

LMS4383
RED FOLDER

Building Envelope Maintenance Report

December 2007

**Mondrian 1
989 Richards Street
Vancouver, BC**

LMS 4383

Conducted by:

B E M C O
Pacific Services Inc.
Building Envelope Maintenance

Introduction

We have conducted a building envelope maintenance review of The Mondrian 1 project located at 989 Richards Street, Vancouver, BC. The review was conducted on December 11th to 17th 2007 in order to evaluate the current condition of materials, and as the basis for the following observations and recommendations. This review was not invasive, and did not include the removal or destructive testing of any areas of the building. For the purposes of inspecting the hi-rise building, 12 drops from a bosun chair were conducted. The drop locations were selected in order to maximize accessibility to details or components of interest.

The review is intended to report the condition of materials visible at the time of inspection. It should be noted, that while every effort has been made to identify defects, we do not guarantee that every potential problem has been itemized in the inspection. When exterior maintenance work is conducted on this building any additional issues that might be discovered should also be attended to.

Overview

The Mondrian 1 is a 23 story concrete high-rise residential structure and was constructed on top of a multi level underground parkade.

In general, materials on the exterior of the building were in good condition. There are, however, some areas around the building that require some work at this time. The following report outlines the overall condition of products, as well as noting areas requiring work on elevation drawings. During our review, we noted all conditions we observed which require attention, including matters that go beyond what would typically be considered maintenance issues. Photographs have been included and elevation drawings have been attached which correlate the location of inspection drops and our observations.

Mondrian 1 Review

Roof

The roof of the building is constructed using a reinforced membrane, covered with insulation and gravel ballast. Due to the nature of the inverted roof, a full inspection of the membrane condition is not practical; however, observations regarding drainage and protection were made. Generally, the roof was in good condition with the ballast well dispersed in most areas and the drains clear, and free of debris. There was a minor amount of moss present on one of the townhouse roofs.

Balconies / Decks

Concrete balconies occur throughout the building, and have been finished on their surface with a liquid applied membrane, except for the upper floor roof decks, which have concrete pavers. The balconies slope away from the building, and drainage occurs through a scupper or over their outside edge. The balcony coatings appeared in good condition at this time with no signs of blistering or peeling noted. Some of the decks were dirty, particularly on the north elevation.

The roof decks and townhouse patios have been constructed using paving stones installed over rigid insulation, over a liquid applied membrane. Surface drains serve these deck areas, and in those areas reviewed, the drains appeared clean and free flowing.

Residents should regularly clean the deck surface, checking the condition of the coating for any cracks, blisters, cuts or burns. Damaged areas should be repaired in a timely manner. Scuppers should also be checked to ensure they are clear of any blockage. Organic growth such as moss and weeds should also be removed, as they tend to retain moisture.

Paint

The majority of the paint over the concrete was in reasonably good condition. There was some localized blistering and peeling on the tops of the balcony up-stand walls and cornices.

It is advantageous to prep and repaint bare areas or damaged paint as soon as practical.

Paint coatings should be cleaned whenever they show signs of dirt, or organic growth buildup. This condition can attract and retain moisture, which can eventually cause the coating to deteriorate. The method of cleaning can range from a garden hose and soft bristled brush, to the use of cleaning agents, and a pressure washer. It is generally advisable to use as little force as is required by a given job.

Concrete

The concrete is generally in good condition with some cracking occurring in various areas of the building. Efflorescence was present at some of these crack locations. Most of the cracking was occurring on the upper 5 floors and at the cornices and up stand walls.

Cracking in concrete is common and can occur over time due to curing, settlement, and movement. Cracks should be monitored and repaired as required.

Sealant

Sealant has been used in a number of details on the Mondrian 1, such as window and door perimeters, flashing terminations, joints between dissimilar materials and various other locations. The majority of the sealant was in good condition with the exception that it was missing in a few locations, such as at scupper perimeters and the glass canopy frame on the ground level. Sealant at other details, such as window perimeters, and other locations was in good condition throughout the project.

Sealant has not been applied at the perimeter of most exterior light fixtures, electrical outlets and hose bibs.

