TABLE 1. Moisture Probe Survey

Moisture Content Range	Quantity per Elevation Combated Building Elevations				Total No. of Probes	Percentage per Moisture Content Range
	North	South	West	East		
Less than 20%	18	2	3	4	27	87%
20 % - 30 %	1	0	0	3	4	13%
30% - 50% plus	0	0	0	0	0	0%
TOTAL	19	2	3	7	31	100%

Note Limitations in Section 2.2.1 of this report

In general, the highest MC readings were found at the east elevation at the glulam beams. Relatively low readings were found throughout the rest of the building.

3.4.4 Exploratory Openings

Twelve (12) exploratory openings were made in the wall assemblies, at the stucco, masonry wall, wood trim, and balcony columns, covering all four elevations including the roof level.

Locations of exploratory openings are indicated on the building elevations in Appendix C, Figure 1 to 3. Detailed observations recorded at each opening are included in Appendix A.

Extent of damage found	Number of openings	% of Openings
No damage	7	59%
Evidence of moisture but materials intact (wetting or staining)	4	33%
Deteriorated sheathing but framing intact	0	0%
Framing deteriorated	1	8%
Total Openings	**12**	**100%**

Most of the moisture probes taken resulted in normal readings. In areas where there was visible water staining on the outside surface of the cladding elements, there did not appear to be any damage behind the cladding. This was evident from the moisture probes and the exploratory openings.

The only wall area found to have evidence of water damage was at the elevator shaft projection at the roof level. The balcony column stucco construction also showed some signs of water ingress.

In general, the main areas of concern were at the glulam beams including the wall area directly above the beams and at the projected elevator shaft roof.

3.5 Windows, Doors and Other Wall Penetrations

3.5.1 Windows

The windows installed at the Project have aluminum frames. The spacer used between the glass panes in the insulated glazing units (IGU's) appears to be a "swiggle" type energy efficient model. They are exterior glazed units that drain to the exterior via weepholes. The window units are a combination of fixed units, horizontal sliders and vertical casement windows. There is possibly evidence of some failed IGU seals from the reported condensation on the interior pane. (Refer to Photo #26 in Appendix B). The sills were in fair condition and there was no evidence of water ingress to the interior at those units reviewed.

The windows at the stucco cladding have a sealant joint between the window frame and the stucco cladding. The sealant appeared to be competently applied and in good condition. There is no sill flashing in place.

A caulking joint, which was unnecessary, was applied between the operable window unit and the frame. That joint has cracked where the operable unit has been opened.

There is a head flashing installed at the head of the window units. However, the head flashing does not have end dams and does not extend beyond the window opening.

3.5.2 Doors

Doors used in this building include glass storefront doors for the main entrances and sliders for balconies and decks. The emergency and service doors and frames are metal. Weather-stripping appears to be in fair condition

at the sliders. There is no head flashing installed, although balconies and decks are either protected by the unit above or by overhangs.

3.5.3 Other Penetrations

Other penetrations that were observed through the stucco cladding were sprinklers and wall vents. The vents were located throughout the north elevation. There was sealant in place between the vent and the stucco cladding.

Exterior exhaust and dryer vents project out of the stucco cladding. Those reviewed appeared well sealed and in fair condition. However, most exhaust vent screens were loose, had fallen out or were full of lint and debris.

There are sectional soffit vents located at the perimeter of the roof overhangs. Many of those reviewed were blocked with dust and debris.

3.6 Roof Assembly

The architectural drawings show the typical roof assemblies as consisting of:

Typical Roof assembly:
Asphalt shingles
Building Paper
12.7 mm Plywood sheathing C/W 'H-clips'
Pre-engineered wood trusses
R28 Batt Insulation
6mil Poly Vapour Barrier
15.9 mm Type 'X' Gypsum Wall board

Typical Flat Roof construction:
Gravel ballast
2-ply SBS Membrane Roofing
15.9 mm Plywood Sheathing
Pre-engineered wood trusses
R28 Batt Insulation
6mil Poly Vapour Barrier
15.9 mm Type 'X' Gypsum Wall board

Where reviewed, the as-built conditions were consistent with the assembly information provided on the drawings.

3.6.1 Flat Roofs

The roof assembly has both sloped and "flat" roofs, with the majority being flat. The flat roofs are waterproofed with a built-up asphalt and gravel membrane roof surrounded by a metal capped curb. Along the perimeter of the roof there are a series of sloped gable roofs clad with asphalt shingles. In general the roof appears to be in fair condition and there have not been any reports of roof leaks from the residential questionnaires submitted. Exploratory cuts were not conducted into the roof membrane during our review. Mechanical equipment is placed directly on the roofs. The roofing membrane was lapped up on all surface penetrations observed.

At the time of the inspection, water was found to be draining properly in the areas reviewed. The roof is properly sloped to drain and the drain covers are regularly cleaned of debris that could block the passage of water.

