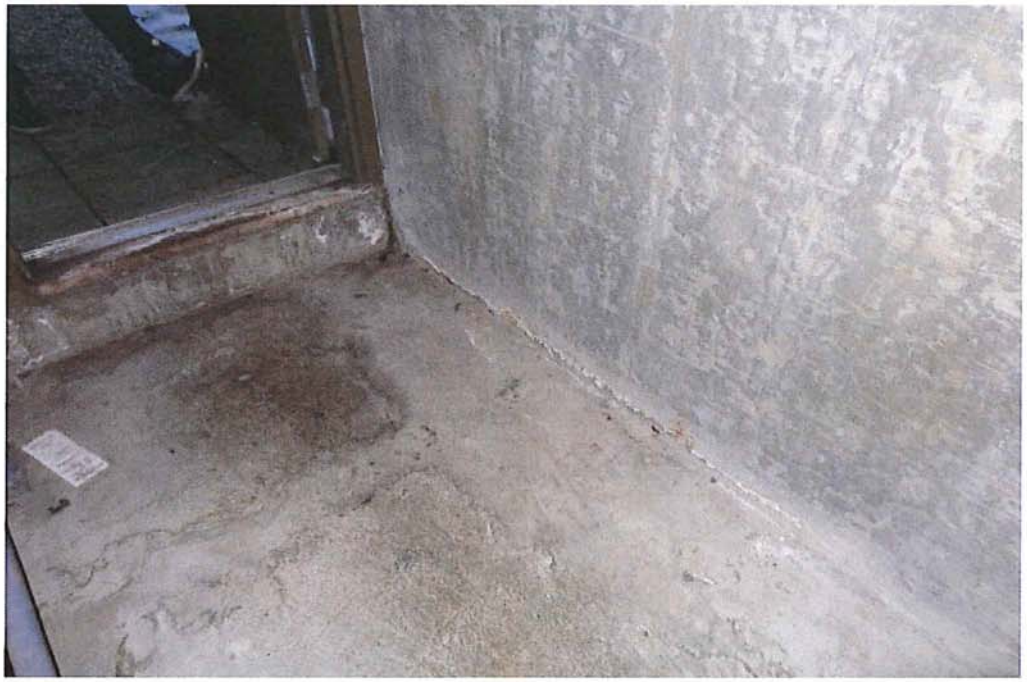
Photos No. 27 and 28

Photos No. 29 and 30



Photos No. 31 and 32

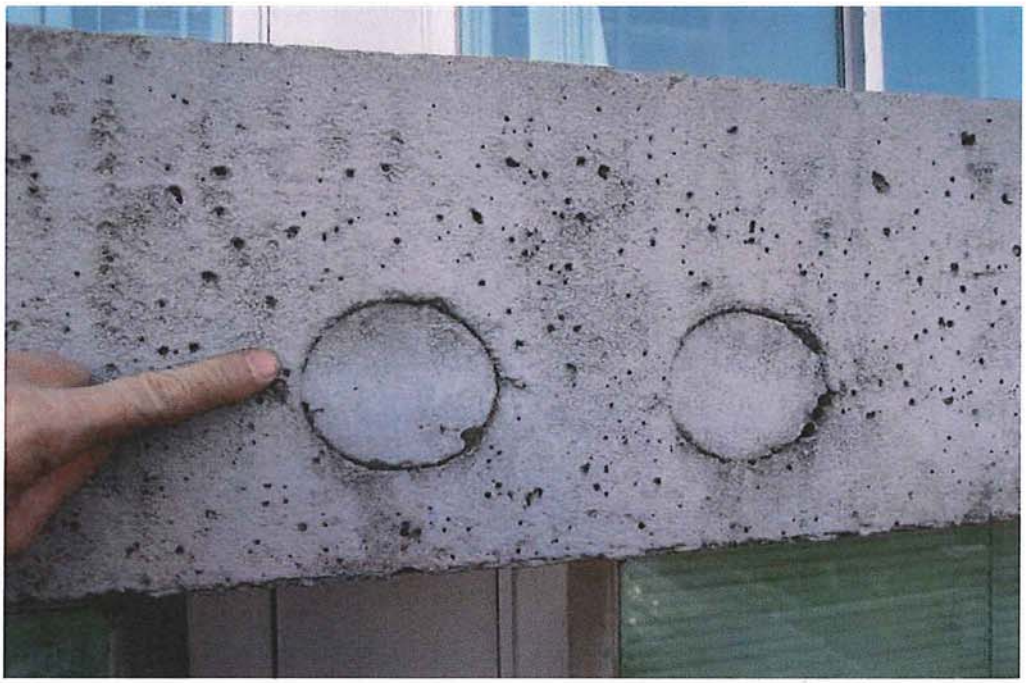
Photos No. 33 and 34



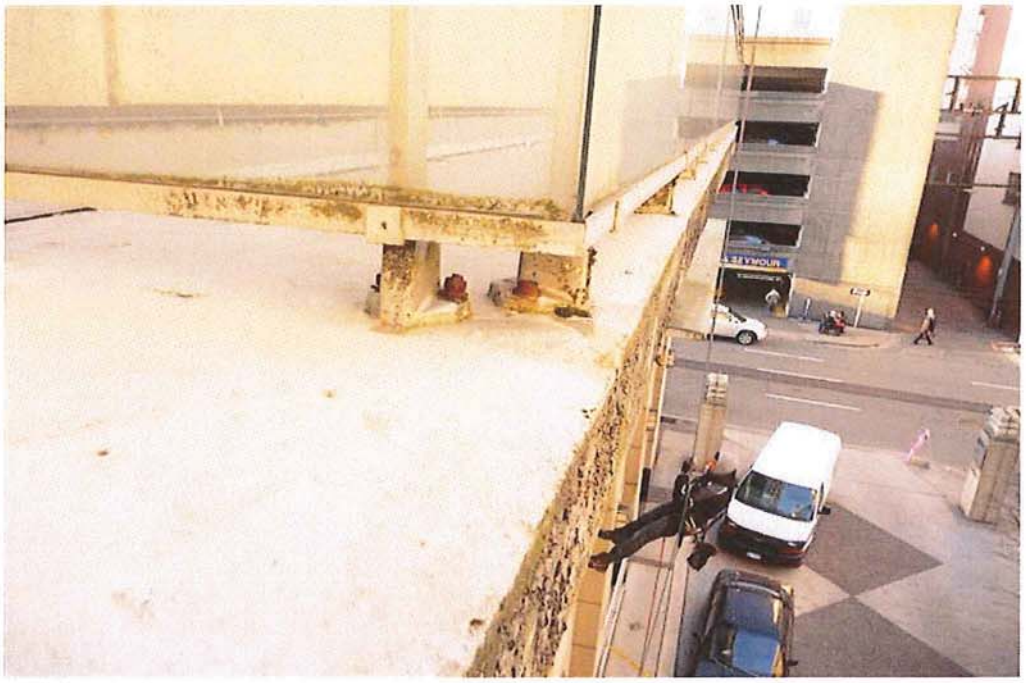