Flashings

Flashings are used to deflect water at interfaces and joints within and between wall assemblies. They play an important role in the water management of a building exterior by directing moisture to controlled or designated areas. Flashings are used extensively throughout the building in areas such as window heads, windowsills, base of walls and perimeter wall cap flashings.

The flashings were in good condition. This includes the windowsill flashings, roof gum lip and perimeter roof cap flashings, as well as the balcony wall cap flashings.

Windows

The windows at The Mondrian 1 are thermally broken aluminum framed double glazed units. In general the window units appeared in good condition. All of the exterior weep holes were clear, and where accessible, the rubber weather-stripping gaskets were checked, and found intact. Residents should check their windows on a regular basis for things such as fogging and plugged weep holes. Also, the window hardware should be checked, to ensure of proper function, on a regular basis.

Mondrian 1, 989 Richards Street, Vancouver, BC.

Vents

The majority of the balcony soffit vents and exterior hooded vents appeared clear. There were a few locations where various amounts of lint were starting to accumulate and there were a couple of locations where the vent was detached.

It is important that a regular program be implemented to remind residents to clean the exterior vent covers, as well as to arrange for professional cleaning of the dryer ducting. A poorly maintained dryer vent can lead to moisture problems and staining within the building. Where accessible, exterior vent covers should be vacuumed by residents quarterly, and professionally cleaned annually. Dryer lint traps should be cleaned regularly to help minimize the build up of lint in the ducts as well as at the exterior vent.

Miscellaneous

There were several locations where holes were present but the scupper pipes were missing. These are overflow outlets and it appears that the pipes were optional.

The balcony soffits of units 2001 & 2005 have been damaged by what appears to be heavy condensation. These are currently being further investigated.

The landscaping around this complex was in good condition and not encroaching on the buildings. It is a good policy to keep plants and vegetation from direct contact with the building cladding, as they tend to retain moisture and can facilitate the growth of algae and / or moss.

Residents should be reminded to ventilate their units and / or use dehumidifiers often, as it has been our experience that condensation can be mistaken for exterior leaks.

Parkade

The parkade was in good condition with no breaches or major cracks in the traffic membrane. As is common there were numerous cracks present in the ceilings walls and floor of the parkade, most of which appeared not to be active at this time. However, there were a few locations where cracks had efflorescence and / or staining present and should be further monitored to determine if they are active. These are located at the following parking stall numbers: 63S, 96, 182 (previously repaired but moisture still present), and 312. Large cracks were present at the transition between Mondrian 1 and 2 at stall nos. 49, 169, & 299.

Summary

There are components on the exterior of the building, which at this time require remedial work in order to perform as originally planned.

In general, the following items should be reviewed with regard to future work:

- Repair significant cracks in concrete
- Replace missing and failed sealant
- Repair peeling and missing paint areas
- Repair detached vents
- Apply paint and membranes where required
- Clean deck surfaces where required (Residents)
- Consider the installation of scupper pipes where missing
- Further investigate significant cracks in parkade
- Investigate and repair soffits at units 2001 & 2005

Mondrian 1, 989 Richards Street, Vancouver, BC.

Appendix

- **Homeowners Inspection List**
- **Photographs**
- **Elevation drawings with notes**