UV damage was noticed in areas at the perimeter of the flat roof and the roofing membrane was cracked and exposed. This occurs where ballast coverage was minimal or missing. Ridges were noticed on the flat roofs in a few locations with cracking and exposed areas. (Refer to Photo #27 in Appendix B).

3.6.2 Sloped Roofs

The sloped roofs are clad with asphalt shingles, over building paper and plywood. The asphalt shingles were lifted in areas on the canopy roof above the south building entrance. Generally, the sloped roofs are in fair condition with eaves protection in place where reviewed.

The asphalt shingles on the roof are in generally fair condition in most locations reviewed. There was underlay and eave protection beneath the shingles in the areas reviewed. There was no valley flashing in place at the areas reviewed. (Refer to Photos #28-29 in Appendix B).

The sloped roofs are equipped with a perimeter drainage system that drains through downspouts along the sides of the building. The downspouts show signs of corrosion at most elbow junctions. There is also evidence that the downspouts have leaked onto the wall cladding behind and below these junctions. This appears to have contributed to the efflorescence staining on the brick face at most of the locations where staining was found particularly at the east and west elevations.

3.6.3 Parapet / Cap Flashings

At the flat roof parapet waterproof membrane was applied beneath the metal flashing. The metal parapet flashing is lap-seamed and caulked.

Membrane was not in place under the cap flashing of the elevator shaft roof projection. The joints in the parapet flashing were open at the corners and caulked at overlapped joints.

3.6.4 Soffits

There are soffits at the roof overhangs, the balcony underside, and the underside of the cantilevered floors. Gypsum wallboard and prefinished, vented metal soffit are used at the cantilevered floors and balcony underside. The roof overhangs have interstitial vent strips. These locations were not opened up but it appears that sufficient vented areas were incorporated into these building locations.

3.7 Balconies and Decks Over Living Space

3.7.1 Drawing Review

The architectural drawings indicate typical balcony and deck assemblies as follows:

Typical Balcony Floor:
Waterproof membrane (Dura-Deck or Equal)
15.9 mm Exterior grade plywood sloped to outside edge
19 x 89 wood strapping at 406 mm o.c.
Wood joists
12.7 mm Type 'X' Gypsum Wall board
Prefinished metal soffit

Balcony Floor over Suite (Deck):
Waterproof membrane (Dura-Deck or Equal)
15.9 mm Exterior grade plywood sloped to outside edge
19 x 89 wood strapping at 406 mm o.c.
Wood joists
2 layers R12 Batt Insulation
12.7 mm Resilient furring channels 610 mm o.c.
15.9 mm Type 'X' Gypsum Wall board
Sprayed textured finish

Prefinished metal soffit
– Caulk around all penetrations

Test openings were not made through the balcony or deck floors. From our observations we noted the as-built conditions were in conformance with the drawing descriptions. The balconies are extended from the exterior walls with columns for added support. Soffits appear to be constructed as indicated by the architectural drawings.

3.7.2 Deck and Balconies

The decks and balconies were sloped to drain across to their outer edge. It appears that the slope is insufficient because there is some moss and black staining along the perimeter approximately 10 inches from the edge of the balcony where water has ponded. This may be due in part to the settlement that the building has experienced since construction. Ongoing rigorous monitoring of the condition of the membrane is vital to prevent deterioration of the balcony/deck structures.

3.7.3 Membrane

The balcony and deck waterproofing is a liquid applied urethane membrane. The protective coating terminates at the edge flashing but does not downturn onto the face of the flashing. In some locations the coating has lost its adherence to the edge flashing and the membrane is exposed.

At the balcony/masonry wall junction, there are cant strips on top of the balcony and below the bottom course of brick. These cant strips are used to terminate the membrane and protective coating at the wall junction. In many locations reviewed, these cant strips have become loose and no longer serve to terminate the membrane and coating.

Saddle terminations at the balcony are generally not properly addressed to divert rainwater. There is a sloped rowlock course of masonry set under the balcony flashing. The stucco terminates in a caulked joint at the fascia, flashing and cant strip. There is no evidence that membrane was used at the balcony saddle locations.

3.7.4 Parapet/Cap Flashings

Standing seams are used at flashing joints at the base of the wall and at the balcony perimeter at flashing ends and at exterior corners. The balcony

column flashing has open lap joints at the corners. Membrane was not used under the cap flashing of the balcony columns. Hence, the cap flashing is intended to act as the main waterproofing for the upstand wall.

The flashing/metal angle over the top course of the masonry wall bridges the transition between the masonry and the stucco and is terminated with a gum-lip. The metal angle is back-sloped and a subsequent splash pattern has formed at the base of the stucco wall above it. Joints in the flashing are lap-seamed only. The trim bricks below saddle details have flashing slightly out of line leaving the top of the trim brick exposed to water ingress. (Refer to Photos # 30-31 in Appendix B).