Photos No. 35 and 36

Photos No. 37 and 38

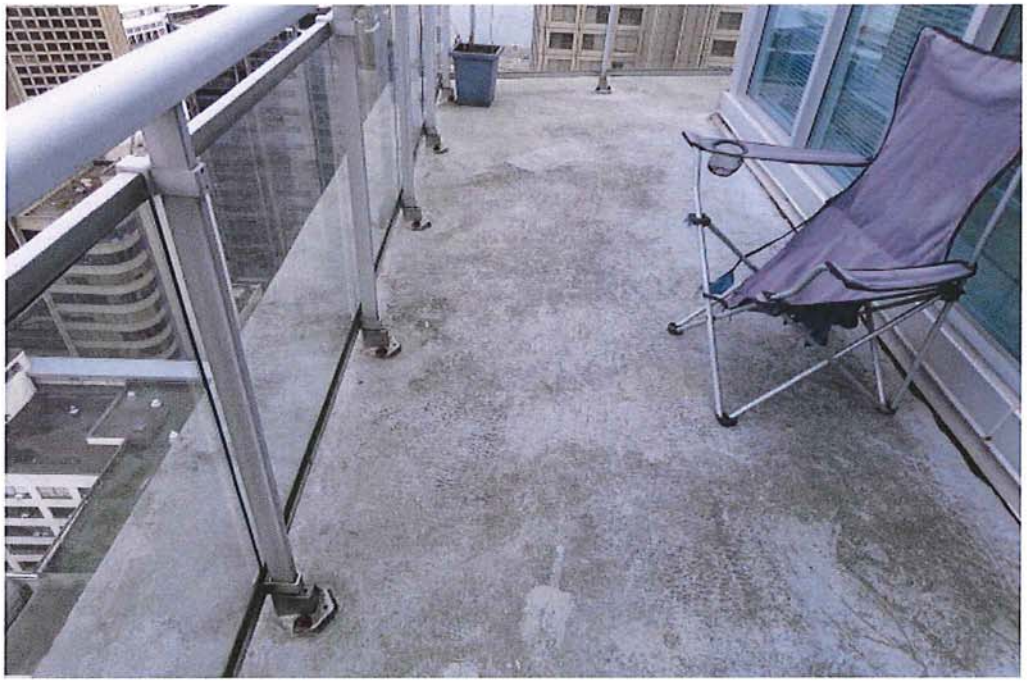
Photos No. 39 and 40



Photos No. 41 and 42



Photos No. 43 and 44



Photos No. 45 and 46

