



February 5, 2003

MH ref. 5032004.01

Mr. A. J. Finlayson
The Owners, Strata Corp. VR 2472, Mayfair House
c/o Suite 117, 2200 Highbury Street
Vancouver, B.C. V6R 4N8

Fax: 604-224-4131

Dear Mr. Finlayson

**Re: Building Envelope Supplementary Assessment
Mayfair House, Strata Corp. VR 2472, Vancouver, B.C**

The owners of Strata Corp. VR 2472 engaged Morrison Hershfield Limited (MH), to provide a supplementary Building Envelope Investigation at Mayfair House in Vancouver.

This report stems from our Second Opinion report, dated October 31, 2002 which highlighted the fact that insufficient location specific data was provided to the Strata to support the need for complete restoration of their building envelope. Although numerous exploratory openings had been made, there was no supporting documentation identifying the moisture and material conditions at each test opening. The purpose of this report is to identify the condition at the test openings and from that information, provide a repair recommendation to the Strata.

Prior to our involvement, repair recommendations were provided by Aqua Thermal Consultants (ATC) and Aqua-Coast Engineering Limited (ACE). McArthur Vantell Limited (MVL) has also provided reports on the building envelope condition of Mayfair House. These reports were made available to us and are listed in the text of this report.

1.0 Background

Mayfair House is located at 3760 West 6th Street in Vancouver. Mayfair House is a 3-storey wood framed complex with 76 units and a large amenities area. The complex is U shaped with the "open end" facing east. The above grade structure is clad primarily with stucco and has aluminum framed Almetco windows, date stamped 1989 (non-thermally broken) with awning and casement type operators.

The complex was constructed in 1989 and symptoms of water penetration into walls were first identified in the envelope assessment done in 1997 by MVL. The Strata has followed a practice of targeted repair and monitoring since that period. Repairs have included re-cladding the east section of the 6th Ave. north elevation, 6th Ave. south

elevation and 7th Ave. north elevation and recently included rehabilitation to all balcony-to-wall saddle transitions and balcony cap flashing. During the balcony repair work further decay in the wall elements was uncovered. The scope of the repair work expanded to the point that the rehabilitation needed to conform with the requirements of the HPO. The Strata undertook a program of test coring to assess the current condition of the wall elements to determine the extent of rehabilitation required. ATC provided a recommendation that complete recladding to all exposed stucco walls be undertaken.

MH provided a second opinion report in which it was recommended that an evaluation and documentation of the test openings be undertaken. With the combination of the prior reports, our own assessments and the data collected during this supplementary assessment, MH is now in a position to provide a repair strategy.

2.0 Scope of Work

The purpose of our assignment was to confirm the condition of the walls not previously rainscreened using the existing exploratory openings and undertaking supplemental openings as required. From this information, the full extent of recommended repairs can be provided.

The scope of work as stated in our letter of assignment, dated November 15, 2002 was:

Task 1: Review and document the conditions of all exploratory openings previously undertaken. Locations will be charted on elevation drawings and supported with photographs.

Task 2: Conduct additional openings where appropriate. The locations will be chosen in areas where other visual evidence suggests that water may have penetrated the cladding or at locations where the detailing suggests a potential problem. We estimate that an additional 15-20 will be required at this time.

We will require the assistance of a contractor to make and close the test openings during our review. They will be patched temporarily to avoid additional damage occurring.

Task 3: OPTIONAL TASK: If re-using the window in the reconstructed walls is being considered by the Owners then we would recommend that the Owners undertake testing of the windows at this time. Third party warranty providers require testing results to support the re-use of the windows. If it is not done at this stage then it will need to be undertaken during the design or construction phase of the project. Having the results at the beginning of the project allows the owners to make an informed decision and avoids unexpected additional costs during construction.

If this task is undertaken at this time then we would undertake water testing of three (3) different window assemblies to confirm the watertightness of the windows. We will utilize a door fan to depressurize and a rainrack to direct water at the windows. We will need access to suites to complete this testing. This is offered as a separate line item in our fee proposal.

Task 4: Based on our findings develop conceptual remedial work and renewal recommendations with associated budget cost estimates for each element of the exterior building envelope which is likely to require action over the next few years.

Task 5: Assess the priority of the various remedial work recommendations and develop an implementation plan for the next few years. This will allow you to plan and budget for these activities and hopefully eliminate the surprise of special assessments, as well as the need for less cost-effective short-term solutions. The plan will be discussed with the Strata Council and can be adapted to meet anticipated cash flow realities.

Task 6: Prepare two copies of the final, professionally sealed report. Based on our findings we will propose a conceptual remedial work program, including quantity and cost estimates and an implementation plan and schedule. We will meet with the Strata Council on one occasion after the report is submitted to discuss our conclusions and recommendations.

3.0 Documentation Reviewed

MH was provide with a series of Reports authored by McArthur Vantell Limited (MVL), Aqua-thermal Consultants Ltd (ATL), Aqua-Coast Engineering Limited (ACE) and the Strata's Building Committee (VR2472). The titles and dates were as follows:

	Author	Title	Date
1	MVL	Building Envelope Investigation of Mayfair House	Apr. 23, 1997
2	MVL	Letter, Re: Progress Report	Feb. 23, 1998
3	MVL	Elevation drawings showing results of moisture probes	Feb. 1998
4	MVL	Letter, Re: Balcony at North East Corner	May 25, 1998
5	VR2472	Examination of Selected Exterior Wall Areas of Mayfair House	June 3, 1998
6	MVL	Letter Re: Spring Moisture Survey	Apr. 27, 1999
7	MVL	Letter Re: Report on Opening in Walls	Sept. 7, 1999
8	VR2472	A report on Moisture Sampling Programs at Mayfair House	Aug. 3, 2000

9	ACE	Letter recommending complete restoration with accompanying Fee Proposal for Restoration of Mayfair House	Aug.16, 2002
10	ATC	Summary of Destructive Testing @ Mayfair House	Sept. 3, 2002
11	VR2472	Elevations showing locations of test openings made by contractor	Oct. 2002

4.0 Assessment Methods

Prior to our site work, MH reviewed all available documentation provided by the Strata. Jacquelyn White, P.Eng. and David Fookes, P.Eng. visited the site on Friday December 13, 2002 and Monday December 16, 2002 to perform the field work. Field work consisted of moisture probing through the temporary Blueskin patch at the majority of existing core locations. In addition, we randomly opened approximately one third of all locations including all locations with an elevated moisture content reading to inspect the condition of the underlying sheathing. Additional core holes were made at other locations prone to water ingress (ie saddles). Hey Construction assisted with the test openings and patching of new and existing core openings. Photographs were taken for illustrative purposes.

5.0 Observations

5.1 Visual Observations

The following observations were made during the course of our exploratory work and are listed in sub sections according to elevation and street. Complete core logs are presented in Appendix 1.

Highbury Street, West Elevation

- 33 moisture probes were taken. 10 openings were reviewed visibly. Of these, the sheathing at 20% was found to be damaged as a result of water infiltration.
- On this elevation, work in progress includes:
 - balcony cap and saddle repairs at all balconies (refer to photos 1 & 2);
 - stucco repairs along the rim joist at units 302/303 and units 216/217 (refer to photos 1 & 2).

Highbury Street, East Elevation

- 47 moisture probes were taken. 28 openings were reviewed visibly. Of these, the sheathing at 29% was found to be damaged as a result of water infiltration. (Refer to photo 13).
- On this elevation, work in progress includes:
 - balcony cap and saddle repairs at all balconies;
 - stucco repairs at units 101, 201 and 301 (refer to photo 3).

6th Avenue, South Elevation

- 46 moisture probes were taken. 43 openings were reviewed visibly. Of these, the sheathing at 33% was found to be damaged as a result of water infiltration.
- On this elevation, work in progress includes:
 - balcony cap and saddle repairs at all balconies;
 - stucco repairs at parapet walls of units 208 and 212; walls of units 210 and 310. These areas are in various states of repair (refer to photo 4).

6th Avenue, North Elevation

- 67 moisture probes were taken. 31 openings were reviewed visibly. Of these, the sheathing at 39% was found to be damaged as a result of water infiltration. (Refer to photos 10 & 12).
- On this elevation, work in progress includes:
 - balcony cap repairs at all balconies and various saddle repairs (refer to photo 5).

7th Avenue, South Elevation

- 73 moisture probes were taken. 5 openings were reviewed visibly. Of these, the sheathing at 60% was found to be damaged as a result of water infiltration. (Refer to photo 11).
- On this elevation, work in progress includes:
 - balcony cap repairs at all balconies;
 - stucco repairs at the parapet walls and support columns of unit 219's balcony; stucco repairs at walls at units 119, 219, 220 and 222. These areas are in various states of repair (refer to photo 6 & 7).

7th Avenue, North Elevation

- 40 moisture probes were taken. 6 openings were reviewed visibly. Of these, the sheathing at 33% was found to be damaged as a result of water infiltration.
- On this elevation, work in progress includes:
 - balcony cap repairs at all balconies;
 - stucco repairs at walls at units 123 and 323. These areas are in various states of repair (refer to photo 8).

7th Avenue, East Elevation

- 15 moisture probes were taken. 3 openings were reviewed visibly. Of these, the sheathing at 67% was found to be damaged as a result of water infiltration.
- On this elevation, work in progress includes:
 - stucco repairs at walls at units 125 and 228 (refer to photo 9).

5.2 Observation Summary

The above observations are summarized in the following table:

Location	# Probes	# Probes with 0<MC<20	# Probes with 20<MC<35	# Probes with MC>35	# Openings	Sheathing Condition	
						good condition	Signs of water ingress
Highbury Street, West	33	27 (82%)	6 (18%)	0 (0%)	10	8 (80%)	2 (20%)
Highbury Street, East	47	39 (82%)	4 (9%)	4 (9%)	28	20 (71%)	8 (29%)
6 th Ave., South	46	26 (57%)	16 (35%)	4 (8%)	43	29 (68%)	14 (33%)
6 th Ave., North (includes Highbury North)	67	62 (93%)	5 (7%)	0 (0%)	31	19 (61%)	12 (39%)
7 th Ave., South (includes Highbury South)	73	70 (96%)	3 (4%)	0 (0%)	5	2 (40%)	3 (60%)
7 th Ave., North	40	38 (94%)	1 (3%)	1 (3%)	6	4 (67%)	2 (33%)
7 th Ave., East	15	10 (67%)	3 (20%)	2 (13%)	3	1 (33%)	2 (67%)
TOTAL	321	272 (85%)	38 (12%)	11 (3%)	126	83 (66%)	43 (34%)

As can be seen from the above summary table, acceptable moisture readings (0-20% MC) do not necessarily indicate a lack of moisture ingress. Although 85% of the overall readings fall within the 0-20% Moisture Content range, 34% of the openings reviewed



visibly showed signs of moisture ingress in the form of water staining, rot, mold and deterioration.

6.0 Remedial Options

Remediation or repair options can be classified and discussed in terms of three main components:

- a) the **Repair Method**,
- b) the **Scope of Work** (or extent of the work),
- c) the **Timing** of when work occurs.