3.7.5 Railings

The balcony guardrail system is constructed from a 2 x 4" wood frame, with solid blocking for rail attachment points. The rail is side-mounted to the inside of the balcony upstand wall and laterally attached to the wall and column terminations. No sealant or neoprene pads were observed around the railing attachment plates. The balconies are equipped with an aluminum picket type railing system. The gap between rails is four (4) inches, which is in keeping with the Code requirements. However, the gap between the rail and the column is greater than five (5) inches in some locations, which is too large a gap as required by Code. The height of the rail meets Code requirements. (Refer to Photo #32 in Appendix B). We did not assess the structural capacity of these railings, as this was not part of the scope of this report.

3.8 Parking Garage and At-Grade Waterproofing

There have been a series of reported leaks into the parkade with repairs recently completed. We have been asked not to include issues related to parkade deficiencies or repair work in this report.

3.9 Deficiency Questionnaire

MH issued our standard Occupant Questionnaire form in May 2002, which was distributed and collected by the Strata. The deficiencies questionnaire was devised to identify the extent and location of potential water leakage and building deterioration problems experienced by the occupants.

We have received 12 of a possible 39 responses (31 %). Of the 12 questionnaires that were returned, 33 % of the respondents have indicated some type of water penetration into their units. In addition, one leak incident was reported on the questionnaires.

The analysis of the returned forms was directed at correlating the incidence of problems with the evidence of building envelope distress from our field investigation. The incidence of building envelope problems as reported in the survey is summarized in Figure 1 and is broken down by the major building elements.

The results of the questionnaire revealed that the majority of the water leakage problems (as reported) were associated with the windows. When the occupants fill out surveys of this type, the results need to be taken as approximate for data such as the location of leaks. Inevitably, the majority of the results received represent an approximate location of the interior damage rather than an assessment of the actual leakage mechanism. For example, windows often leak and staining at a windowsill generally is characteristic of leaks (through a deficient head flashing or unsealed fixture), or condensation on or around the window. Therefore, in some instances, the source of the water ingress may not be the same as where the leakage or staining is observed at the interior.

Other common problems that were reported by the occupants included interior cracking on the walls/ceilings specifically at the fourth floor hallway by the elevator. The incidence of mildew or mold problems can indicate a constant water source and leakage penetrations or a condensation problem.

4. DISCUSSION

The combination of our review of background documents, visual observations, limited moisture probe survey and exploratory openings suggest that after six years of service, 929 West 16th has some minor localized moisture induced degradation but is in good overall condition.

With the limitations of this preliminary assessment, the full extent of water ingress and the resultant damage has not been determined, but the extent and severity of problems appears limited, and to be strongly associated with specific elements of the construction. Specifically we noted deterioration of wall systems at:

- the elevator shaft parapet and wall;
- the base of the wall at the northeast corner of the building.

4.1 Wall Cladding Systems

We recommend the Strata undertake localized repairs, coupled with a rigorous maintenance and monitoring plan to continue to achieve adequate performance. Maintenance plans must include detailed review of water protection elements such as sealant, window seals and balcony membrane on an annual basis and immediate correction of deficiencies. Monitoring must be done on an annual basis to track the performance of the envelope and identify any local problems before they can cause significant damage.

4.1.1 Stucco

Areas of staining on the stucco cladding were noted around the balconies at the cap flashing, saddle points, and below window weep holes. These are an indication of local moisture loading. Mold staining was noted on the outside face of sheathing at localized areas at the north east corner of the building at the base of wall as well as at the elevator shaft projection.

- We recommend installing self-adhered membrane at the northeast corner location where building paper does not appear to be properly draining interstitial moisture that is entering the cavity.

- Further staining of the sheathing at the elevator shaft roof projection will be prevented with the installation of membrane under the parapet cap flashing with proper seams constructed at the flashing (see Section 4.4.3). Since the elevator shaft sheathing is not part of an interior wall replacement of the sheathing is not required. It is important to ensure that

moisture does not propagate down the shaft walls and into the interior of the building. As part of the on-going maintenance of the building we recommend including a review of the elevator shaft wall where it penetrates to the interior of the building. Signs of water ingress could include staining or bulging of the drywall.

In addition it is necessary to recognize that the existing construction incorporates elements that must be considered at risk for premature failure and associated future costs for maintenance and repair. In our opinion, the face-sealed stucco walls that are not protected by overhangs (roofs overhangs or balconies) must be considered as high-risk elements and the review of the walls should be included as part of the on-going monitoring maintenance program at the building. There is great uncertainty in the predicted performance of exposed stucco walls due to varying exposure conditions of different wall areas and the poor track record of face-sealed stucco walls.

4.1.2 Masonry

From our visual observations the cavity walls appear to be in fair condition. Areas of the exterior brick face experiencing excess efflorescence staining are drying to the outside. The moisture causing the efflorescence is probably a combination of the poorly jointed downspouts that leak onto the masonry wall and the back-sloped flashing at the top course of the masonry. The following recommendations can be considered part of the on-going maintenance of the building:

- There did not appear to be any deterioration of the envelope or structural damage associated with the water ingress evidenced by the efflorescence staining. There may be long-term implications on the mortar joints from continuous wetting and drying of the cavity wall. We recommend ongoing monitoring of the condition of the mortar joints at the cavity walls. The Strata may at some point like to install a wider metal flashing over top of the masonry wall to ensure the entire top course is protected and that water is shed away from the face of the masonry wall.