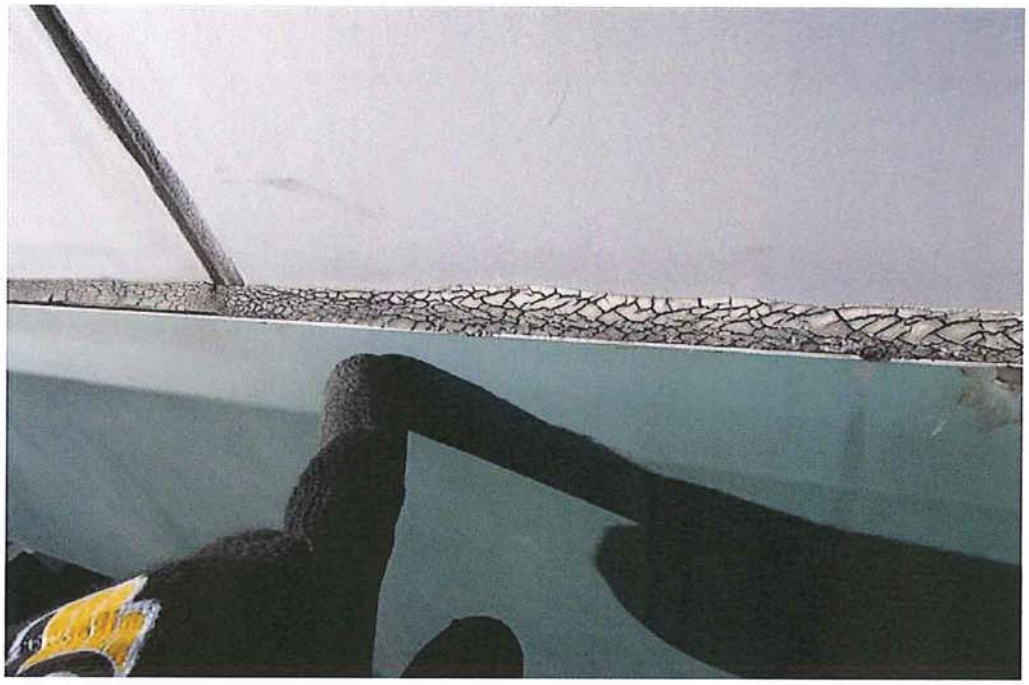
Photos No. 47 and 48

Photos No. 49 and 50

Photos No. 51 and 52

Photos No. 53 and 54

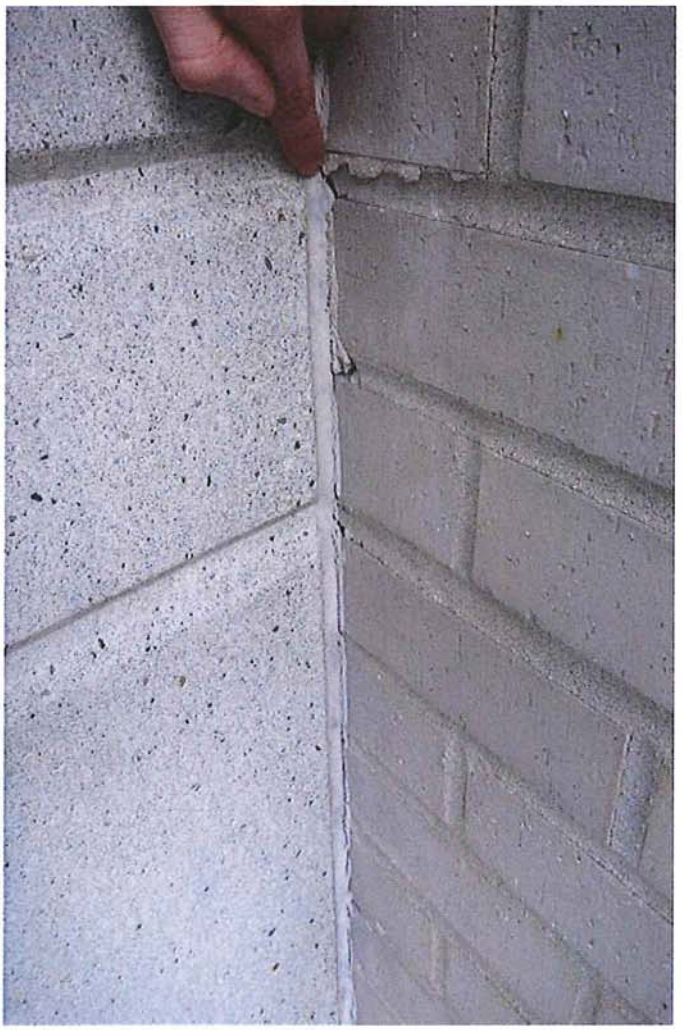
Photos No. 55 and 56



Photos No. 57 and 58