In evaluating the merit of various options one should consider a number of factors, including:

1. Technical Issues
 - Extent and consequence of damage identified
 - Level of reduction of the mechanisms leading to the damage (water entry, etc.)
 - The risk of future damage and associated repair costs
 - The technical “sensitivity” and “practicality” of alternatives
 - The extent and duration of disruption due to construction
 - The impact of Code and Municipal development requirements
2. Cost Issues
 - Capital cost (the initial cost)
 - Life-cycle cost (the cost over the life of the repair)
3. Legal and Legislative
 - HPO requirements
 - Availability of loans (HPO)
 - Availability and requirements of third-party warranty coverage
 - Potential for recovery of costs (legal)
4. Marketability/Real Estate
 - Impact on marketability and property values

The following sections discuss the remedial needs and options appropriate for Mayfair Place. After this discussion, four options have been developed for review and finally, we present an opinion as to the option that we recommend to the Strata. Our opinion and recommendations are based primarily on Technical and Cost criteria.

6.1 Repair Method

Re-cladding Walls with Drained Cavity Wall Assembly

The stucco walls are clad in what is commonly referred to as face-sealed stucco, in which no specific provision is made for the drainage or drying of water that gets past the face of the cladding. In a face-seal system, durability of the wall is dependent on the ability of the exterior surface of the cladding and associated sealant to shed water. Water that penetrates past the face, via leakage paths through the stucco itself (e.g., cracks, ineffective or deteriorated sealants), at interface with adjacent elements or by absorption through the stucco, can provide the moisture needed for decay of the sheathing and framing materials.

Recent history has shown that the use of these systems in moderate or high exposure environments incurs a high risk of deterioration due to water entry. A number of contributing factors have been identified as leading to this^{1,2}. Major factors in governing the prevalence of problems are degree of exposure and the number of details prone to water penetration. The performance history of face-sealed stucco systems in the Lower Mainland is such that in 1996, The City of Vancouver amended its Building Bylaws to enforce systems that incorporate a drained cavity behind the stucco. These drained cavity "rainscreen" systems are now considered good practice except in the most sheltered locations³. Most municipalities in the Lower Mainland and warranty providers will not accept the use of face-sealed systems where major repairs are undertaken.

Based on our field observations of the exploratory openings, it is clear that the majority of the exterior wall details at Mayfair Place do not provide adequate performance to deal with their weather exposure. As a result, water ingress into the exterior wall assembly is occurring and causing pre-mature deterioration. In these areas, the existing cladding must be removed to allow repairs to be undertaken. We estimate that approximately 85% of

¹ *Survey of Building Envelope Failures in the Coastal Climate of British Columbia*, Morrison Hershfield Limited for CMHC, 1996

² Preliminary report of Part II of the Barrett *Commission of Enquiry into the Quality of Condominium Construction in British Columbia*, March, 2000

³ *Best Practice Guide ; Wood Frame Envelopes in The Coastal Climate of British Columbia*, Morrison Hershfield Limited in joint venture with RDH Building Engineering published by CMHC, 1999

the wall facades require repair while the remaining 15% are not showing signs of advanced deterioration. Where more than 60% of the wall area at a facade is being rehabilitated, complete re-cladding with a drained cavity wall assembly is required by HPO legislation.

Improvement of all wall penetration and transition details (e.g., windows, balconies and roof interfaces) to ensure an adequate level of moisture management would be included in areas not undergoing complete rehabilitation. Windows will need to be removed and reinstalled or replaced.

Window Replacement

When exposed to wind-driven rain, poorly constructed or poorly installed windows can allow leakage to the inside. This can create significant damage and nuisance depending on how often it happens. Of more concern, windows have proven to be a common source of water penetration into wall systems. Typical leakage points include:

- poorly sealed joints at the window perimeter (i.e., sealant not installed at the cladding-to-window interface)
- joints where sectional windows are coupled together
- joints within window frames

In new construction or during major renovation, MH has found it necessary to assume that all windows will eventually leak (either through the frames or at the perimeters). Our standard practice is to incorporate a sub-sill flashing to protect the wall and drain the incidental water out of the wall system. Such waterproofing measures protect the wall but do not improve the performance of the windows themselves.

As recommended in our proposal, testing of the windows is required by Third party Warranty Providers if the Owners are considering re-using the existing windows in the rehabilitated walls. Reasons to consider replacement rather than reuse of windows include:

- The incremental cost of replacement, instead of a refurbish and reuse strategy is moderate. In fact, it is less than the purchase cost of new windows (installation costs cancel out; and repair costs for the existing windows offset a portion of the window purchase cost).
- The use of better windows reduces the risk of water damage to sills and material below the windows and nuisance of rain penetration. It also increases the condensation resistance of the windows.
- The disruption to and handling of windows during the removal and reinstallation process may increase leakage in some windows.

- Replacing the Insulated Glazing Units in a window costs about the same as buying new windows. If one considers that the IGUs at the project have already served a significant part of their expected life, the life cycle cost of replacement is reduced relative to a refurbish and reuse strategy.

6.2 Scope of Work

After determining the repair methods, the Strata could choose to carry out the same package of repair procedures (methods) at all locations in the complex, or selectively apply certain procedures to certain areas. Although the performance of each vulnerable detail may vary slightly depending on their individual workmanship and microclimate, the design and construction of these details are generally the same through out the complex.

6.3 Timing

We evaluate timing options by considering the costs and benefits of the work, and consequences of delay. Some work can be classified as **immediate** (as soon as possible), either because of legislative requirements, safety issues, or the risk of loss of function or acceleration in the rate of degradation.

Some work can be considered **medium-term** (within 2-5 years). This work is typically not yet necessary or can be deferred to a more convenient time without major consequences.

Some work needs to be planned for over the **long-term**.

In many cases the timing is based on risk assessment (probability of an occurrence) or expected life of a building assembly that wears at a slow rate.

We note that it is sometimes cost effective to schedule tasks earlier than necessary on technical grounds when there are efficiencies gained by including the task with earlier work or because this is preferable due to legal or warranty issues.

We also note that there can sometimes be a cost saving gained by deferring rehabilitation of assemblies with known problems to extend the functional life of the existing components. However, this may incur a risk of additional damage occurring to the assembly, which could lead to increased repair costs in the future.

6.4 Approaches at the Mayfair

Our assessment found evidence of moisture ingress problems causing deterioration in walls making up about 85% of the wall area (the east, north and south elevations of 7th Ave., the partial east and west elevations of Highbury and the north and south elevations of 6th Ave). This is concluded on the basis that signs of moisture ingress were present at greater than 20% of the openings reviewed. Therefore, the option of doing nothing is not recommended.

As a minimum, repairs of open areas and improved window detailing would be required on all elevations. Given the HPO requirements as mentioned in section 6.1, the overall scope of work associated with windows and repairs in progress alone would likely exceed 60% and the installation of a drained cavity wall system would be required.

There are some walls where a less than complete rehabilitation could be considered. Some return walls at entrances are generally in good condition with moisture ingress occurring at window and saddle transitions only. These areas include the west elevations of 6th Ave. and 7th Ave. and the east elevation of Highbury above the entrances. At these elevations, localized repairs can be undertaken to address the problematic areas only. However, recladding these walls has clear benefits in reducing risk and remaining questions about the need for future repairs.

Replacement of windows should be considered in conjunction with the rehabilitation program. In addition to the discussion in section 6.1, it may be difficult to find a third party warranty provider willing to warranty the existing non thermally broken windows.

Based on the discussions above, we present the following repair options:

Option 1A: Complete rehabilitation of the east, north and south elevations of 7th Ave., the partial east and west elevations of Highbury and the north and south elevations of 6th Ave, representing approximately 85% of the overall wall area. The remaining 15% will require localized repairs to address the problematic areas only (windows and saddles). This option includes new windows at all areas of cladding rehabilitation.

Option 1B: Same cladding repairs as Option 1A but reuse existing windows.

Option 2A: Complete rehabilitation of all areas not previously rainscreened. This option includes new windows throughout the complex.

Option 2B: Same cladding repairs as Option 2A but reuse existing windows.

Regardless of the option undertaken, the scope of work at areas designated for rehabilitation will include:

- Remove the existing stucco, building paper and exterior wall sheathing.
- Replace the deteriorated framing members as required.
- Install new plywood wall sheathing and sheathing membrane.
- Install new building paper and self-adhesive membrane as the moisture barrier, which ties into the window and door penetrations of the building. The windows and doors will need to be removed and reinstalled (or replaced).
- Install proper new metal flashing at the head and sill of the window and door penetrations.
- Provide sealant joints with proper profile at the perimeter of the windows and doors.
- Provide provisions for drainage at the sill of the windows and doors.
- Install vertical wood strapping to create a drainage cavity.
- Install new stucco cladding over the vertical strapping.

6.5 Recommendations

We recommend proceeding with Option 2A, complete rehabilitation with new windows. It is assumed that the 15% of wall area currently in good condition will eventually show signs of water ingress and associated deterioration as face seal stucco systems in this environment are considered high risk. The Strata can take advantage of the economy of scale of a larger project as the contractor will already be mobilized as well as avoid undergoing an additional rehabilitation project in the future. We feel that limited cost savings will be achieved by omitting the remaining 15%. This option includes for window replacement, the advantages of which were outlined in Section 6.1.

If for non-technical reasons the Strata wish to implement wall rehabilitation in a phased fashion, i.e., financial or legal considerations outside of the scope of this project, the following factors should be considered:

1. Additional costs for phasing the rehabilitation can be expected due to the repeat cost of contractor mobilization, scaffolding, permits and other fees, etc.
2. Additional costs can be anticipated for interim measures to limit the water penetration and associated damage to deferred sections.
3. Additional costs will be incurred related to increased wood damage in the deferred wall areas due to prolonged moisture exposure at problematic details.

4. Phasing will necessitate an extended construction period, with the associated disruptions to owners due to scaffolding, construction waste handling, noise, dust, etc.

Other implications dictating rehabilitation requirements should also be investigated further. Real estate, legal, Homeowner Protection Office funding, third party warranty and other issues should be incorporated into the final decision.

6.6 Summary of Costs

The estimated costs of the remediation are summarized in the following Table. They are expressed in 2003 dollars and based on our current knowledge of the condition of the complex.

These "order of magnitude" costs (or unit rates) are for initial budget purposes only. With any building envelope rehabilitation, there may remain some potentially significant unknown costs. For example, the extent of deterioration and thus the magnitude of structural repairs required can not be determined precisely until the cladding is removed.

Note that contingency allowances for repair of hidden structural damage, the Owner's general contingency allowance, and costs for engineering, warrant, GST etc are not included and can add in the order of 35% to the construction cost.

Estimated Rehabilitation Cost

DESCRIPTION	Quantity	Unit Price	Cost
OPTION 1 (A and B)			
1. Wall rehabilitation	40,800 sq.ft.	\$35/sq.ft	\$1,428,000
2. Window and saddle detailing			\$20,000
3. New Windows	300	\$500	\$150,000
Total Option 1A (1 + 2 +3)			\$1,598,000
Total Option 1B (1 +2)			\$1,448,000
OPTION 2 (A and B)			
1. Wall rehabilitation	48,000 sq.ft.	\$35/sq.ft	\$1,680,000
2. New Windows	335	\$500	\$167,500
Total Option 2A (1 + 2)			\$1,847,500
Total Option 2B (1)			\$1,680,000

Notes:

1. These "order of magnitude" rates are for initial budgeting purposes only and the estimates are rounded to the nearest \$1,000. GST is excluded.
2. These estimates were developed using assumptions of the scope of work for each item. They should not be used to raise Special Assessments without discussing the risks and limitations with Morrison Hershfield.
3. For work of this nature, more accurate cost figures can only be calculated once the design, specifications and detailed tender documents are completed.
4. The contingencies for rot replacement and unforeseen conditions are preliminary estimates only. The final cost of the rehabilitation will depend on the design, magnitude of the framing deterioration, site conditions, scope and timing of the repair.