ON-SITE PERSONNEL / OWNER INSPECTIONS

Item To Inspected	Inspection Frequency	Inspect for
Roofing	Quarterly	A cursory monthly check is intended to spot physical damage or drainage problems. This check is purely a visual inspection conducted from the ground.
Flashings	Semi annual	Physical damage. Look for flashing which may have been damaged or bent by gardeners, window cleaners or other operations around the building.
Decks / Drains & Gutters	Quarterly	Drain blockage, or physical damage. Individual deck drains and troughs should be checked frequently during the rainy season, and when debris is most prevalent in the fall. Check the membrane surface for cracks or splits when cleaning or sweeping. Check the soffit above for water stains.
Sealants	Semi annual	Look for damage or obvious sealant failure when cleaning windows or decks.
Paint	Semi annual	Observe condition of paint when cleaning windows or decks. Look for peeling or blistering paint.
Windows	Semi annual	Observe condition of hardware and weep holes when cleaning windows. Clear any dirt or debris from weep holes. Check sealant at mitered corners.
Vents	Semi annual	Regular cleaning of dryer lint screens will reduce the necessity to clean the exterior vent covers. Dirty or blocked exterior covers can lead to moisture accumulation in the vent pipe, and cause leakage and deterioration
Plants	Annual	Plants growing directly adjacent to or in contact with the building exterior can reduce the drying potential of the exterior cladding, and increase the likelihood of problems. Keep plants and shrubs away from exterior walls.
Doors	Annual	Doors should be checked in order to assess the hardware, and the perimeter seals. Poorly operating mechanisms or weatherstripping should be repaired or replaced.
Cladding	Annual	Visually observe the condition of the exterior materials, looking for any signs of damage or deterioration.

Notes:

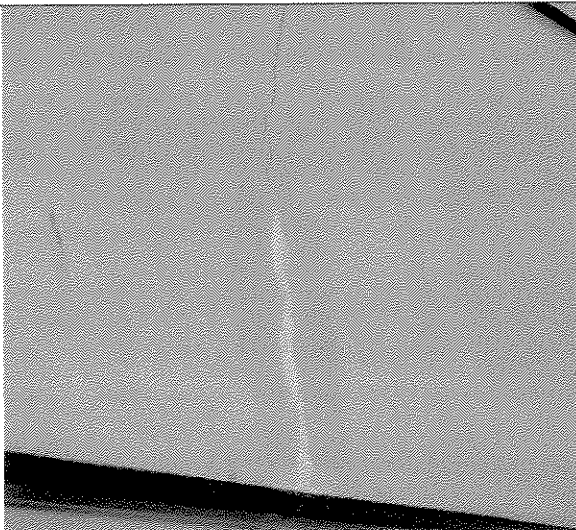
2007 Mondrain 1 Report Photographs



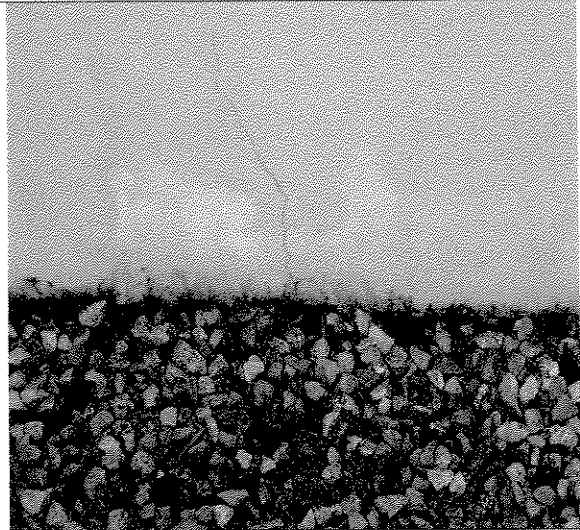
Pic 1 – Soffit sagging and vent detached.



Pic 2 – Soffit section removed.



Pic 3 – Vertical crack with efflorescence.

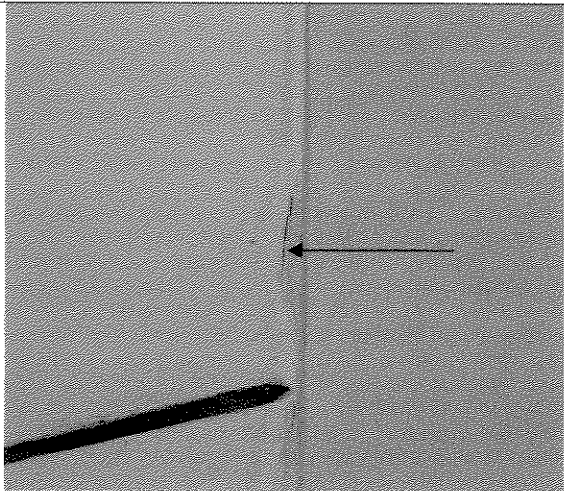


Pic 4 – Crack in townhouse roof wall.