- We recommend smoothing out the sharp standing edge seams in the ground floor flashing at the base of the masonry wall areas.

The mortar joint cracks in the masonry at the south and east elevations are probably due to initial building settlement. This assumption is consistent with the fourth floor hallway crack and the fact that these cracks appeared within

the first few months of constructions and reportedly have not increased in size.

- The Strata must reseal and repoint the mortar joints at the cracked locations; and as part of the on-going maintenance of the building, monitor the cracks to ensure the openings do not increase in size. Maintenance of the cavity walls should include ensuring the masonry weep holes are clear of debris.

4.2 Windows, Doors and Other Wall Penetrations

4.2.1 Windows

The windows installed at 929 West 16th are thermally-broken aluminum framed units that have an exterior nailing flange for attachment to the rough framing opening. This type of window has proven to be prone to failures of the sealant at the mitred joints in the corners of the frames.

In new construction or during major renovation of other Strata buildings MH has found it necessary to assume that these types of windows will eventually leak. Our standard practice is to incorporate a sub-sill flashing to protect the wall and drain the incidental water out of the wall system. However, additional resealing of joints and replacement of glazing tape may be additional waterproofing measures required to ensure that the windows do not leak. Insulated Glazed Units (IGU's) can be expected to begin to fail over time at the edge seal causing condensation between the panes. IGU replacement should be accounted for in the maintenance plan.

Occupants reported excess condensation on interior surfaces of the windows and frame. Condensation on the window frame occurs when warm interior air contacts a colder surface, which is at a temperature at or below the dew point temperature. Typically, windows are not as thermally efficient as the adjacent exterior walls, and condensation is more likely to occur on or around them. The limited insulating characteristics of the windows themselves may permit temperatures cold enough to allow condensation on the interior. Alternatively, the cold temperatures may result from air leakage around the windows if they have not been adequately sealed at their perimeters. Condensation is typically greater during the winter months when the temperature of the window frames and glazing will be reduced due to the cold outdoor temperature.

- We recommend the Strata maintain an on-going contract with a glazing contractor to ensure monitoring of the condition of the window seals and replacement of units can take place before condensation or water ingress causes any significant damage.

4.2.2 Vents

Moisture probes revealed normal readings in the sheathing below the vents tested. Dryer vents require routine cleaning to ensure that they do not become blocked with lint. Should a dryer vent become blocked, the warm, humid air that is produced by the dryer will not be properly discharged to the building exterior. When this occurs, there is a possibility that the air may penetrate discontinuities in the ducts and moist air will be forced into the building interior or into the exterior wall assemblies. Condensation is likely to occur, which may result in deterioration of the wall components.

4.3 Roof Assemblies

The Project uses a combination of flat and sloped roofing systems.

The basic condition of the built-up roofing (BUR) membrane appeared good and an additional service life before replacement of 10 to 15 years can be expected. We noted however areas that did need more immediate attention and which form part of the regular maintenance of the building including:

- Damaged flat roof membrane from a lack of protective ballast along the perimeter of the building roof. Gravel cover should be maintained to protect the membrane and repairs made to the damaged areas.
- Some lifted and damaged shingles at the sloped roofs particularly at ridge locations and at the entry canopy roof should be replaced.
- Roof drainage is directed with an eaves and downspout system, which has poorly sealed joint. We recommend improving the joint seals and replacing elbow joints where required to ensure drainage is directed away from the building face. As part of the maintenance of the building eaves should be cleaned regularly to prevent rainwater overflow from draining onto the face of the building.

4.4 Balconies and Decks

4.4.1 Balcony / Deck Waterproofing

The liquid applied urethane membrane used on the balconies/decks can typically have an expected lifetime of five to seven years when properly installed and adequately protected with a separate traffic surface. It is a less durable membrane than many other types of waterproofing commonly used on balcony decks. Overall, the existing membranes are in fair condition with some locations experiencing traffic coat debonding along the edge flashing. The Strata should be prepared to replace the membrane over the next 5 to 10 years when this condition becomes systematic.

4.4.2 Drainage

The balconies and decks are sloped to drain. Settlement has caused some balconies to pond water along the perimeter of the balcony as noted by areas of staining.

- We recommend ongoing monitoring of the condition of the membrane by Strata so that any potential membrane deterioration is addressed immediately. This will ensure balcony/deck structures do not undergo deterioration from water ingress.

4.4.3 Cap Flashing and Railings

A metal cap flashing is not intended to provide complete waterproofing. Its primary functional is to protect a membrane flashing that should be applied below. We noted areas at the balcony column where no membrane flashing had been installed but there was no apparent damage associated with the omission of membrane. The lack of membrane under the parapet cap flashing combined with poorly seamed flashing joints at the elevator shaft projection has caused some water ingress and staining of the sheathing.