7.0 Conclusions

Our supplementary investigation supports all of the provided assessment reports which indicate there was water penetration past the moisture barrier of the stucco-clad walls associated with windows, wall penetrations, balcony and wall/roof interface details that are well recognized to be risk factors.

We recommend complete rehabilitation consisting of the installation of a drained wall assembly and replacement of all windows on all elevations. In addition, we recommend proceeding with the complete rehabilitation in one phase, however, we recognize that the Strata may elect to defer or phase the project for financial reasons.

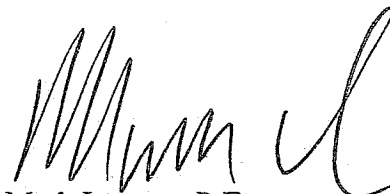
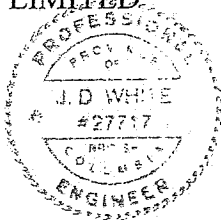
We have included for a meeting with the Strata to discuss this report at your convenience.

Sincerely,

MORRISON HERSHFIELD LIMITED



Jacquelyn D. White, P.Eng.
Project Engineer



Mark Lawton, P.Eng.
Principal



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APPENDIX A: Core Logs and Elevations

Elevation drawings used were provided by the Strata and are authored by McArthur Vantell Ltd. Our supplementary survey results have been inserted with no changes made to the original drawings provided.

Mayfair House Core Log

6th Avenue, North Elevation

Core #	Photo Ref:	M.C. (%)	Visual (Y or N)	Visual Observations		
				Clean & Dry	Sheathing soft, swollen	Sheathing wet, moldy, decayed
1	3	12	Y	X		
2	4	10	Y	X		
3	1	12	Y	X		
4	2	10	Y	X		
5	5	11	Y	X		
6	6	20	Y		X	
7	8	14	Y	X		
8	7	11	Y	X		
9	9	20	Y		X	
10	10	25	Y		X	
11	17	16	Y	X		
12	D	40	Y			X
13		13	N	X		
14	12	10	Y	X		
15	20	20	Y		X	
16	18	12	Y	X		
17	15	15	Y		X	
18	11	11	Y	X		
19	13	10	Y		X	
20	16	13	Y			X
21	22	11	Y			X
22	23	11	Y			X
23		13	N	X		
24	21	17	Y			X
25		15	N	X		
26		10	N			
27		9	N			
28		9	N			
29		8	N			
30		10	N			
31		8	N			
32		10	N			
33		10	N			
34		10	N			
35		6	N			
36		10	N			
37		11	N			
38		11	N			
39		13	N			
40		12	N			
41		8	N			
42		10	N			
43		14	N			
44		13	Y	X		
45		12	N			
46		12	Y	X		
47		10	N			
48		10	N			
49		11	N			



Mayfair House Core Log

50		11	N			
51		12	N			
52		9	N			
53		11	N			
54		8	N			
55		7	N			
56		14	Y	X		
57		14	Y	X		
58		9	N			
59		9	N			
60		11	N			
61		15	N			
62		8	N			
63		9	N			
64		11	N			
65		10	Y	X		
66		11	N			
67		18	Y		X	
		TOTAL	31	19	7	5

Mayfair House Core Log

6th Avenue, South Elevation

Core #	Photo Ref:	M.C. (%)	Visual (Y or N)	Visual Observations		
				Clean & Dry	Sheathing soft, swollen	Sheathing wet, moldy, decayed
1	1D	19	Y	X		
2	2D	15	Y	X		
3	3D	21	Y	X		
4	4D	23	Y	X		
5		15	Y	X		
6	6D	11	Y	X		
7		14	Y	X		
8		25	Y		X	
9		14	Y	X		
10		14	Y	X		
11		N/A				
12		N/A				
13		N/A				
14		N/A				
15		N/A				
16	16D	21	Y	X		
17		15	Y	X		
18		23	Y	X		
19		12	Y	X		
20		14	Y		X	
21		14	Y		X	
22	22D	17	Y			X
23		N/A				
24	24D	21	Y	X		
25	25D	21	Y	X		
26	26D	18	Y	X		
27		<10	Y			X
28		>50	Y			X
29		28	Y	X		
30		23	Y	X		
31	31D	31	Y		X	
32	32D	19	Y	X		
33	33D	19	Y	X		
34		16	Y		X	
35	35D	35	Y			X
36		18	Y	X		
37		N/A				
38		18	Y	X		
39		12	Y	X		
40		17		X		
41		41		X		
42		N/A				
43		23	Y		X	
44		35	Y			X
45		22	Y		X	
46		29	Y	X		
47		21	Y	X		
48		N/A				
49		12	Y	X		



Mayfair House Core Log

50		N/A				
51		11	Y	X		
52		N/A				
53		N/A				
54		38	Y			X
55		30	Y			X
56		15				
57		14				
58		19				
		TOTAL	43	29	7	7



Mayfair House Core Log

7th Avenue, South Elevation

Core #	Photo Ref:	M.C. (%)	Visual (Y or N)	Visual Observations		
				Clean & Dry	Sheathing soft, swollen	Sheathing wet, moldy, decayed
1		13	N			
2		10	N			
3		8	N			
4		8	N			
5		8	N			
6	20	19	Y		X	
7		16	N			
8		17	N			
9	19	20	Y		X	
10		18	N			
11		8	N			
12		9	N			
13		8	N			
14		11	N			
15		8	N			
16		9	N			
17		8	N			
18		7	N			
19		9	N			
20		16	N			
21		8	N			
22		10	N			
23		20	N			
24		9	N			
25		9	N			
26		8	N			
27		8	N			
28		8	N			
29		14	N			
30		16	N			
31		8	N			
32		8	N			
33		9	N			
34		8	N			
35		10	N			
36		9	N			
37		9	N			
38		8	N			
39		9	N			
40		8	N			
41		7	N			
42		7	N			
43		8	N			
44		8	N			
45		9	N			
46		10	N			
47		6	N			
48		7	N			



Mayfair House Core Log

49		8	N			
50		8	N			
51		7	N			
52		7	N			
53		8	N			
54		7	N			
55		10	N			
56		15	N			
57	21	30	Y		X	
58		11	N			
59		8	N			
60		10	N			
61		15	N			
62		14	N			
63		14	Y	X		
64		10	N			
65		18	N			
66		9	N			
67		13	N			
68		6	N			
69		9	N			
70		18	Y	X		
71		9	N			
72		8	N			
73		9	N			
		TOTAL	5	1	3	

Mayfair House Core Log

7th Avenue, North Elevation

Core #	Photo Ref:	M.C. (%)	Visual (Y or N)	Visual Observations		
				Clean & Dry	Sheathing soft, swollen	Sheathing wet, moldy, decayed
1		18	N			
2		13	N			
3		11	N			
4		14	N			
5		30	Y	X		
6		8	N			
7		14	N			
8		10	N			
9		15	N			
10		10	N			
11		11	N			
12		11	N			
13		11	Y	X		
14		12	N			
15		11	N			
16		11	N			
17	24	14	Y			X
18		10	N			
19		9	N			
20		10	N			
21		10	N			
22		10	N			
23		15	N			
24		11	N			
25		10	N			
26		12	N			
27		17	N			
28		8	N			
29		9	N			
30		8	N			
31		10	N			
32		9	N			
33		8	N			
34		9	N			
35		7	N			
36		17	N			
37	25	25	Y		X	
38		8	N			
39	26	15	Y	X		
40	27	9	Y	X		
		TOTAL	6	4	1	1



Mayfair House Core Log

7th Ave. East Elevation

Core #	Photo Ref:	M.C. (%)	Visual (Y or N)	Visual Observations		
				Clean & Dry	Sheathing soft, swollen	Sheathing wet, moldy, decayed
1		16	N			
2		20	N			
3		15	N			
4		18	N			
5		13	N			
6		6	N			
7		7	N			
8	22	>35	Y			X
9		>35	Y	X		
10		16	N			
11		14	N			
12		10	N			
13		8	N			
14		22	N			
15	23	22	Y			X
		TOTAL	3	1	0	2



Mayfair House Core Log

Highbury Street, East Elevation

Core #	Photo Ref:	M.C. (%)	Visual (Y or N)	Visual Observations		
				Clean & Dry	Sheathing soft, swollen	Sheathing wet, moldy, decayed
1	29	>35	Y		X	
2	28	15	Y	X		
3	30	17	Y			X
4	31	18	Y	X		
5	32	>35	Y		X	
6		18	Y			
7	33	12	Y			X
8	34	12	Y	X		
9	35	23	Y		X	
10	36	18	Y	X		
11	37	>35	Y			X
12		12	N			
13		12	N			
14	40	>35	Y			X
15		12	N			
16		9	N			
17	43	8	Y	X		
18		8	N			
19	44	15	Y	X		
20		25	N			
21	46	22	Y			X
22		18	N			
23		15	Y	X		
24		14	N			
25	45	16	Y	X		
26		15	N			
27	38	18	Y	X		
28		12	N			
29		10	Y	X		
30		10	Y	X		
31		8	Y	X		
32		9	Y	X		
33		8	N			
34		10	Y	X		
35		10	N			
36	39	11	Y	X		
37		10	N			
38		8	N			
39		11	Y	X		
40		12	Y	X		
41		12	N			
42	41	20	Y	X		
43		8	N			
44		15	N			
45	42	12	Y	X		
46		13	N			
47		11	Y	X		
		TOTAL	28	20	3	5



Mayfair House Core Log

Highbury Street, West Elevation

Core #	Photo Ref:	M.C. (%)	Visual (Y or N)	Visual Observations		
				Clean & Dry	Sheathing soft, swollen	Sheathing wet, moldy, decayed
1		9	N			
2		6	N			
3		12	Y	X		
4		N/A	Y	X		
5		12	Y	X		
6		18	N			
7		11	N			
8		20	N			
9		14	N			
10		20	N			
11		10	N			
12		12	N			
13	16	30	Y			X
14		22	N			
15		9	N			
16		12	N			
17		21	N			
18		14	N			
19		8	N			
20		18	N			
21		16	N			
22		21	Y		X	
23		N/A	Y	X		
24		8	N			
25		10	N			
26		10	N			
27		9	N			
28		7	N			
29		10	N			
30	17	14	Y	X		
31	18	15	Y	X		
32		15	Y	X		
33		12	N			
34		17	Y	X		
35		10	N			
		TOTAL	10	8	1	1



APPENDIX B: Photographs

Mayfair House

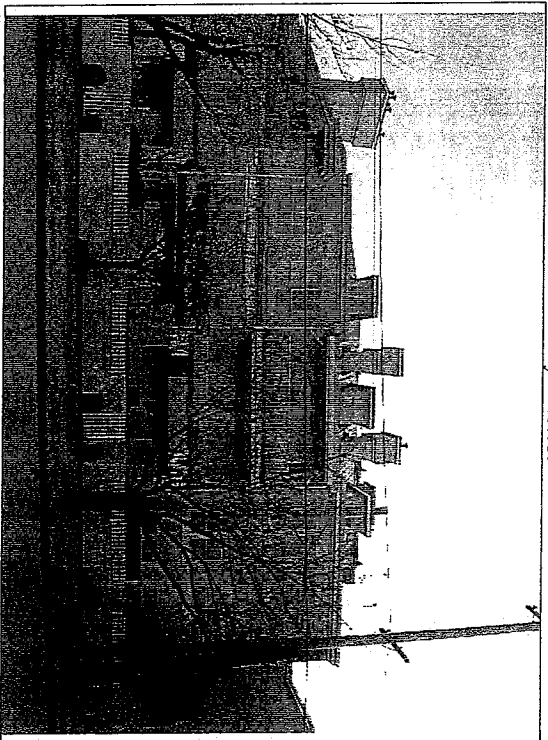


Photo No. 1: Partial overview of Highbury Street, West elevation. Note work in progress at balconies and units 302/303.