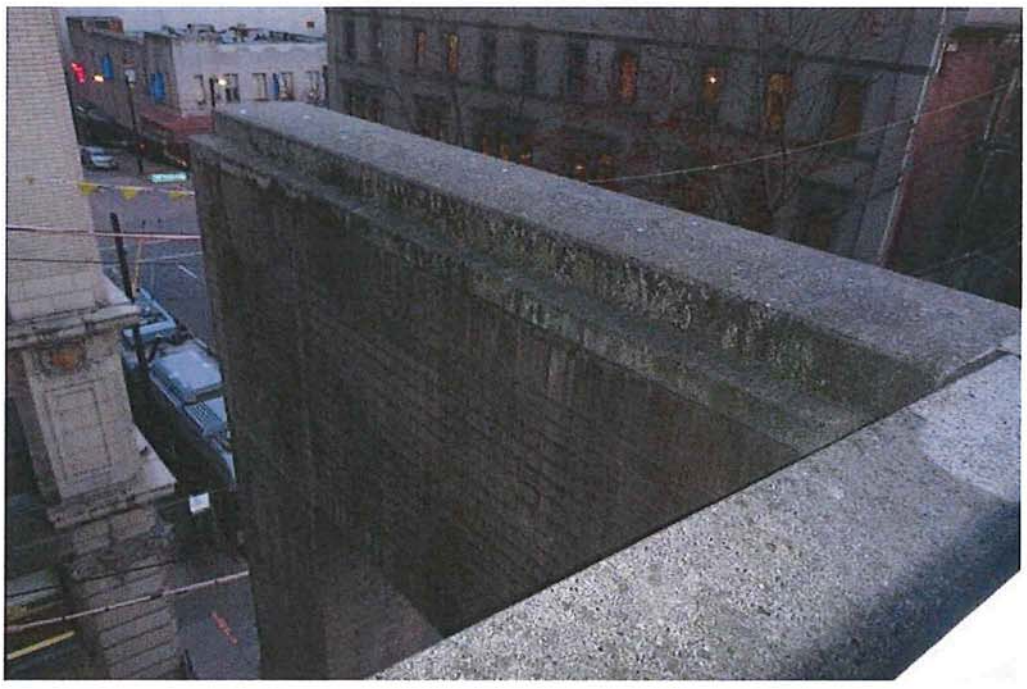
Photos No. 59 and 60

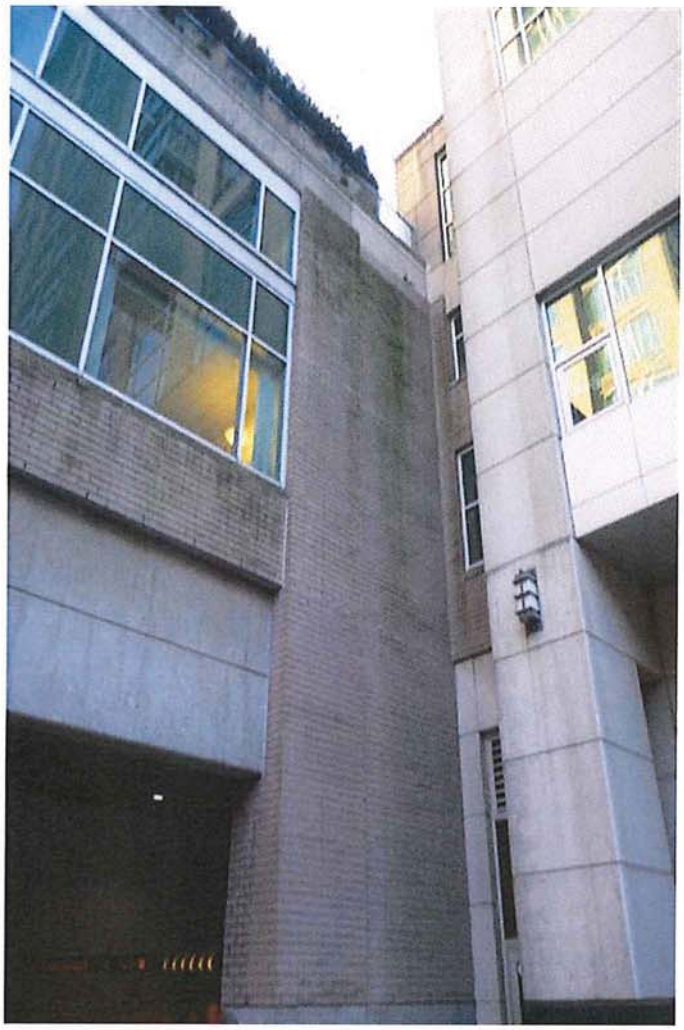
Photos No. 61 and 62



Photos No. 63 and 64

Photos No. 65 and 66





Photos No. 67 and 68

Photos No. 69 and 70

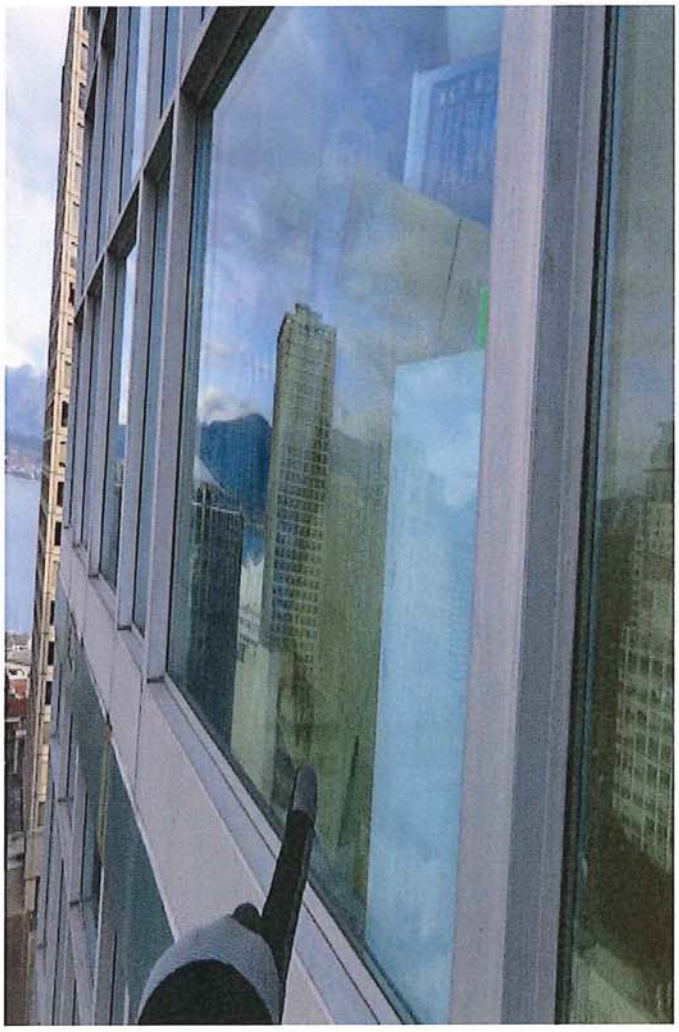
Photos No. 71 and 72

Photos No. 73 and 74

Photos No. 75 and 76

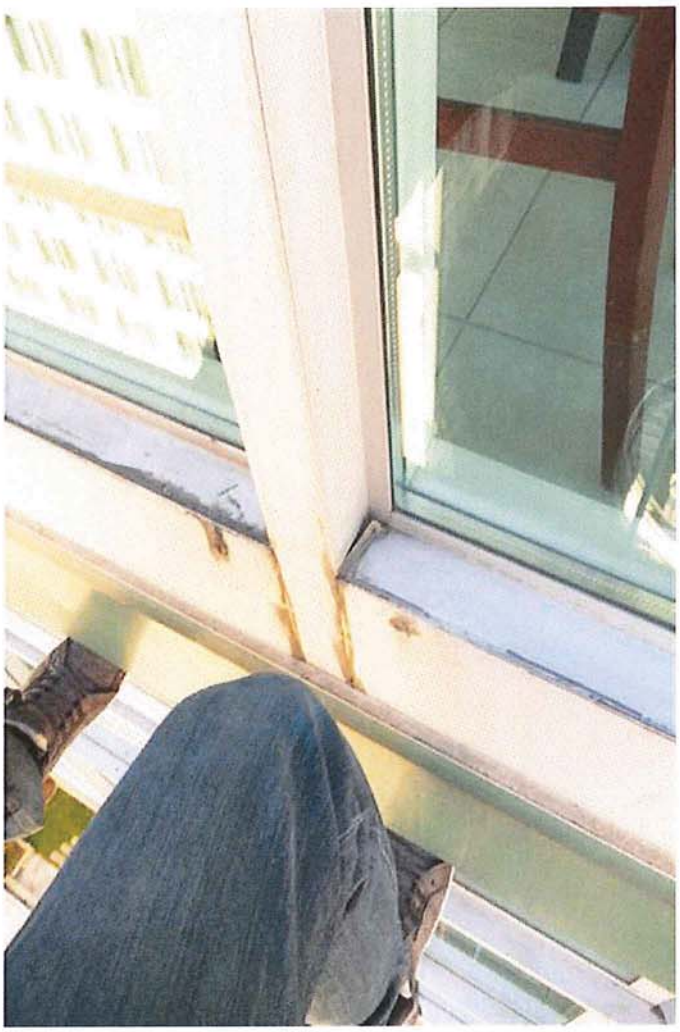
Photos No. 77 and 78

Photos No. 79 and 80

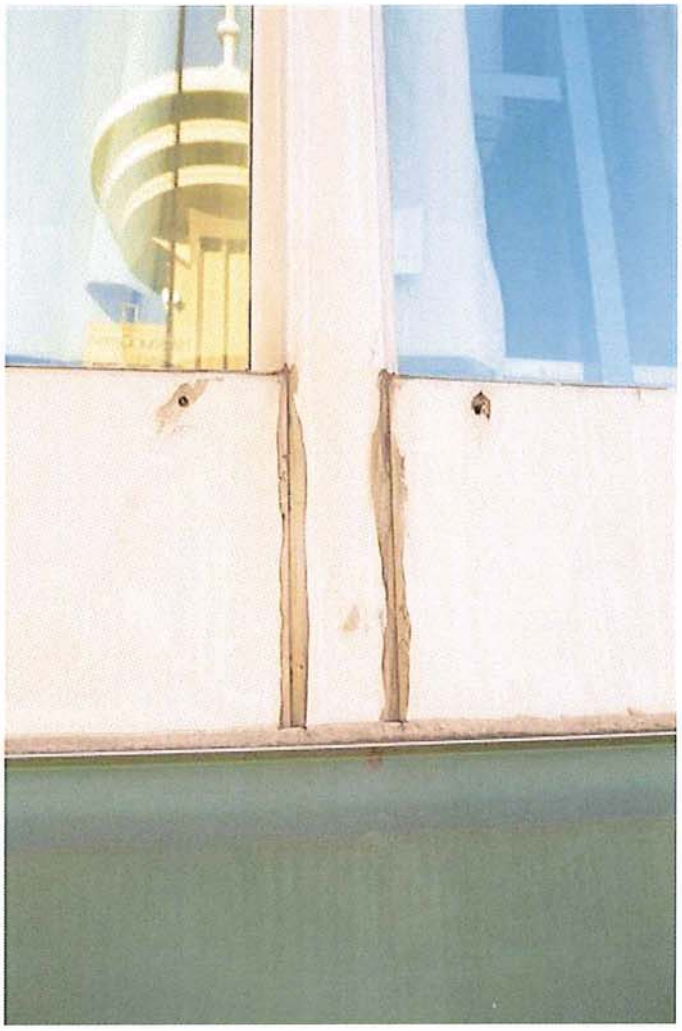


Photos No. 81 and 82

Photos No. 83 and 84



Photos No. 85 and 86



Photos No. 87 and 88

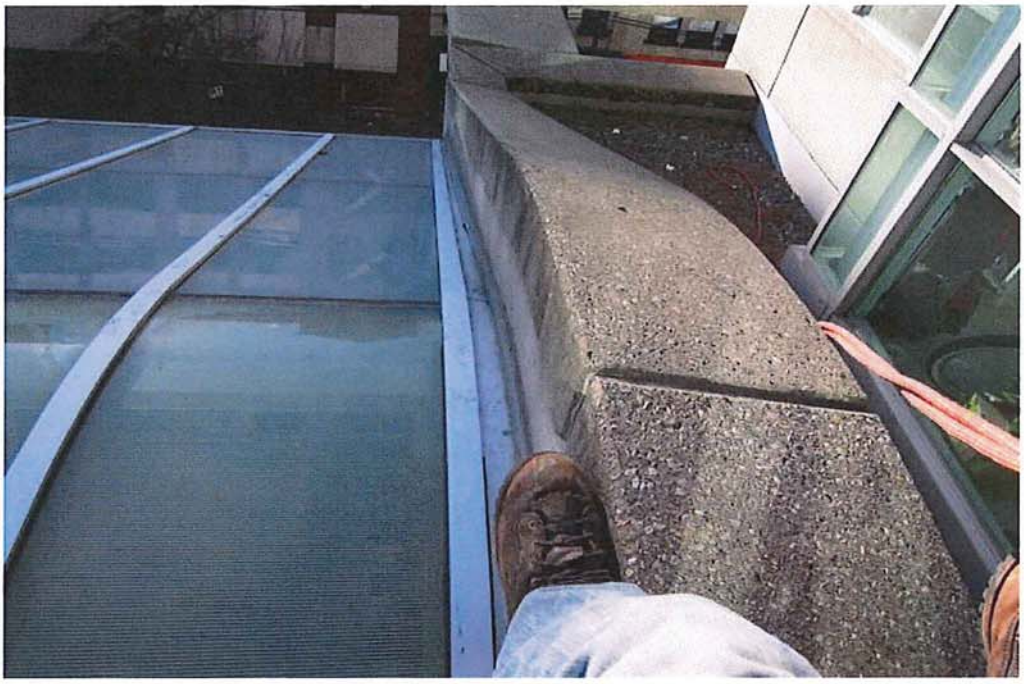
SPRATT EMANUEL ENGINEERING LTD.

Our File No. R13-221

December 4 & 5, 2013

Photos No. 89 and 90

Photos No. 91 and 92



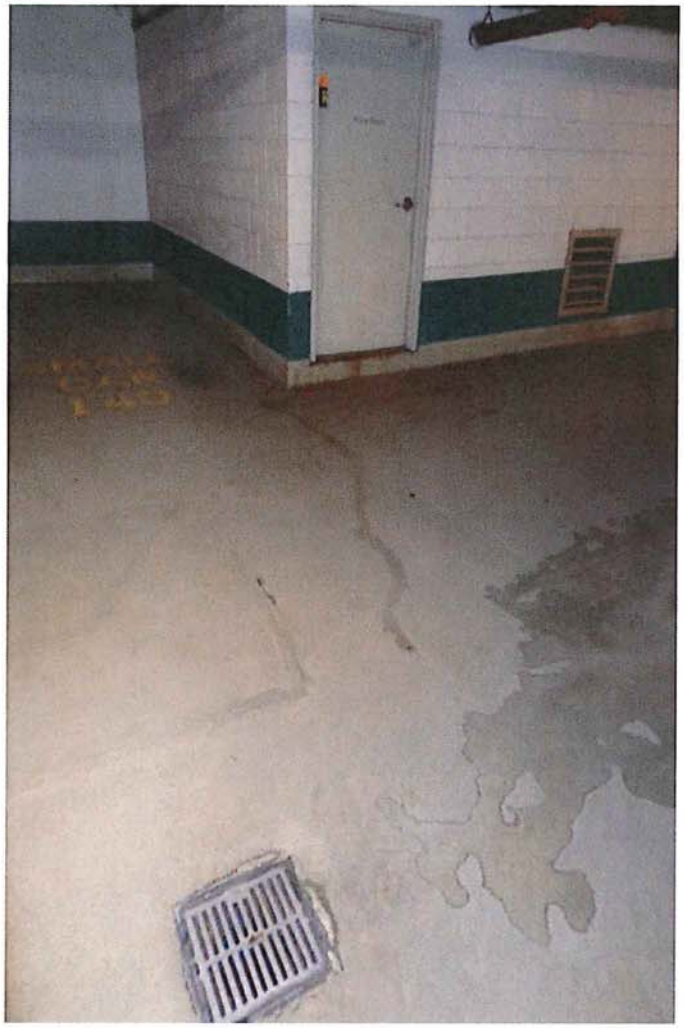
Photos No. 93 and 94

Photos No. 95 and 96

Photos No. 97 and 98

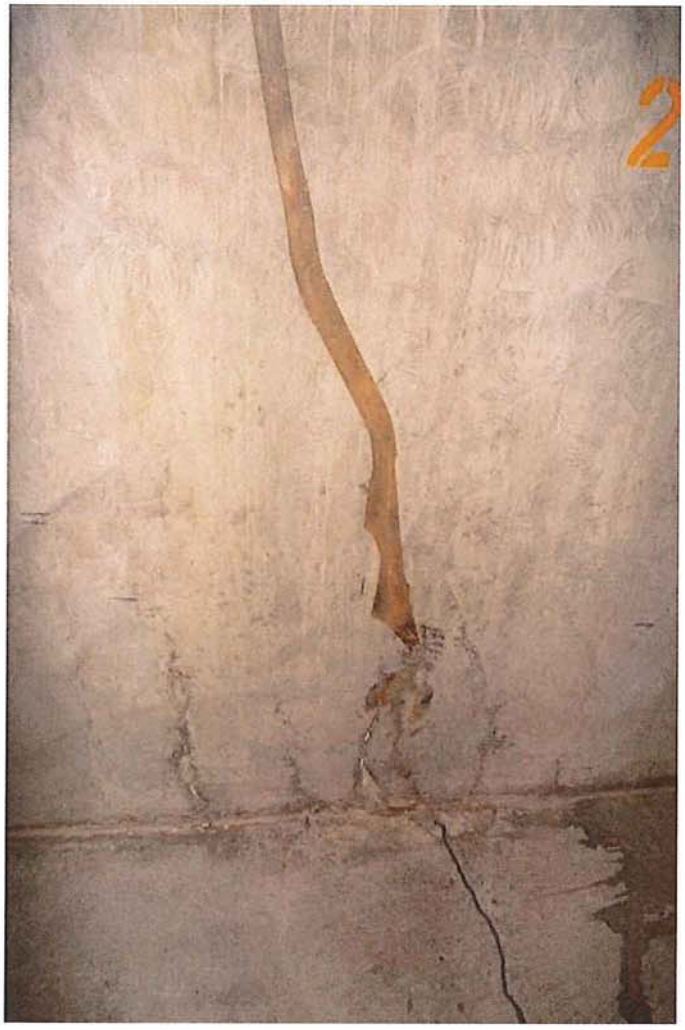