- We recommend removing the metal parapet flashing, installing flashing membrane and reinstalling metal flashing with proper seams at corner and joint locations.

The balcony railings provide greater than the maximum allowable clearance between the rail and the balcony column as required by Code. We did not review the railing for structural conformance to Code, as this was outside of our scope of work. Structural upgrading of the balcony railing would be

required during any remedial work that the building may undergo in the future.

- We recommend structural and clearance review of the railing by a licensed engineer so that the Strata becomes aware of any obligations they will have in the future should remediation work at the balconies be required.

4.5 Glulam Beams

4.5.1 Condition Monitoring

The placement of the glulam beams serves to provide load transfer between the steel beam and posts system and the building over top. From the exploratory openings it is evident the deterioration they once underwent has not worsened. However, if the beams undergo further deterioration the building may experience sagging at the northeast corner. The cladding system that was applied during the most recent remediation work was furred out stucco cladding with no drainage outlet.

- We recommend ongoing monitoring of the glulam beams to ensure water ingress does not occur and that the current condition of the glulam beams does not deteriorate. This can be achieved by installing vented openings which will allow the beams to dry as well as these openings act as removable viewing holes to be able to examine the condition of the glulam beams on a regular basis.

It is our opinion that the limited remedial action identified in our recommended scope of repair work will address known problems and provide an acceptable mitigation of risk of future problems.

5. SPECIFIC RECOMMENDATIONS

5.1 Summary of Costs

The remedial work recommendations are summarized in the table below. The costs provided are expressed in 2002 dollars and assume proper, regular maintenance to the building envelope, including the items listed in Section 4 of this report.

The estimate of tasks and costs are based on our current knowledge of the condition of the building envelope.

These "order of magnitude" costs are for initial budgeting purposes. We recommend discussing these repairs with one or two contractors to get more accurate costs.

Description	Budget Estimate
Section 4.1.1: Remove stucco two feet up from the base of the wall at the north east corner, install self-adhered membrane at the base of the wall, reinstall properly sloped flashing, before stucco cladding reconstruction (approx. 40 sq.ft.).	$1,000
Section 4.4.3: Investigate the structural capacity of the balcony railings as well as the maximum allowable clearance with a professional structural engineer. The estimate does not include costs associated with any modifications which may be required to the balcony railings to meet Code requirements.	$2,000
Section 4.4.3: Remove and reinstall parapet cap at elevator shaft roof with membrane and properly sealed joints	$3,000
Section 4.5.1: Install five (5) vented openings across previously deteriorated sections of the glulam beams to provide visual access to the beams as well as providing vent holes for drying should any moisture enter behind the cladding	$700

Notes:

1. These order of magnitude costs are for initial budgeting purposes only.
2. The above budget costs exclude costs for unseen conditions, PST and permit fees.

MORRISON HERSHFIELD LIMITED

Maria A. Faraone, MArch
Intern Architect

David G. Kayll, P.Eng.
Sr. Project Engineer

APPENDIX A: Exploratory Openings

Opening No. 1

Location	North Facade/Second Floor
Detail Addressed	Base of wall out side corner
Reason location selected	Outside Corner; Exterior staining evident
Damage Summary	☐ No damage ☒ Evidence of moisture but materials intact (staining) ☐ Deteriorated sheathing but framing intact ☐ Framing deteriorated

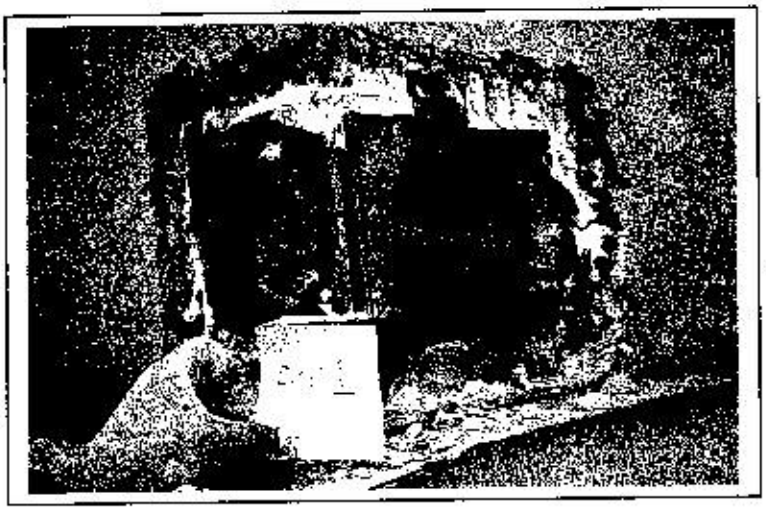

Photo A

Showing Exploratory Opening #1

Observations

Design and Construction

- Plywood sheathing with Tyvek and lath in place and with 1" thick stucco cladding overtop;
- Flashing below this wall area is back-sloped towards the wall and does not have a drip edge;
- Tuck tape was used at the wall / flashing junction a standard detail at MH would be to use self-adhered membrane at this junction.