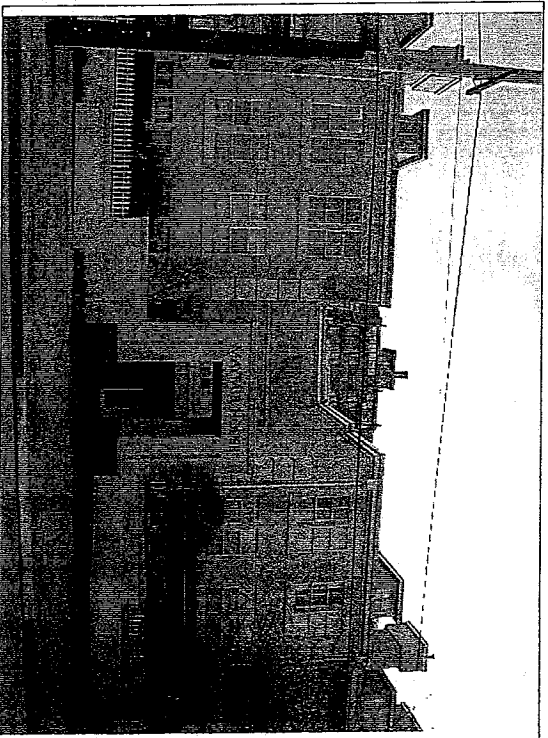


Photo No. 2: Partial overview of Highbury Street, West elevation. Note work in progress at balconies and units 216/217.

Mayfair House



Photo No. 3: Partial overview of Highbury Street, East elevation. Note work in progress at balconies and units 101/201/301.

Mayfair House

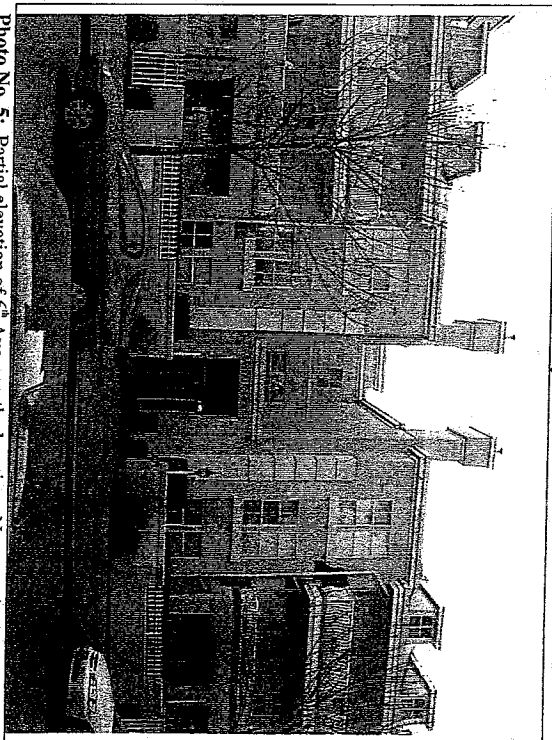


Photo No. 5: Partial elevation of 6th Ave., north elevation. Note repairs in progress at balcony rails and saddle/wall transitions.

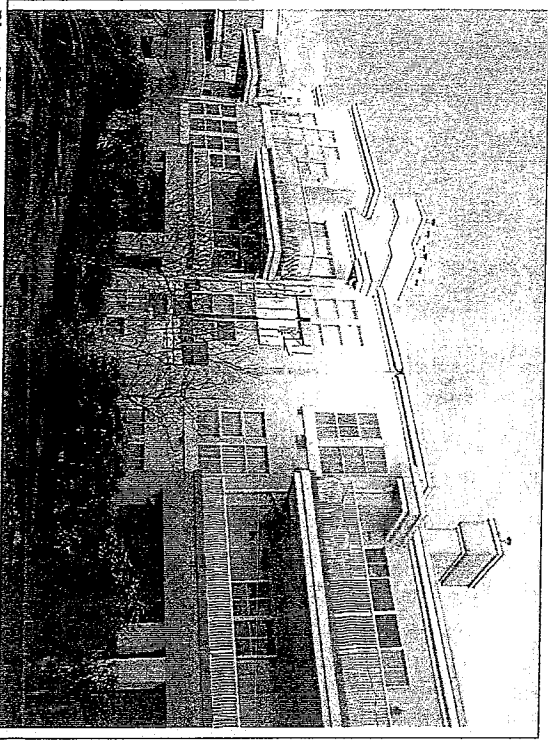


Photo No. 4: Partial overview of 6th Ave., South elevation. Note work in progress at balconies (units 208 and 212) and unit 210/310 walls.

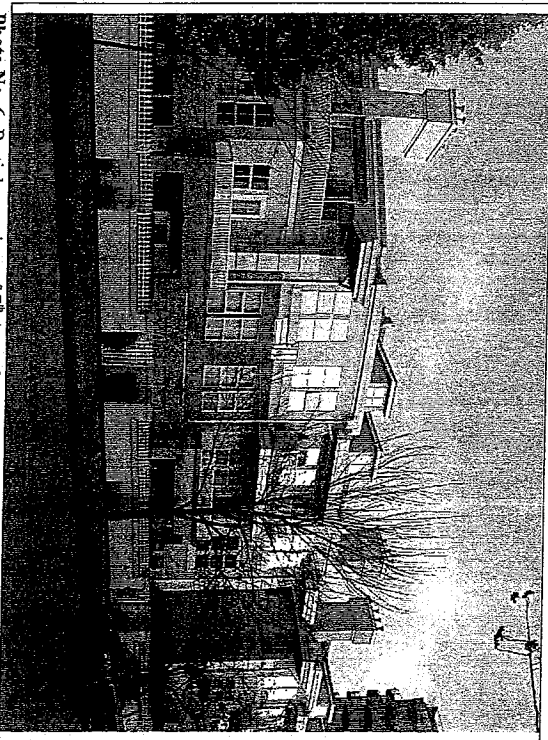


Photo No. 6: Partial overview of 7th Ave., South elevation. Note work in progress at balconies (unit 119) and unit 219/220 walls.



Mayfair House

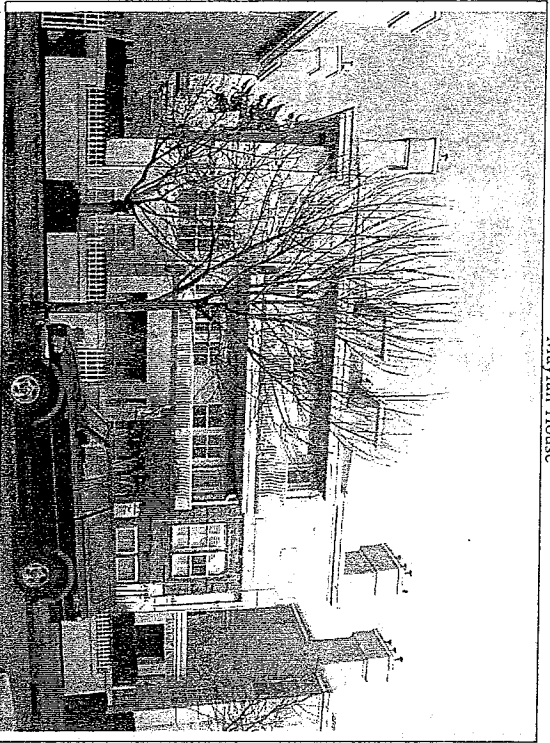


Photo No. 7: Partial overview of 7th Ave., South elevation. Note work in progress at balconies and unit 222 walls.

Mayfair House

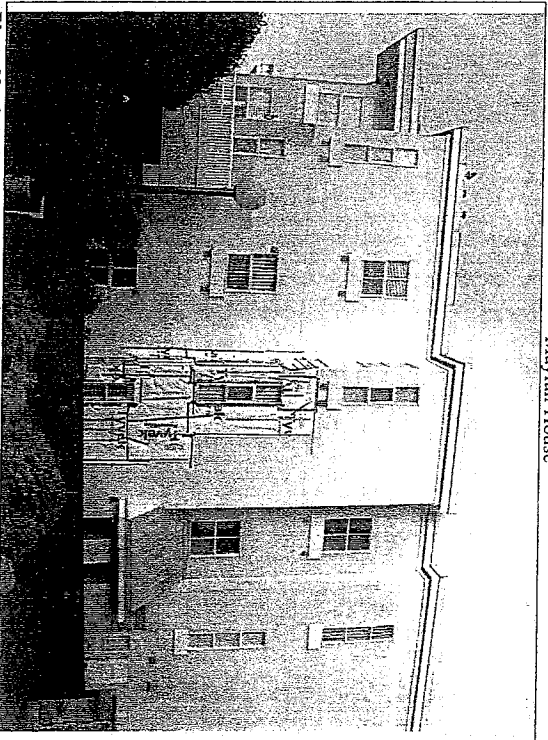


Photo No. 9: Partial overview of 7th Ave., East elevation. Note work in progress at units 125 and 228 walls.

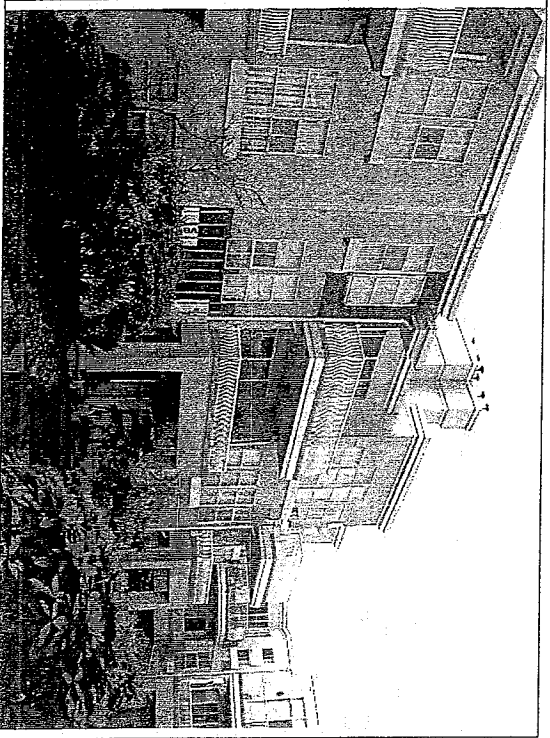
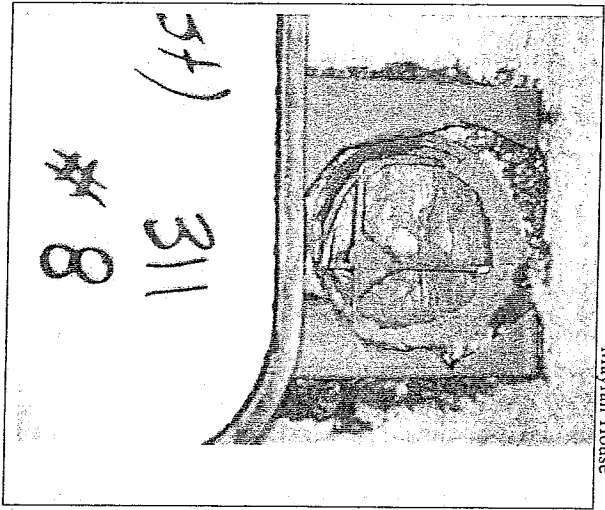


Photo No. 8: Partial elevation of 7th Ave., North elevation. Note repairs in progress at balconies and units 123 and 323 walls.