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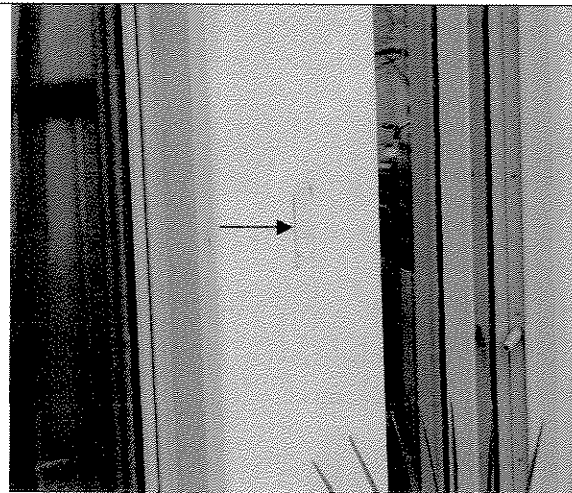
Pic 5 – Moss present at roof drain.



Pic 6 – Sealant separated.

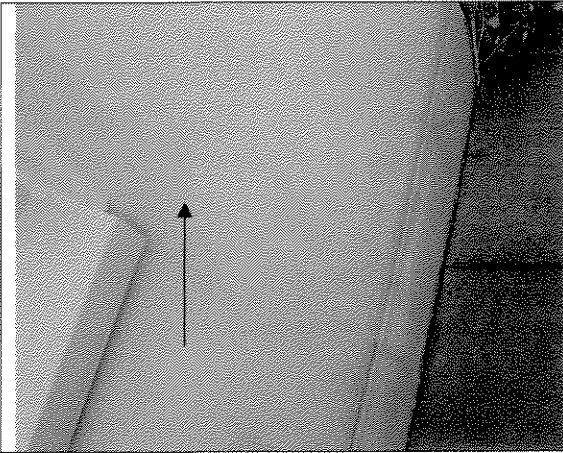


Pic 7 – Cracks at cornices.



Pic 8 – Cover plate not caulked.

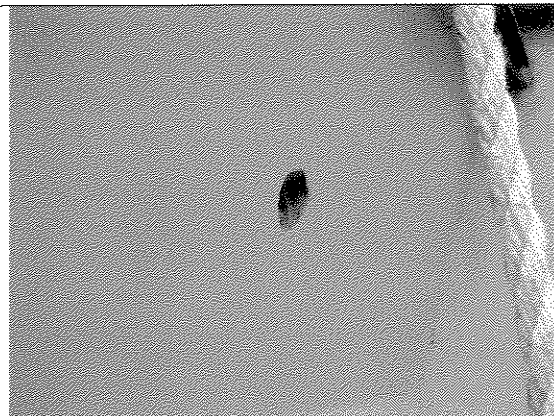
2007 Mondrain 1 Report Photographs



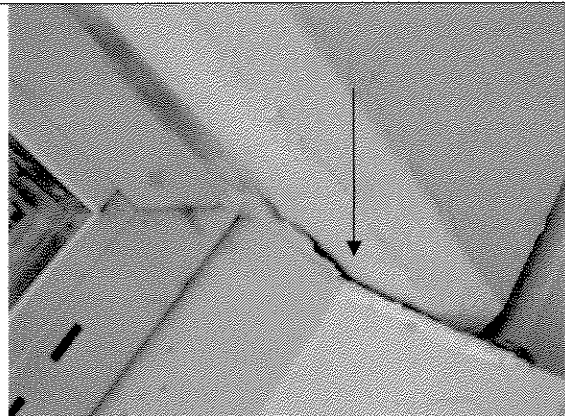
Pic 9 – Crack at window corner.



Pic 10 – Cracks present & paint peeling.



Pic 11 – Scupper pipe missing.



Pic 12 – Sealant separated.