Condition

- The metal lath and paper are in fair condition and do not show signs of staining; the plywood sheathing has undergone water ingress as is evidenced by the black staining and minor mold growth;
- The moisture content readings of the sheathing are 22%,
- The poorly sloped flashing in this area does not promote proper water drainage.

Opening No. 2

Location	North Facade, Second Floor
Detail Addressed	At wall / lower roof junction above masonry flashing
Reason location selected	Corner location
Damage Summary	☒ No damage ☐ Evidence of moisture but materials intact (staining) ☐ Deteriorated sheathing but framing intact ☐ Framing deteriorated

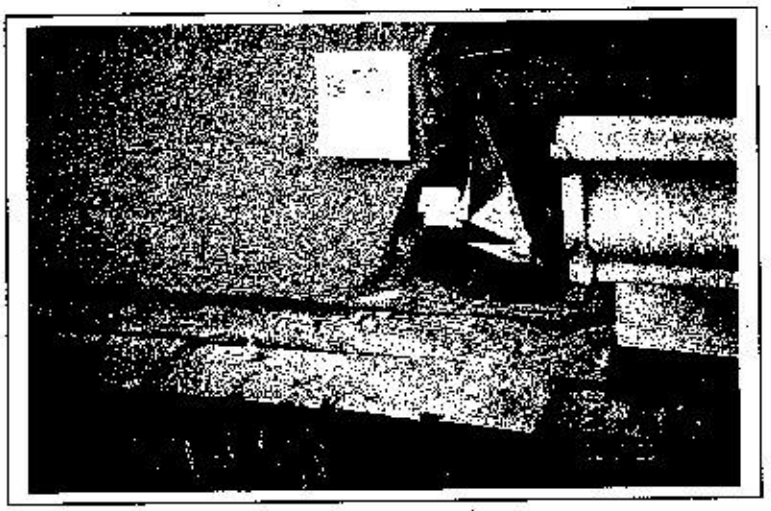

Photo B

Showing Exploratory Opening #2

Observations

Design and Construction

- Plywood sheathing with Tyvek and metal lath in place with 1" stucco cladding overtop
- Flashing below this wall area is back-sloped towards the wall;
- Tuck tape was used at the wall / flashing junction.

Condition

- The metal lath and tyvek are in fair condition and do not show signs of staining; the plywood sheathing does not appear to have undergone water ingress;
- The moisture content readings of the sheathing are 20%,
- The efflorescence staining at the top of the masonry wall in this corner location shows that the water draining from the flashing is soaking into the brick and then evaporating at a later date. This flashing should extend over the top of the brick.

Opening No. 3

Location	East Facade, Second floor
Detail Addressed	Base of wall above ghulam beams
Reason location selected	Surface staining visible at base of wall
Damage Summary	☒ No damage ☐ Evidence of moisture but materials intact (staining) ☐ Deteriorated sheathing but framing intact ☐ Framing deteriorated

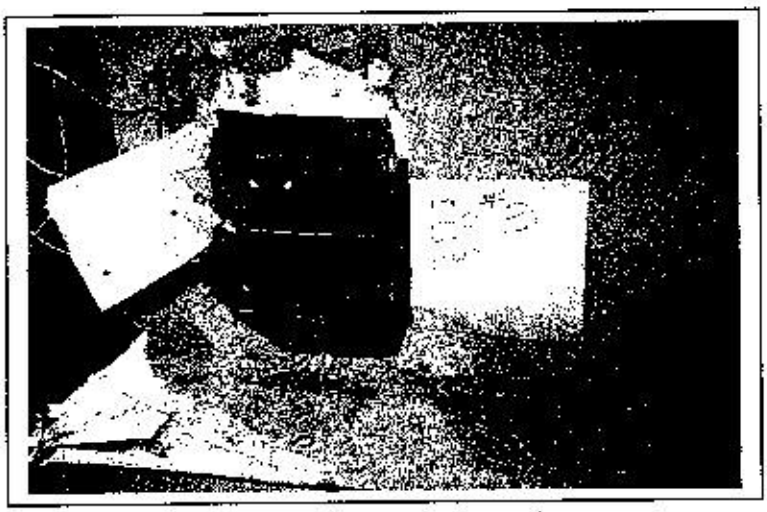

Photo C

Showing Exploratory Opening #3

Observations

Design and Construction

- Plywood sheathing with Tyvek and metal lath in place with 3/4" stucco cladding overtop
- Flashing below this wall area is back-sloped towards the wall. The lap at the corner has separated and is lifting.
- Tuck tape was used instead at the wall / flashing junction.

Condition

- The metal lath and paper are in fair condition and do not show signs of staining; the plywood sheathing does not appear to have undergone water ingress;
- The moisture content readings of the sheathing are 20%,

Opening No. 4

Location	East Façade, Glulam Beam at second level over parkade ramp
Detail Addressed	Glulam beam cladding repair work and condition of beam
Reason location selected	Review the previous repair work completed at glulam beams
Damage Summary	☐ No damage ☐ Evidence of moisture but materials intact (staining) ☐ Deteriorated sheathing but framing intact ☒ Framing deteriorated

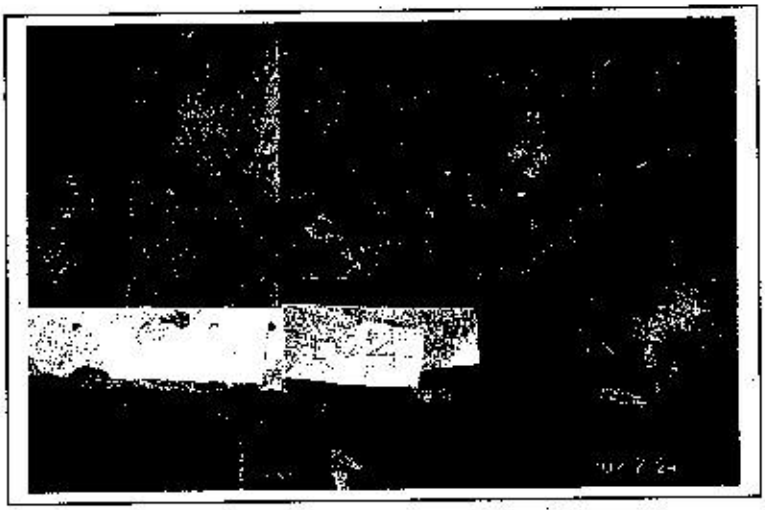

Photo D

Showing: Exploratory Opening #4

Observations

Design and Construction

- Glulam beams are acting as an intermediate layer between the building and the steel support structure below it;
- The beam is clad with building paper with furring strips and 3/4" stucco coating;
- The previous repair work included cladding the glulam with stucco and using furring strips to allow for drainage, although a path for drainage has not been incorporated into the base of the beam;

Condition

- The beams have undergone rot which clearly indicates past wetting and shows signs of deterioration;
- The furring strips which were installed during the previous repair work have undergone mold staining and deterioration which indicates that the repairs did not properly address the water ingress.
- Moisture content readings of materials is 12%.

Opening No. 5

Location	East Facade, Glulam beam second floor
Detail Addressed	Glulam beam previous recladding repair work
Reason location selected	Review glulam beams
Damage Summary	☐ No damage ☒ Evidence of moisture but materials intact (staining) ☐ Deteriorated sheathing but framing intact ☐ Framing deteriorated

Photo E

Showing Exploratory Opening #5

Observations

Design and Construction

- Glulam beams are acting as an intermediate layer between the building and the steel support structure below it;
- The beam is clad with building paper with furring strips, expanded metal lath installed vertically, and 3/4" stucco coating;

Condition

- The beams have undergone some water ingress indicated by the water staining;
- The furring strips which were installed during the previous repair work are not pressure treated and have undergone mold staining and deterioration which indicates that the repairs did not properly address the water ingress;
- Moisture content readings of materials is 12%.

Opening No. 6

Location	South Facade, fourth floor
Detail Addressed	Trim board condition location at the stucco / masonry junction
Reason location selected	Typical stucco-to-brick interface
Damage Summary	☒ No damage ☐ Evidence of moisture but materials intact (staining) ☐ Deteriorated sheathing but framing intact ☐ Framing deteriorated

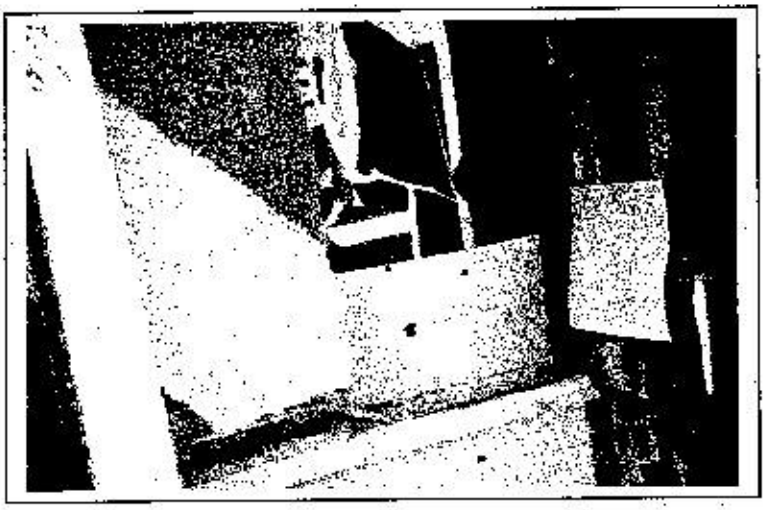

Photo F

Showing Exploratory Opening #6

Observations

Design and Construction

- Wood trim board is in place at the stucco / masonry cladding junction in locations at the fourth floor
- Plywood sheathing with Tyvek are in place, Tuck tape is used to terminate the Tyvek at the vertical joint, the flashing / Tyvek junction is not sealed along the horizontal;
- The flashing is not properly sloped away from the building and does not terminate in an end dam at the masonry interface.