Mayfair House

Photo No. 10: Core #7, 6th Ave., north elevation. Sheathing is clean and dry, no deterioration visible, no corrosion of mesh.

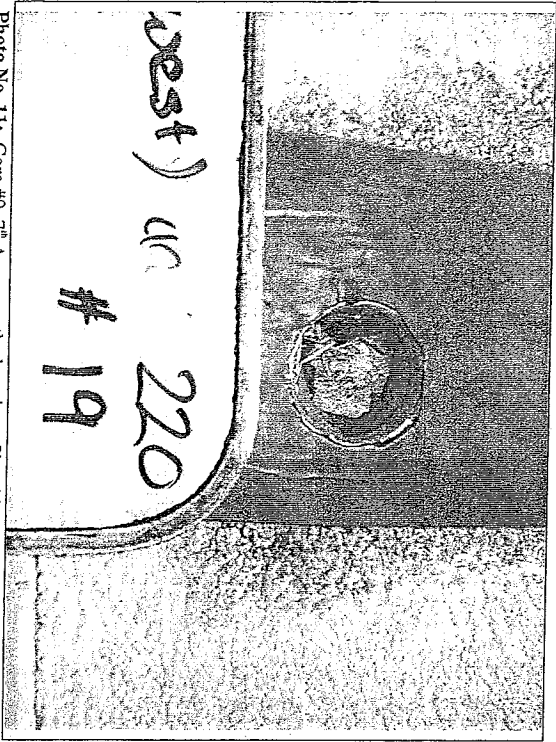


Photo No. 11: Core #9, 7th Ave., south elevation. Sheathing is soft and swollen with some flaking.



Mayfair House

Photo No. 12: Core #21, 6th Ave. north elevation. Sheathing is deteriorated, wet and evidence of mold is present.

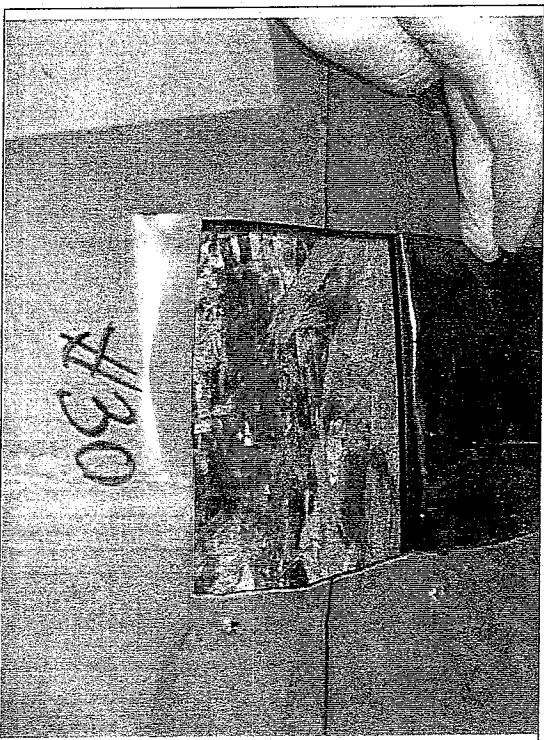
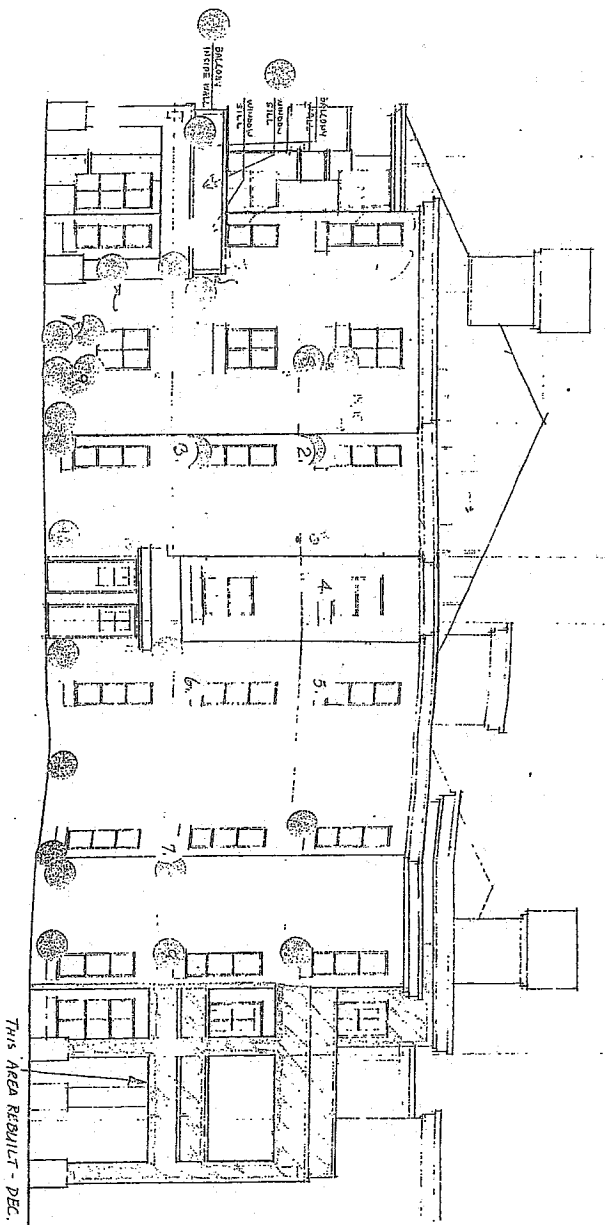


Photo No. 13: Core #3 Highbury Street, east elevation. Sheathing is dry, however there is evidence of mold.



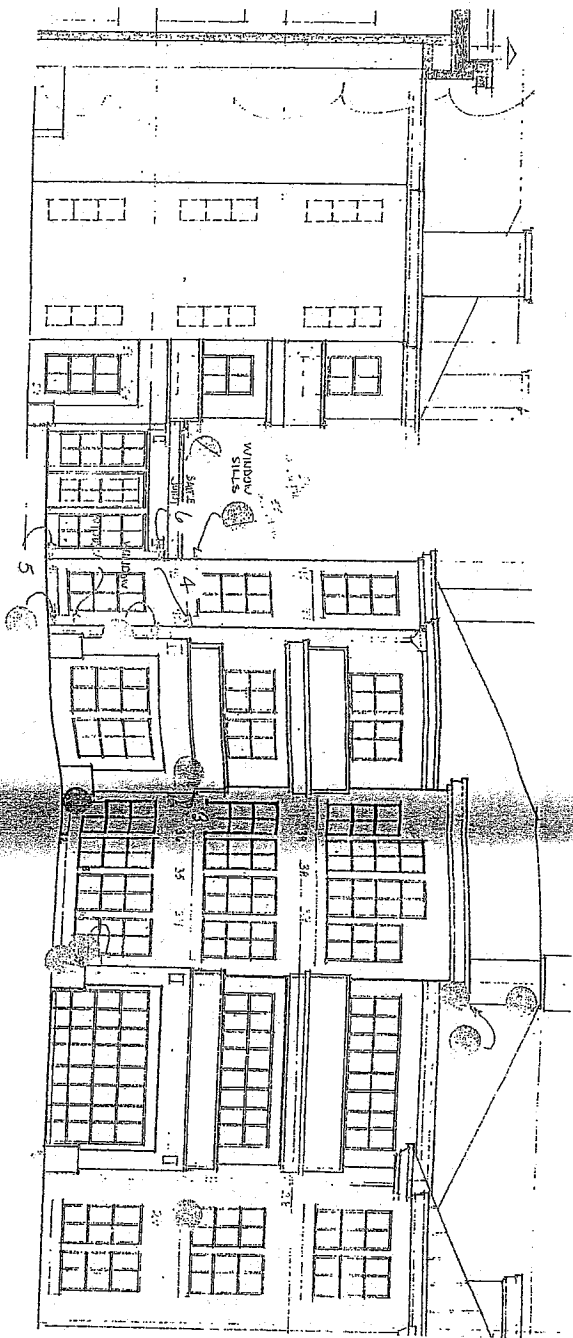
Wall Repairs (in progress)
Moisture Probe Location

REPRODUCED FROM BASE DRAWINGS A-7, A-8
BRYCE ROSITCH ARCHITECT, 1989

LEGEND

- MC > 35 %
- 20% < MC < 35%
- MC < 20%

McArthur Vankell Ltd.		DESIGNED:
MAYFAIR HOUSE		DRAWN :
MOISTURE SURVEY		PROJ. ENGR:
EAST ELEVATION, 7th Avenue		APPROVED:
SCALE N.T.S.	DATE FEBRUARY, 1989	DRAWING NO. 2



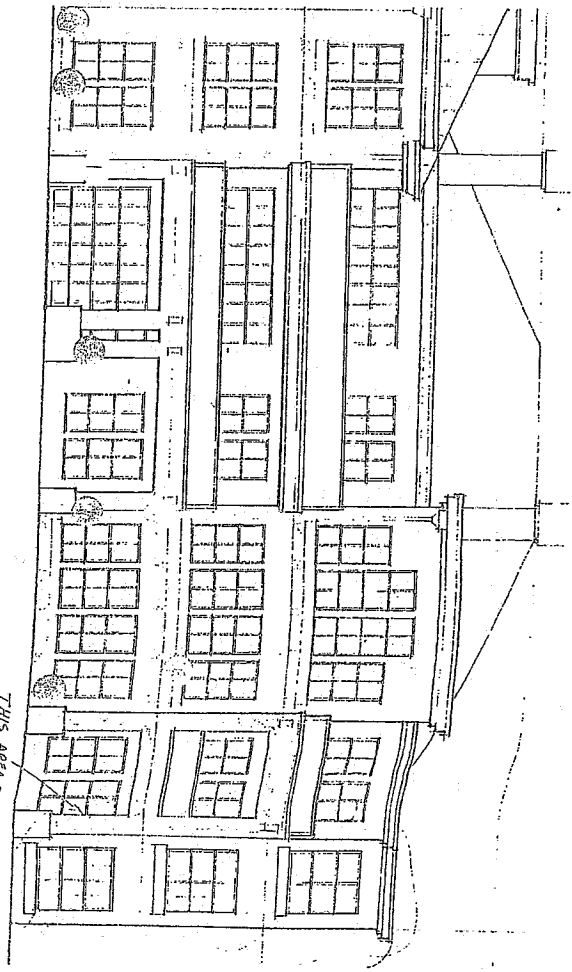
Wall Repair (in progress)
 Gallery Repair (in progress)
 Historic Preservation Location

LEGEND

MC > 35 %
 20% < MC < 35%
 MC < 20%

McArthur Vontell Ltd.		DESIGNED:
MAYFAIR HOUSE		DRAWN:
MOISTURE SURVEY		PROJ. ENGR:
SOUTH ELEVATION, 6th Avenue, West end		APPROVED:
SCALE: 1/16" = 1'-0"	DATE: FEBRUARY, 1989	DRAWING NO.: 4A