Photos No. 99 and 100

Photos No. 101 and 102

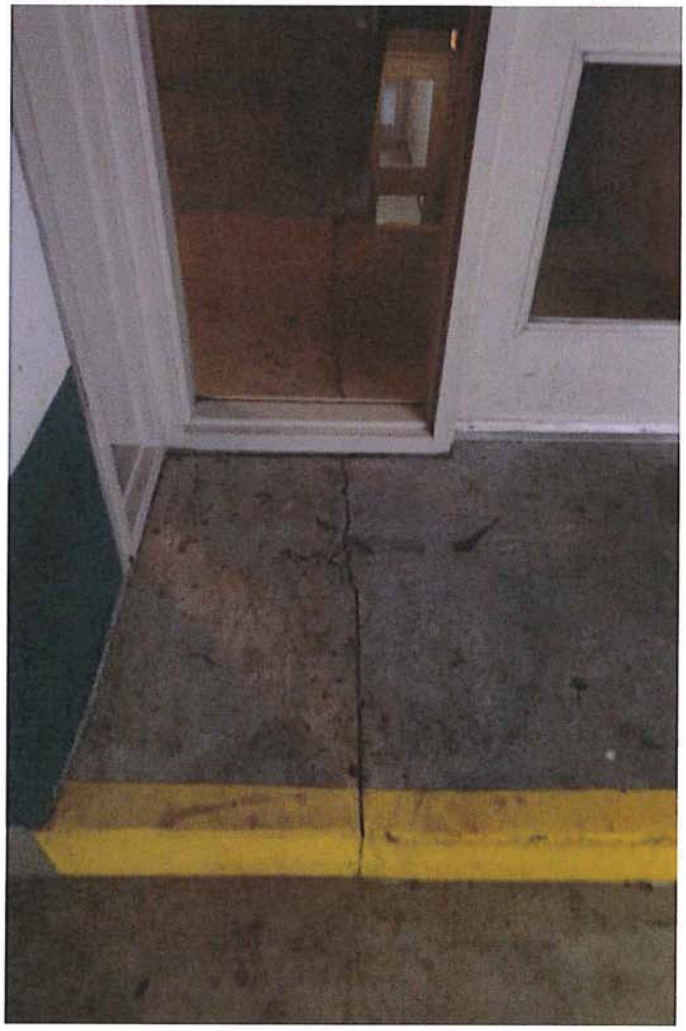


Photos No. 103 and 104

Photos No. 105 and 106



Photos No. 107 and 108



Photos No. 109 and 110

Photos No. 111 and 112