Condition

- The wood trim board is in fair condition and does not show signs of staining or wetting, the nails used to fasten the board are also in fair condition;
- Moisture content readings of the board and sheathing are 20%.

Opening No. 7

Location	South Facade, Third floor balcony column
Detail Addressed	Condition of cladding and sheathing at base of column
Reason location selected	At cracked area of stucco
Damage Summary	☐ No damage ☒ Evidence of moisture but materials intact (staining) ☐ Deteriorated sheathing but framing intact ☐ Framing deteriorated

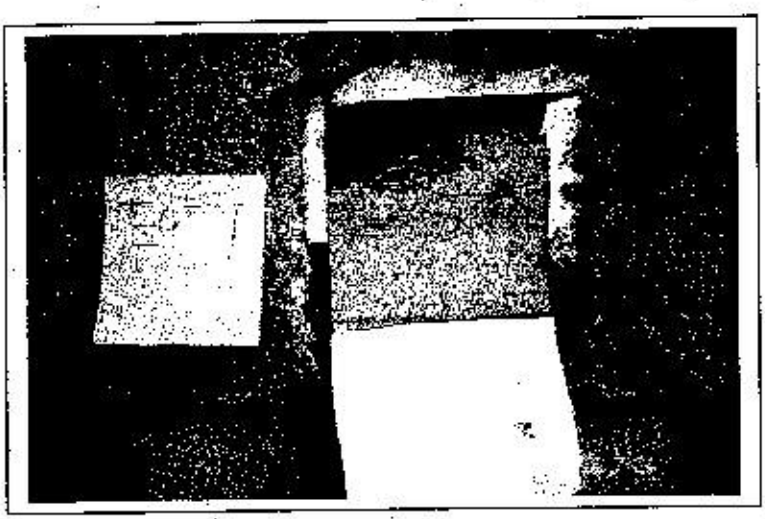

Photo G

Showing Exploratory Opening #7

Observations

Design and Construction

- Painted plywood sheathing with Tyvek and metal lath in place with 3/4" stucco cladding overtop;
- Tuck tape was used at the junction between the balcony membrane upturn and the Tyvek.

Condition

- The metal lath and paper are in fair condition and do not show signs of staining; the plywood sheathing does not appear to have undergone water ingress;
- The moisture content readings of the sheathing are 10%;
- Despite the cracking of the stucco, the balcony column does not appear to have undergone any water ingress damage.

Opening No. 8

Location	South Facade, below first floor window
Detail Addressed	Condition of wall below window
Reason location selected	Typical location below a window in stucco wall
Damage Summary	☒ No damage ☐ Evidence of moisture but materials intact (staining) ☐ Deteriorated sheathing but framing intact ☐ Framing deteriorated

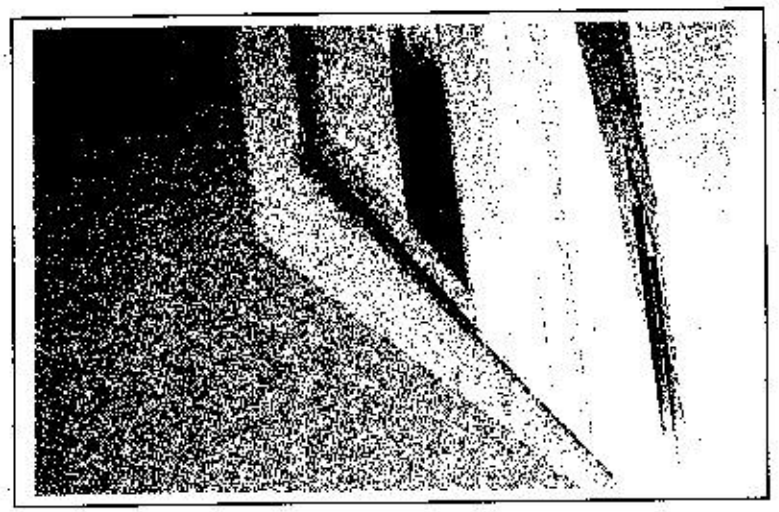

Photo H

Showing the location where Exploratory Opening #8 was performed.

Observations

Design and Construction

- Plywood sheathing with Tyvek and lath in place and with 1" thick stucco cladding overtop;
- Flashing below this wall area is back-sloped towards the wall;
- Tuck tape was used at the wall / flashing junction.

Condition

- The metal lath and paper are in fair condition and do not show signs of staining; the plywood sheathing does not appear to have undergone any water ingress;
- The moisture content readings of the sheathing are 18%.