REPRODUCED FROM BASE DRAWINGS A-7, A-8
 BRYCE ROSITCH ARCHITECT, 1989



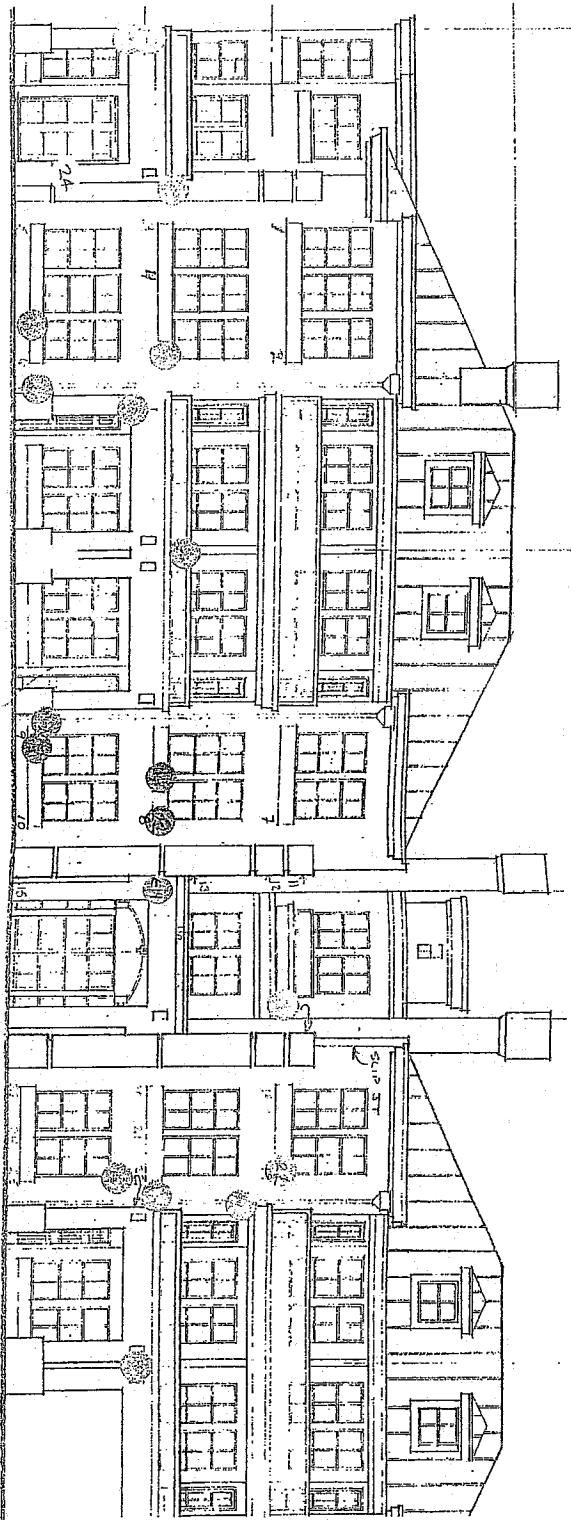
Wall Repairs (In progress)
 Balcony Repairs (In progress)
 Historic Photo Location

LEGEND

- IAC > 35 %
- 20% < IAC < 35%
- IAC < 20%

REPRODUCED FROM BASE DRAWINGS A-7, A-8
 BRYCE ROSITCH ARCHITECT, 1989

Lacklauer Ventell Ltd.		DESIGNED
LAWFAIR HOUSE		DRAWN :
MOISTURE SURVEY		PROJ. ENG.
SECTION ELEVATION, 6th Avenue, East end		APPROVED
32725	1" = 1'	DATE
		FEBRUARY, 1989
		DRAWING No.
		4B

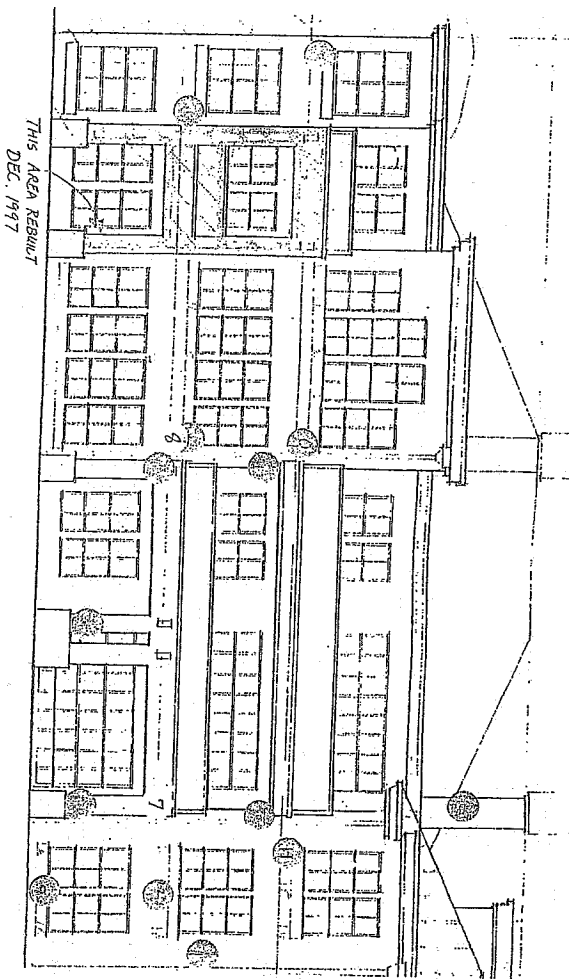


REPRODUCED FROM BASE DRAWINGS A-7, A-8
 BRYCE ROSTICH ARCHITECT, 1989

LEGEND

- MC > 35 %
- 20% < MC < 35%
- MC < 20%




McArthur Ventell Ltd.		DESIGNER:
MAYFAIR HOUSE		DRAWN:
MOISTURE SURVEY		PROJ. ENG.:
NORTH ELEVATION, 6th Avenue (East port)		APPROVED:
SCALE: N.T.S.	DATE: FEBRUARY, 1998	DRAWING No.: 10



Wall Repairs (In progress)
 Balcony Repairs (In progress)
 Moisture Probe Location

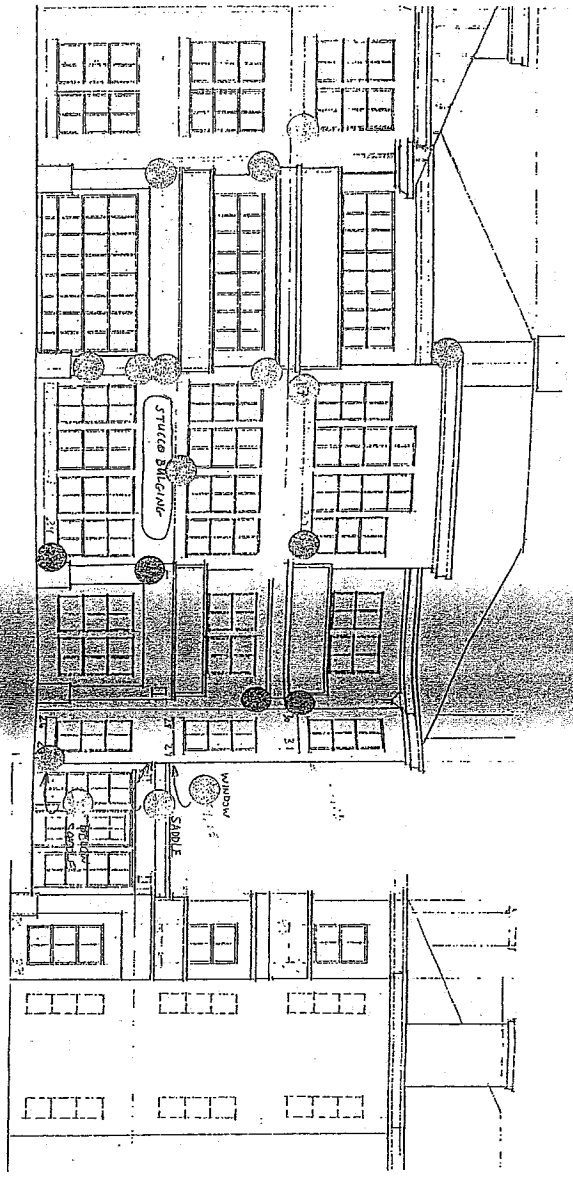
REPRODUCED FROM BASE DRAWINGS A-7, A-8
 BRYCE ROSITCH ARCHITECT, 1989

LEGEND

-  MC > 35 %
-  20% < MC < 35%
-  MC < 20%

McArthur Ventell Ltd.		DESIGNED:
MAYFAIR HOUSE		DRAWN:
MOISTURE SURVEY		APPROVED:
NORTH ELEVATION, 7th Avenue, East End		DRAWING NO.:
SCALE: M.S.	DATE: FEBRUARY, 1992	11B

243



Wall Repairs (In progress)
Balcony Repairs (In progress)
Moisture Probe Location

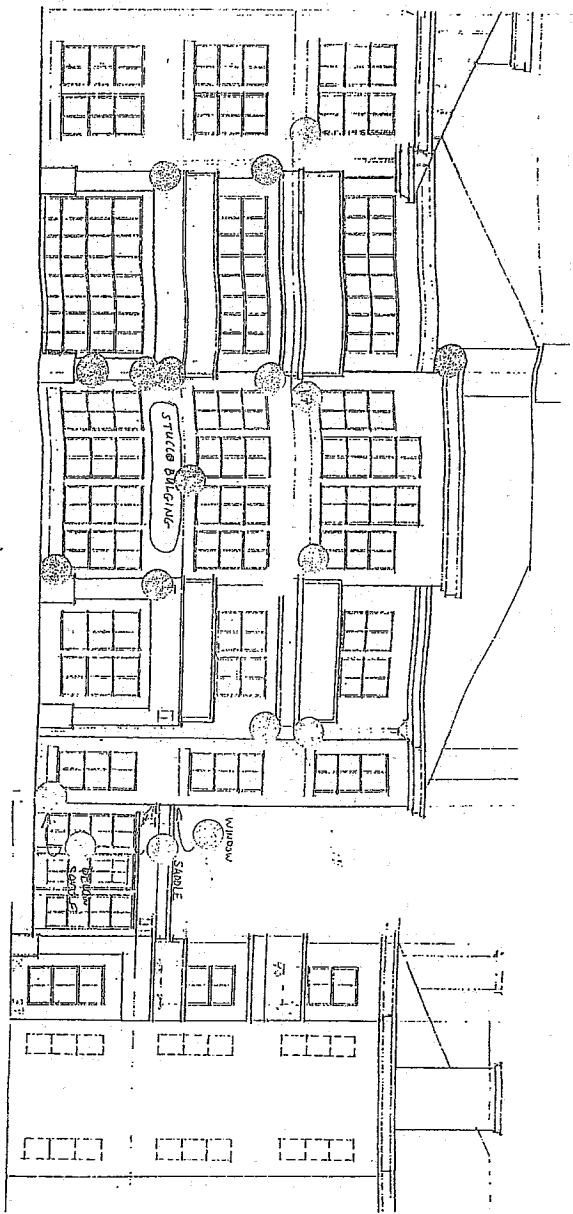
REPRODUCED FROM BASE DRAWINGS A-7, A-8
BRYCE ROSTICH ARCHITECT, 1989

LEGEND

- MC > 55 %
- 20% < MC < 35%
- MC < 20%

McArthur Vantell Ltd.		DESIGNED:
MAYFAIR HOUSE		DRAWN:
MOISTURE SURVEY		PROJ. ENGR:
NORTH ELEVATION, 7th Avenue, West end		APPROVED:
SCALE: N.T.S.	DATE: FEBRUARY 1988	DRAWING NO.:

243



Wall Repairs (In progress)
 Balcony Repairs (In progress)
 Moisture Probe Location

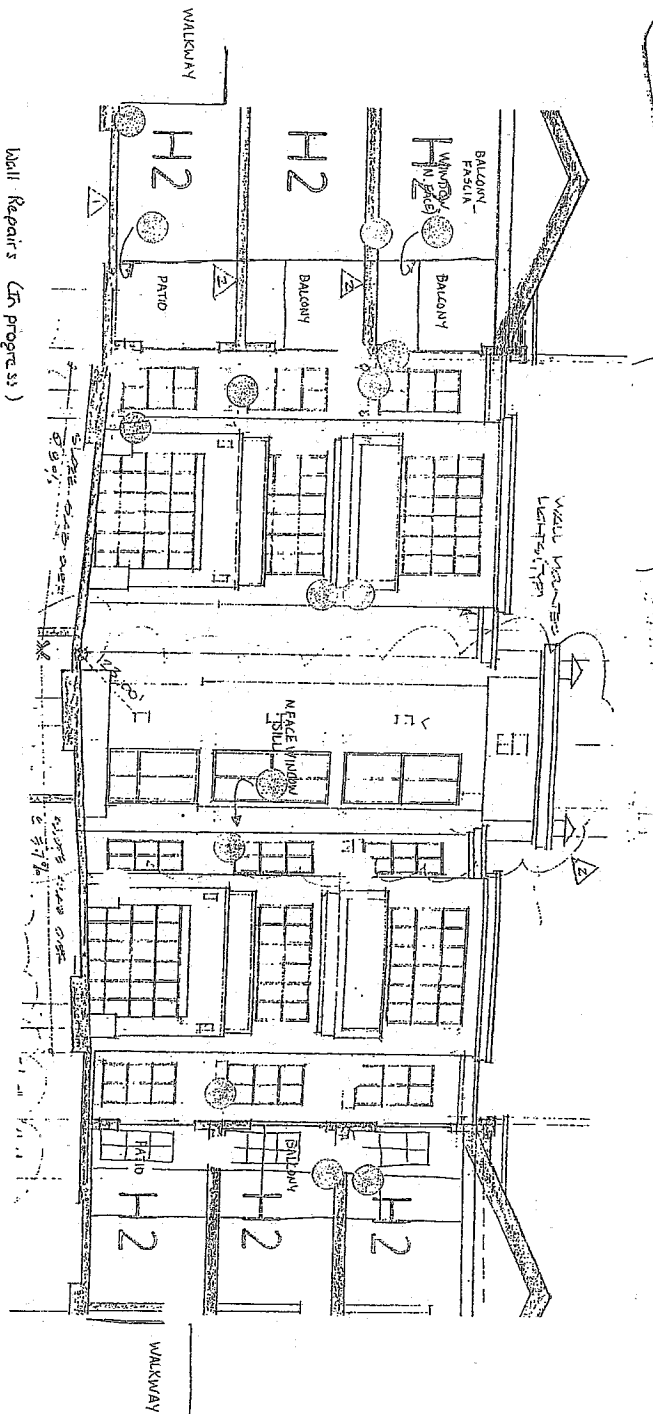
REPRODUCED FROM BASE DRAWINGS A-7, A-8
 BRYCE ROSITCH ARCHITECT, 1989

LEGEND

- I/C > 35 %
- 20% < I/C < 35%
- I/C < 20%

McArthur Vantell Ltd.		DESIGNED:
MAYFAIR HOUSE		DRAWN:
MOISTURE SURVEY		PROJ. ENG.:
NORTH ELEVATION, 7th Avenue, West end		APPROVED:
SCALE: N.T.S.	DATE: FEBRUARY, 1989	DRAWING NO.:

243



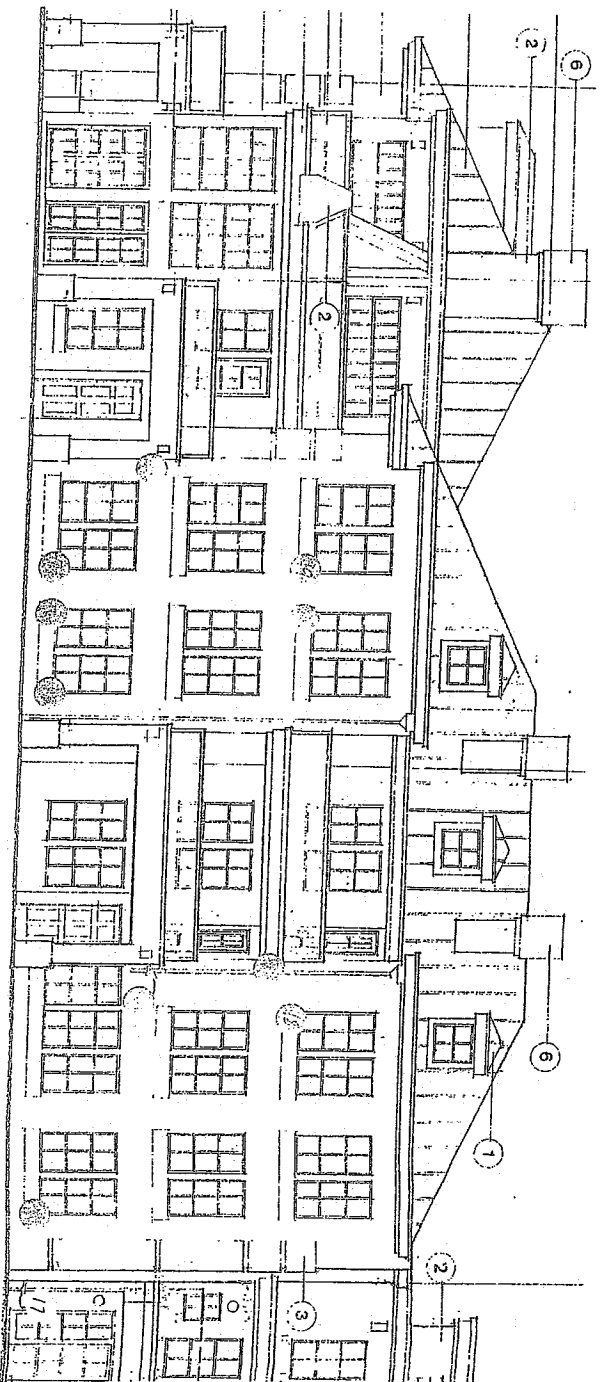
Wall Repairs (In progress)
 Balcony Repairs (In progress)
 Hoist/cable Fixation Location

REPRODUCED FROM BASE DRAWINGS A-7, A-8
 BRYCE ROSITCH ARCHITECT, 1989

LEGEND

- MC > 35%
- 20% < MC < 35%
- MC < 20%




McArthur Vontell Ltd.		DESIGNER
MAYFAIR HOUSE		DRAWN 1
MOISTURE SURVEY		PROJ. ENGR.
EAST ELEVATION, Highbury St.		APPROVED:
SCALE: N.T.S.	DATE: FEBRUARY, 1989	DRAWING NO.:



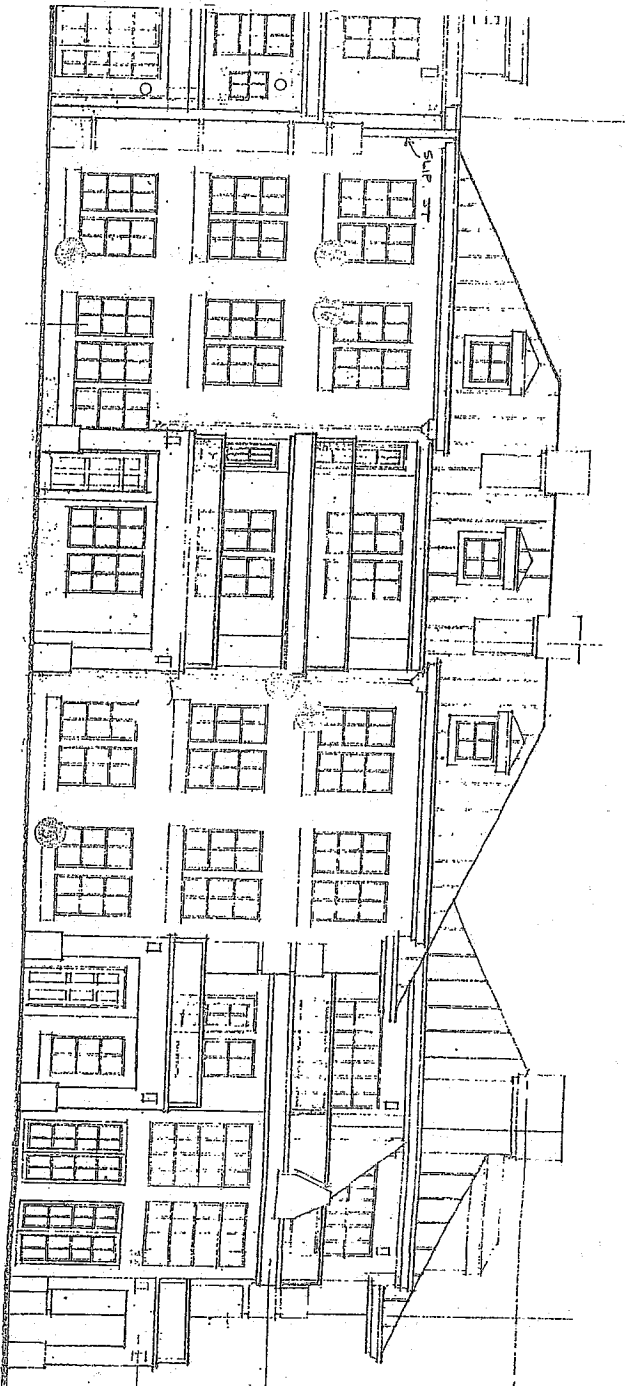
Wall Repairs (In progress)
 Balcony Repairs (In progress)
 Moisture Risk Location

REPRODUCED FROM BASE DRAWINGS A-7, A-8
 BRYCE ROSITCH ARCHITECT, 1989

LEGEND

-  MC > 35 %
-  20% < MC < 35%
-  MC < 20%

McArthur Vortell Ltd.		DESIGNER
MAYFAIR HOUSE		DRAWN BY
MOISTURE SURVEY		PROJ. ENG.
WEST ELEVATION, Highbury St. (North part)		APPROVED
SCALE: 1/125	COPY: FEBRUARY, 1988	DRAWING NO.