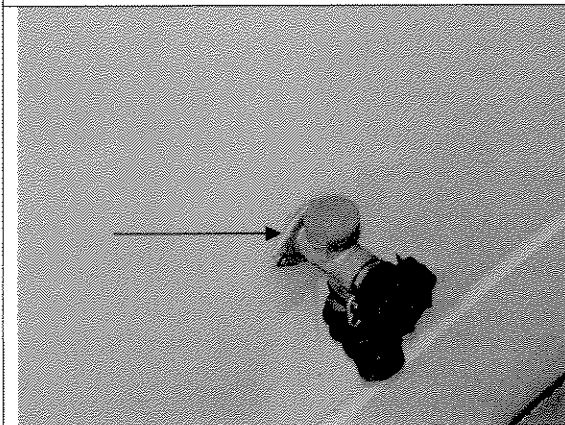
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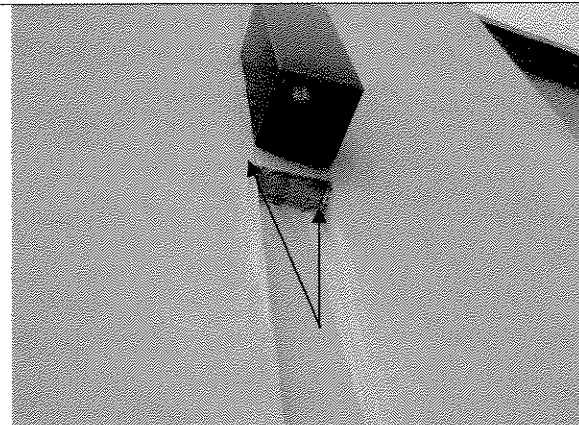
Pic 13 – Deck dirty.



Pic 14 – Gap at flashing termination.

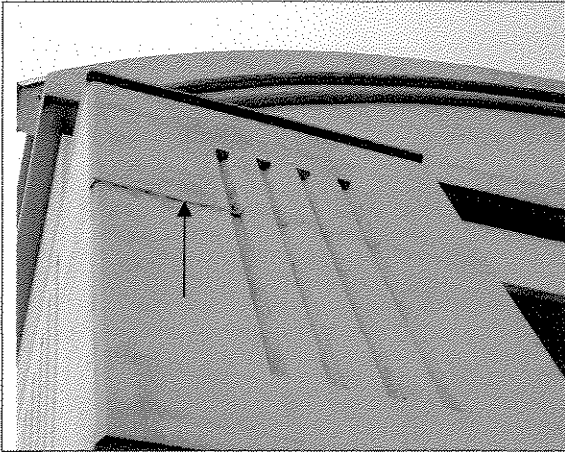


Pic 15 – Hose bibs not caulked.



Pic 16 – Cracks with efflorescence.

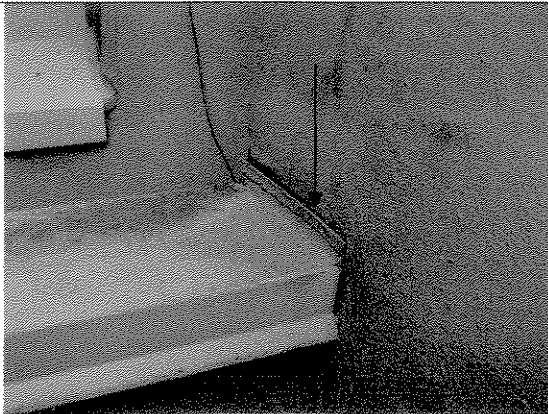
2007 Mondrain 1 Report Photographs



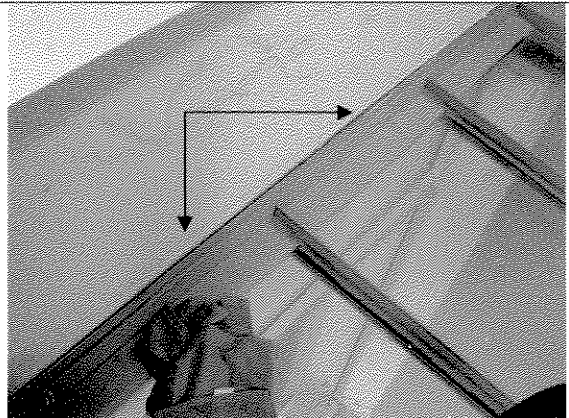
Pic 17 – Horizontal crack.



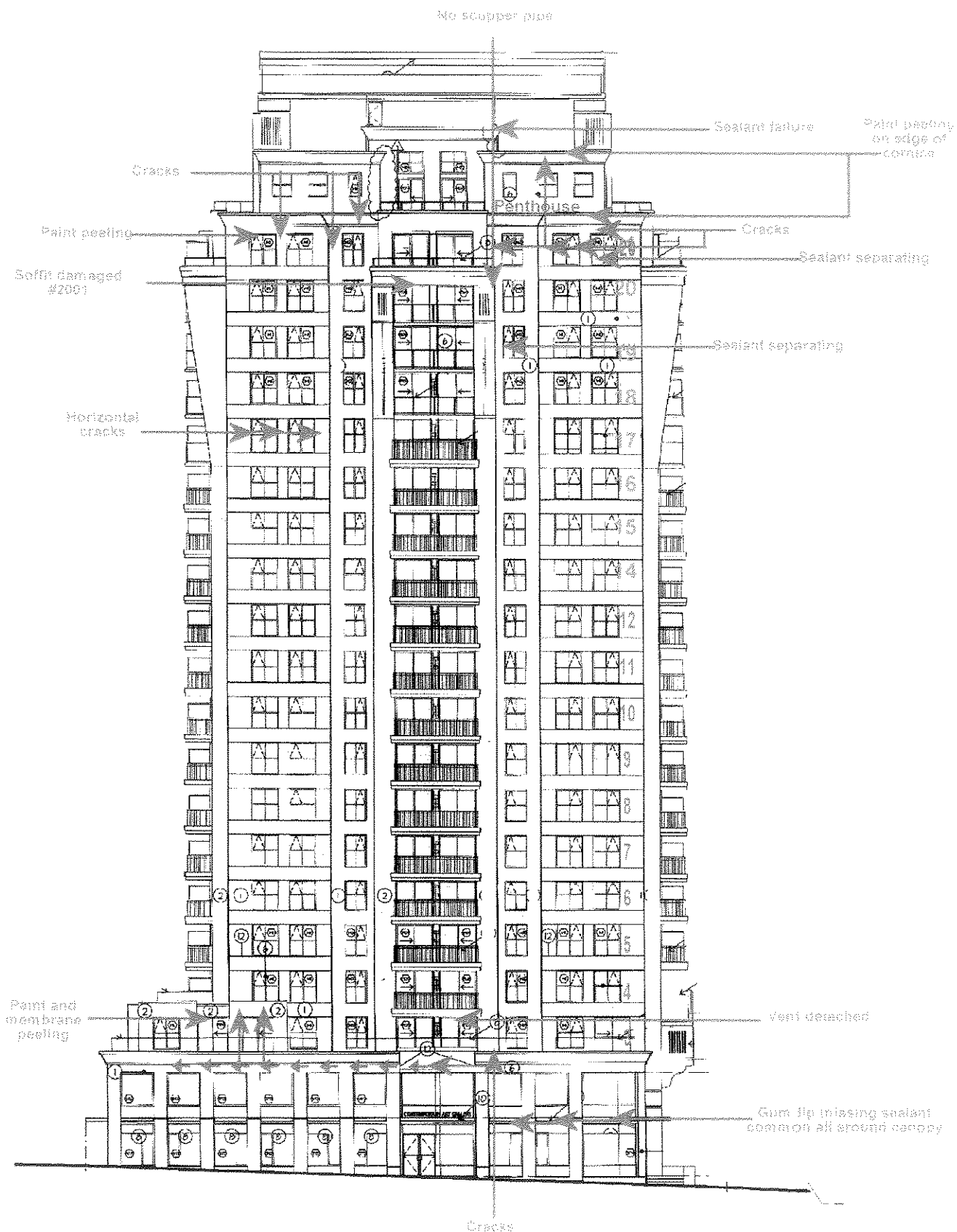
Pic 18 – Cracks & concrete spalling.



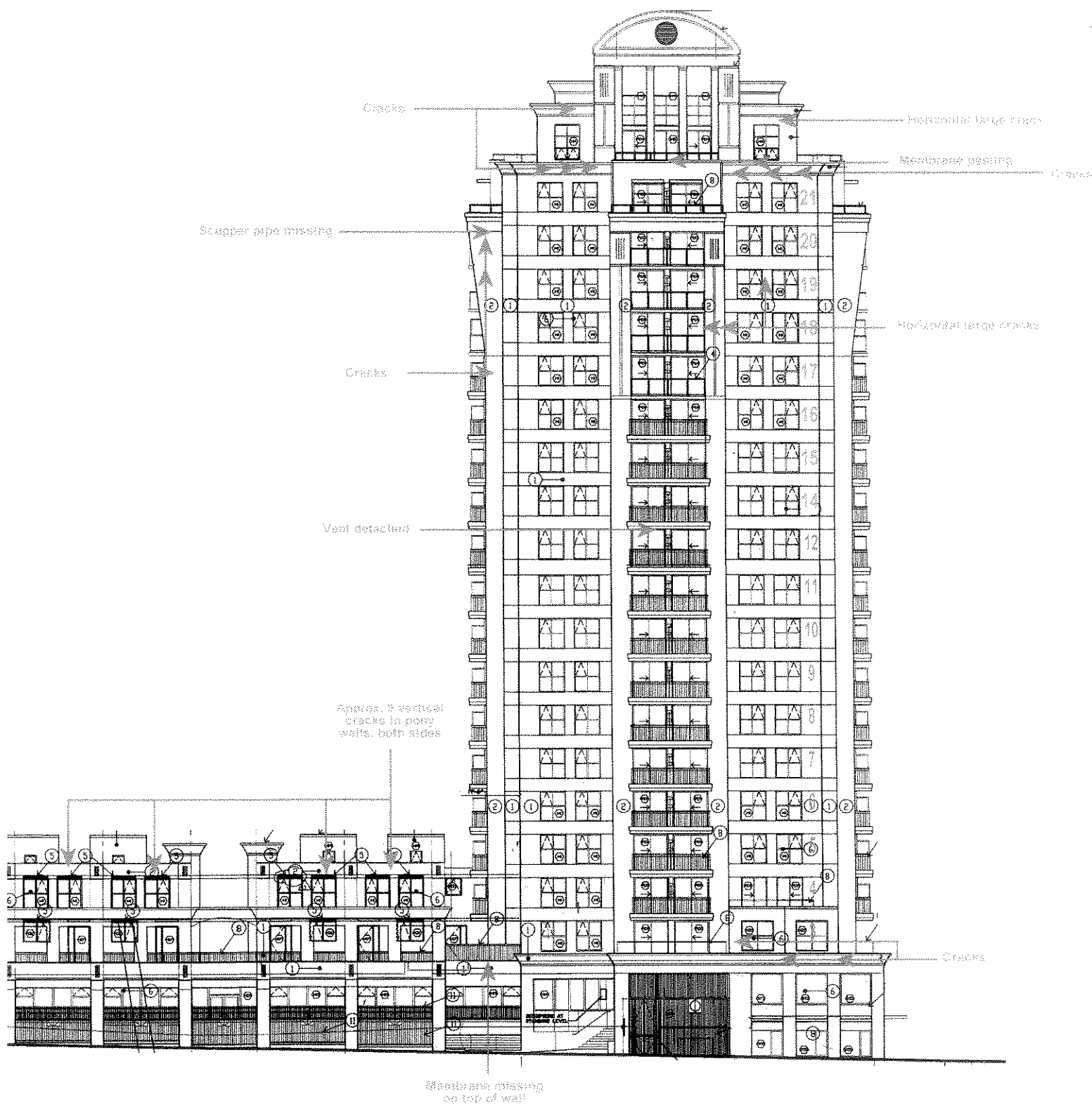
Pic 19 – Sealant missing.



Pic 20 – Sealant missing at canopy.



Mondrian South
NELSON STREET ELEVATION (SOUTH)



MONDRIAN SOUTH
WEST ELEVATION - LANE