Wall Repair (in progress)
 Balcony Repair (in progress)
 Moisture Probe Location

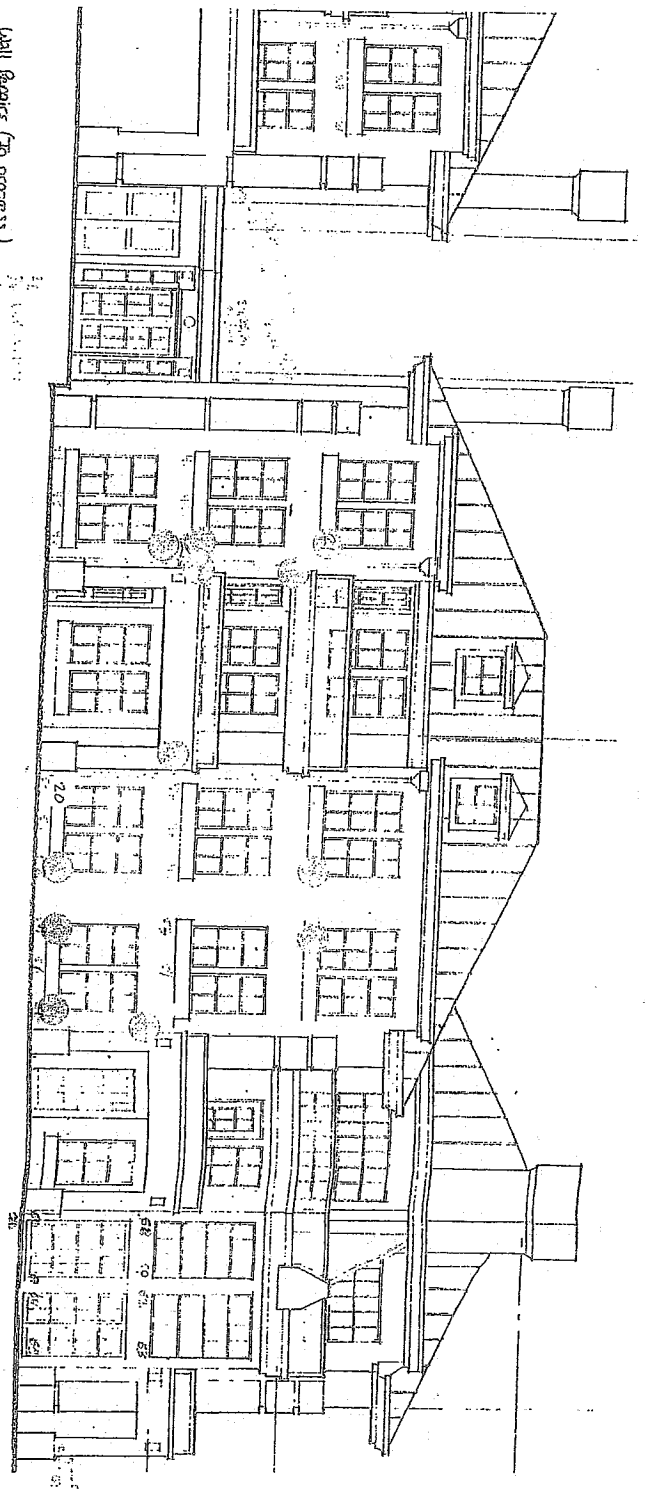
REPRODUCED FROM BASE DRAWINGS, A-7, A-8
 BRYCE ROSITCH ARCHITECT, 1989

LEGEND

- MC > 35 %
- 20% < MC < 35%
- MC < 20%

McArthur Ventell Ltd.	
MAYFAIR HOUSE	
MOISTURE SURVEY	
WEST ELEVATION, Highbury St. (South part)	
SCALE	N.T.S.
DATE	FEBRUARY, 1989
DESIGNED	
DRAWN	
PROJ. ENGR.	
APPROVED	
DRAWING No.	




243



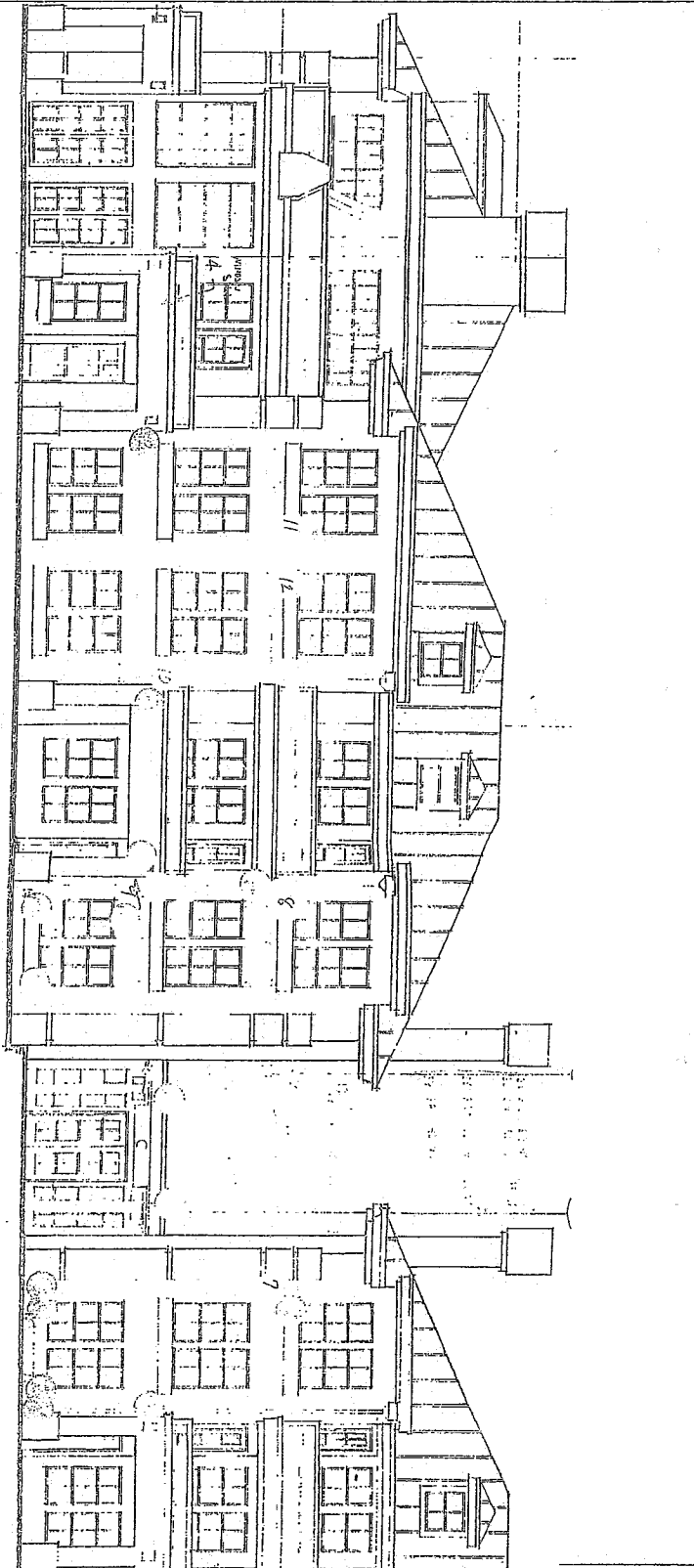
Wall Repairs (in progress)
Balcony Repairs (in progress)
Moisture Probe Location

REPRODUCED FROM BASE DRAWINGS A-7, A-8
BRYCE ROSITCH ARCHITECT, 1989

LEGEND

-  MC > 35 %
-  20% < MC < 35%
-  MC < 20%

McArthur Vanhail Ltd.		DESIGNED:
MAYFAIR HOUSE		DRAWN 1
MOISTURE SURVEY		PROJ. ENGR.
NORTH ELEVATION, 6th Avenue (West part)		APPROVED:
SCALE: 1/16" = 1'-0"	DATE: FEBRUARY, 1988	DRAWING INC.



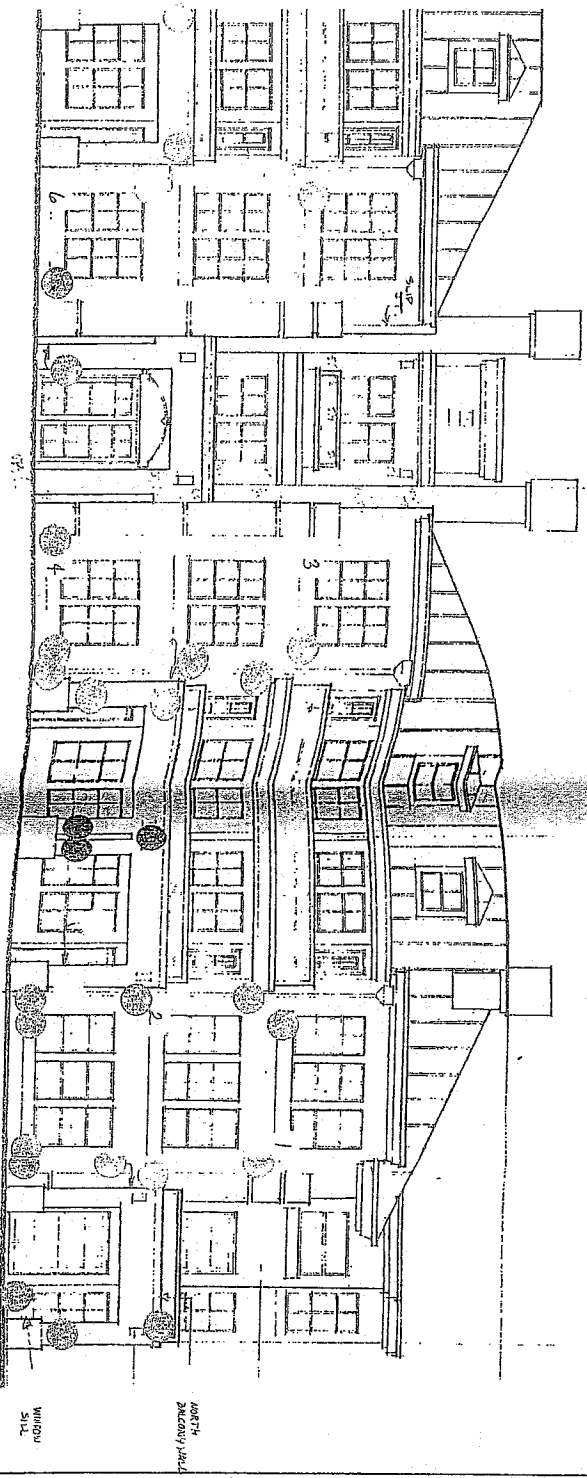
Wall Repairs (In progress)
 Balcony Repairs (In progress)
 Holsture Robs Location

REPRODUCED FROM BASE DRAWINGS A-7, A-8
 BRUCE ROSITCH ARCHITECT, 1989

LEGEND

- I/C > 25 R
- ◐ 20% < I/C < 25%
- ◑ I/C < 20%

McArthur Ventell Ltd.		DESIGNED:
MAYFAIR HOUSE		DRAWN :
MOISTURE SURVEY		PROJ. ENG.:
327TH ELEVATION, 7th Avenue (West part)		APPROVED:
SCALE: 1/2" = 1'-0"	DATE: FEBRUARY, 1989	DRAWING NO.:



Wall Repairs (50% progress)
 Balcony Repairs (75% progress)
 Moisture Probe Location

REPRODUCED FROM BASE DRAWINGS A-7, A-8
 BRYCE ROSITCH ARCHITECT, 1989

LEGEND

- MC > 35%
- 20% < MC < 35%
- MC < 20%

McArthur Ventell Ltd.		DESIGNER:
MAYFAIR HOUSE		DRAWN:
MOISTURE SURVEY		PROJ. ENGR.
SOUTH ELEVATION, 7th Avenue (East part)		APPROVED:
SCALE: 1/16" = 1'-0"	DATE: FEBRUARY, 1988	DRAWING No.: